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Examination Regulations

for Electrical and Electronics Engineering B.Sc.

Faculty of Technology and Bionics at Rhine-Waal University of Applied Sciences

> Dated 9 January 2018 (Official Notice 21/2018)

As amended by the third amending statutes

Dated 19 June 2024 (Official Notice 11/2024)

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Section 1 Scope

These examination regulations apply to Electrical and Electronics Engineering B.Sc., offered in English at the Faculty of Technology and Bionics of Rhine-Waal University of Applied Sciences, in conjunction with the General Examination Regulations ("RPO") of Rhine-Waal University of Applied Sciences. They govern the full-time, seven-semester mode of study.

Section 2 Academic objectives; purpose of examination; degree awarded

(1) The bachelor's examination forms the basis for the professionally qualifying nature of this bachelor's degree. The overall aims and objectives for the degree programme are outlined in Section 3 RPO. A strong command of English is key to success in this degree programme, as it provides the essential basis for the programme's continuous objective of expanding and honing students' professional language skills.

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

Section 3 Admission requirements

(1) General admission requirements are defined in Section 4 RPO.

(2) Intentionally omitted.

(3) A "related or comparable programme of study" within the meaning of Section 4 (6) RPO is defined as any bachelor's or *Diplom* degree programme at a university or university of applied sciences if the vast majority of said programme's contents are attributable to engineering, with an emphasis on electrical engineering.

(4) Sufficient proficiency in English can be demonstrated by a recognised language certificate for the CEFR level B2 (Common European Framework of Reference for Languages).

(5) Applicants are exempted from this language certificate requirement if they acquired proficiency in English equivalent to level B2 as part of their university entrance qualification at a secondary school in Germany. This is considered to be the case for applicants who have successfully completed at least seven years of English at a German secondary school and earned a final mark of at least "sufficient" (4.0 or better on the German grading scale).

(6) The admissions process and requirements for non-EU international applicants are set forth in the Entrance Examination Regulations for Electrical and Electronics Engineering B.Sc. at Rhine-Waal University of Applied Sciences dated 24 March 2014.

Section 4 Basic internship

(1) The basic eight-week internship as defined by Section 4 (3) RPO should be completed at an external company, public office or other organisation and familiarise students with questions and matters relating to materials engineering, general engineering, business organisation and business economics.

(2) The requirements for the aforementioned focus areas in the basic internship are set forth in the Internship Regulations for Engineering Programmes of the Faculty of Technology and Bionics at Rhine-Waal University of Applied Sciences.

Section 5 Programme structure; Volume of instruction hours; Progression of studies

(1) The total volume of instruction for this degree programme is 134 semester hours (SWS).

(2) The modules of this degree programme comprise a total of 210 credits according to the ECTS framework defined in Section 6 (5) RPO.

(3) Intentionally omitted.

(4) Additional information about the breakdown of this degree programme and the type, form and scope of modules is available in the study and examination plan in the annex. Additional information about learning outcomes, qualification aims, contents and forms of examination is available in the corresponding module guide, which is available for viewing in the faculty's central office.

(5) Progression in this degree programme is subject to the following thresholds:

(a) In order to register for examinations scheduled for the fourth semester or higher, students must have earned at least 53 credits from modules scheduled for the first two semesters of study according to the study and examination plan. This prerequisite does not apply to the elective module Foreign Language.

(b) In order to register for examinations scheduled for the fifth semester or higher, students must have earned at least 63 credits from modules scheduled for the first two semesters of study according to the study and examination plan. This prerequisite does not apply to the elective module Foreign Language.

(c) The admission prerequisites for the internship semester / study abroad semester remain unaffected.

(6) For the elective module Foreign Language, non-native speakers of German should register for a German course. Native speakers of German may register for any other language course offered.

Section 6 Internship semester; semester abroad

(1) Support for students seeking an internship (see Section 21 (4) sentence 1 RPO) as well as the option of an applied project at the University instead of an internship (see Section 21 (4) sentence 2 and 3 RPO) are excluded for this degree programme in accordance with Section 21 (4) sentence 4 RPO.

(2) Deviating from Section 22 (5) and (7) RPO, the following additional requirements apply to study abroad semesters. Students planning a semester abroad must complete modules/courses worth a minimum of 30 credits (or the full-time equivalent of the host university). The semester abroad can only be recognised in full if at least 30 credits (or the full-time equivalent) were successfully earned and confirmed by an official certificate from the host university. Students who earned fewer than 30 credits, but at least 15 credits, must complete additional modules at Rhine-Waal University of Applied Sciences to make up for the difference and receive full credit (30 credits) for the semester abroad.

(3) The study abroad semester is considered failed if fewer than 15 credits were earned.

(4) Students planning a study abroad semester must conclude a learning agreement with the faculty advisor designated in the module guide, which clearly defines the modules they intend to complete at the host university.

(5) Students who are unable to adhere to their learning agreement for reasons out of their control must report their circumstances to the Examination Board without delay to arrange a new learning agreement. If students fail to report in, the Examination Board can decide in justified cases whether to accept credits from modules or courses that were not outlined in the learning agreement.

Section 7 Scope of examinations

(1) The time allotted for a written examination depends on the number of credits. As a rule, 30 minutes are allotted for every one credit point, though the total duration should not exceed two hours.

(2) An oral examination generally takes between 30 and 45 minutes.

(3) Assignments, term papers or projects should generally not exceed approx. 10,000 words (or approx. 30 pages, DIN A4).

Section 8 Scope and form of the thesis

(1) The main text portion of the thesis should generally be between 15,000 words (or approx. 50 pages, DIN A4) and approx. 25,000 words (or approx. 70 pages, DIN A4) in length. The thesis may also be supplemented with other media, provided the use of said media as additional documentation is appropriate and helpful within the context of the assigned task. In this case, the length of the text portion of the thesis may deviate from the aforementioned minimum requirement.

(2) The thesis can also be admitted as group work if each student's individual contribution fulfils the requirements set forth in Section 23 (1) RPO and is clearly distinguishable (and thus assessable) thanks to clear and distinct delimitation by sections, page numbers or other criteria.

Section 9 Admission to the thesis and colloquium

(1) In addition to the requirements for admission to the thesis defined under Section 24 (1) no. 3 RPO, students must also have earned at least 175 credits.

(2) In addition to the requirements for admission to the colloquium defined under Section 27 (2) no. 3 RPO, students must also have earned at least 207 credits.

Section 10 Credit values for the thesis and colloquium

(1) Twelve credits are awarded for passing the bachelor's thesis.

(2) Three credits are awarded for passing the colloquium.

Section 11 Conferral of the bachelor's degree

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

Section 12 Entry into force and expiry

(1) These examination regulations will enter into force on the day after their publication in the Official Notices of Rhine-Waal University of Applied Sciences. They apply to students who first enrolled in Electrical and Electronics Engineering B.Sc. of the Faculty of Technology and Bionics of Rhine-Waal University of Applied Sciences in or after winter semester 2017-18.

(2) These examination regulations will expire on 28 February 2030.

<u>Note</u>: The current version of these examination regulations entered into force on 1 August 2024.

Annex 1 from 18 December 2019:

Curricul	um El	HPW			т	ype			Examina	СР	HPW							
Curricui		HPW	v	SL	s	Ü	Pra	Pro	Attestation	graded	CP	WS1	SS2	WS3	SS4	WS5	SS6	WS7
1 st Semeste	er																	
2000	Introductory Mathematics	8	5			3		I I		x	8	8		1				T
2008	Statics and Strength of Materials	4	2			2				x	5	4						
2011	Programming	4	2				2		x	x	5	4						
2013	Business Economics & Project Management	4	3				1		x		5	4						-
2300	Introduction to Electrical Engineering	3	2		1				x		3	3						
2301	Electrical Engineering I	4	2			1	1		x	x	5	4						
2 nd Semest	er .																	
2001	Applied Mathematics	8	5			3		1		x	7		8	1				T
2003	Physics	4	2			1	1		x	x	5		4					-
2012	Advanced Programming	4	2				2		x	x	5		4					-
2302	Electrical Engineering II	4	2			1	1		x	×	5		4					-
2303	Digital Electronics	4	2			1	1		x	x	5		4					1
2304	Analog Electronics	4	2			1	1		x	x	5		4					
3 rd Semest	er												1					
2014	Cross-Cultural Management and Creativity	4	2	1	1	2		1	x		5	1		4				T
2306	Microcontrollers	4	2				2		x	x	5			4				1
2307	Fields and Waves	4	2			2				х	5			4				
2308	Signal Transmission	4	2			1	1			x	5			4				
2309	Object oriented Programming	4	2				2			x	5			4				1
2901	Drives and Power Electronics	4	2			2				x	5			4				1
4 th Semeste	er																	
2323	Materials and Manufacturing of Electronics	4	3			1				x	5				4			
2311	Embedded Systems	4	2				2			х	5				4			
2310	Signal Processing & Measurement Technology	4	1			1	2			x	5				4			
2902	System Theory and Controls	4	2			1	1			x	5				4			
	Focus Field (see catalogue individual subjects: Focus Fields)																	
	Focus Field Subject 1	4									5				4			
	Focus Field Subject 2	4									5				4			L
5 th Semeste	er																	
2015	Group Project	1						1	x		5					1		
2312	Microelectronic Control Systems	4	2			1	1		x		5					4		
2325	Communication Networks	4	2			2				x	5					4		
2314	Practical Electronics	4	2			1	1			x	5					4		
	Focus Field (see catalogue individual subjects: Focus Fields)	- T			r –													
	Focus Field Subject 3	4				-					5					4		
th -	Focus Field Subject 4	4									5					4		
6 th Semeste							n						r					
2016	Internship / Semester abroad								х		30							
7 th Semest																		
2017	Bachelor Thesis									x	12							
2018	Colloquium		l			I		I		x	3			I				L
2510	Technology and Innovation Management	4	2				2			x	5							4
2512	Entrepreneurship	2						2	x		2							2
	Elective (see catalogue individual subjects: Electives)	3									5							3
Overview		133	v	SL	s	Ü	Pra	Pro	Attestation	graded	210	27 WS1	28 SS2	24 WS3	24 SS4	21 WS5	SS6	9 WS7
Overview		HPW	1		-	ype			Examina	lon form	CP	WS1	552	W53	554	WSS	220	1 WS7

Catalogue Individual Subjects EL					т	ype			Examination form					HPW				
		HPW	v	SL	s	Ü	Pra	Pro	Attestation	graded	CP	WS1	SS2	WS3	SS4	WS5	SS6	WS7
Focus Fi	elds */**/***/****																	
	Focus Field Electronics	12	8			4	0				20				6	6		
2315	Low Power Design	3	2			1				x	5				3			
2316	Design of env. friendly Circuits and Recycling of Electr.	3	2			1				x	5				3			1
2317	Opoelectronics	3	2			1				х	5					3		1
2318	Nanoelectronics	3	2			1				x	5					3		1
	Focus Field Communication	13	7			3	3	1			20			1	6	7		1
2319	Mobile Information Devices	3	2				1			x	5				3			
2320	Audio & Speech Processing	3	2				1			x	5				3			1
2321	Biomedical Electronics	4	2			2				x	5					4		1
2322	Networks in Industrial Automation	3	1			1	1			x	5					3		1
	Focus Field Controls	15	8			4	3				20				7	8		1
2002	Numerical Mathematics	4	2			2				x	5				4			
2324	Brain Computer Interfaces	3	2				1			x	5				3			1
2903	Controls	4	2			1	1			x	5					4		
2907	Sensors & Actuator Networks	4	2			1	1			x	5					4		
	Aternative Modules*	8									10							
2020	Foreign Language / free elective	4									5				4			
2020	Foreign Language / free elective	4									5					4		
Electives	i																	
2019	Scientific Methods (Block or online)	4	2			2			х		5							4
2020	Foreign Language								x		5			1				1
2021	Module from any other Bachelor study course HSRW				1		1		x	x	5		1	1	1	1		1

Bei Wahl eines dieser Alternativmoduk kann HPW Semesterwochenstunden / hours per week CP Kreditpunke / credit points S Seminariskelske Vorderung / seminar lecture S Seminariskelske Vorderung / seminar lecture D Point / pointskel vorderung / seminariskel Point Pointskel / pointskel vorder Pointskel / pointskel / winder semester SSx Sommensemester / summer semester

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