HOCHSCHULE RHEIN-WAAL
Rhine-Waal University of Applied Sciences

Examination Regulations

for the Bachelor study course

„Engineering“

at Rhine-Waal University of Applied Sciences

from 18.02.2025

(Official Notice: 09/2025)

as amended by the first amending statutes

from 10.10.2025 (Official Notice: xx/2025)

Content

Section 1
Scope

These examination regulations apply to the undergraduate degree programme Mechanical 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 (*Bachelorprüfung*) forms the basis for the professionally qualifying nature of this bachelor's degree. The overall aims and objectives for this degree programme are outlined in Section 3 RPO.

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

(3) One of the specialisation paths defined in Annex 3 can be included on the graduation certificate if the graduate has successfully completed all accompanying requirements.

Section 3
Admission requirements

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

(2) Applicants are ineligible for admission if they have failed the final attempt at a mandatory examination in a previous degree programme that was very similar content-wise to this degree programme and offered by a university subject to German Basic Law.

(3) Section 4 (5a) RPO governs English language proficiency requirements.

(4) Proof of completion of an Online Self-Assessment (OSA) is required for enrolment.

Section 4
Basic internship

Proof of completion of a basic internship within the meaning of Section 4 (3) RPO is not required.

Section 5
Programme structure; volume of instruction hours; progression of studies

(1) The total volume of instruction for this degree programme is 114 credit hours per week (HPW, or SWS in German).

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

(3) 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 module handbook.

(4) Successful completion of the module “2405 Mentoring” is a prerequisite for admission to module examinations from the fourth semester onwards. As a rule, students may only sit for module examinations if they have successfully completed all prerequisites for the module. These prerequisites generally involve successfully completing specific modules from previous semesters. The prerequisites for each module are set forth in Annex 2.

(5) A first technical specialisation comprising 48 credit points must be chosen and completed in full. The first specialisation is chosen on a binding basis when registering for the first assessment in a module from the specialisation area. The first specialisation can be changed once upon application to the Examination Board, provided that fewer than 24 credits have been achieved in this specialisation at the time of application. In addition, modules worth 48 credits from the specialisation area must be completed. To this end, either a second specialisation can be completed in full. Alternatively, eight modules that have not yet been completed from the remaining specialisations can be selected.

(6) *Intentionally omitted*.

(7) The faculty reserves the right to change the range of elective modules on offer. The contents of each elective are described in the current module handbook.

Section 6
Internship semester; semester abroad

(1) Internship semester requirements are defined in Section 21 RPO. Support for students in finding an internship or the option of an applied project at the university in lieu of an internship semester is excluded for this degree programme in accordance with Section 21 (4) sentence 4 RPO.

(2) The study abroad semester is governed by Section 22 RPO. Deviating from Section 22 (5) and (7) RPO, the following requirements apply to study abroad semesters: Students planning a study abroad semester must complete modules/courses worth a minimum of 20 credits (or the corresponding proportion of the full-time equivalent of the host university). The study abroad semester can only be recognised in full if the successful completion of modules can be proven with an official certificate from the host university. Students who earn fewer than the minimum of 20 credits or the equivalent, but at least 15 credits or equivalent, must earn at

least 5 additional credits at Rhine-Waal University of Applied Sciences to make up for the difference and receive full recognition for the study abroad semester.

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

(4) Students planning a study abroad semester must conclude a learning agreement which clearly defines the modules they intend to complete at the host university.

(5) If a student is unable to adhere to the learning agreement for reasons beyond their control, the Examination Board will decide on the recognition of other courses/modules.

Section 7
Scope of examinations

(1) The time allotted to students for a written examination is based on the number of obtainable credits and will not exceed 120 minutes. As a rule, 30 minutes will be allotted for each credit point.

(2) The length of an oral exam is approximately 30 minutes per person, but should be at least 20 and no more than 45 minutes.

(3) The scope of assignments, term papers and projects will be decided by the examiner, but should generally not exceed 3000 words (approx. 10 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 (approx. 50 pages, DIN A4) and 20,000 words (approx. 70 pages, DIN A4) in length. The thesis may also be supplemented with other media, provided their use 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 submitted 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) due 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 thesis admission requirements defined under Section 24 (1) RPO, proof of 183 credit points must be provided, including the module "2410 Group Project"

(2) In addition to the colloquium admission requirements defined under Section 27 (2) RPO, students must have obtained 207 CP.

Section 10
Credit values for the thesis and colloquium

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

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

Section 11
Conferral of the bachelor's degree

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

Section 12
Entry into force

These examination regulations will enter into force on the day after publication in the Official Notices of Rhine-Waal University of Applied Sciences. They apply to students who first enrolled in the Engineering, B.Sc. at the Faculty of Technology and Bionics of Rhine-Waal University of Applied Sciences in or after winter semester 2025-26.

Note: These examination regulations entered into force in their present version on xx xx 2025.

Annex 1: Curriculum

Module code	Module name	CP	HPW	L	E	S	PT	Pro	Evaluation form	
									Pass/fail	Graded
	SEMESTER 1									
2400	Mathematics 1	6	6	4	2					X
2401	Mechanics	6	4	2	2					X
2402	Programming	6	4	2			2		X	X
2403	Electrical Engineering 1	6	4	2	1		1		X	X
2404	Fundamentals of Business and Management	6	4	2	2					X
2405	Mentoring	1							X	
	SEMESTER 2									
2406	Mathematics 2	6	6	4	2					X
	Specialisation 1	12	8							X
	Specialisation 2	12	8							X
	SEMESTER 3									
2407	Project Management	3	2	1	1				X	
2408	Information Competence and Scientific Working	3	2			2			X	
	Specialisation 1	12	8						X	X
	Specialisation 2	12	8						X	X
	SEMESTER 4									
2409	Personal and Social Competence	6	4			4			X	
	Specialisation 1	12	8						X	X
	Specialisation 2	12	8						X	X
	SEMESTER 5									
	Elective	6	4						X	X
	Specialisation 1	12	8						X	X
	Specialisation 2	12	8						X	X
	SEMESTER 6									
2410	Group Project	8	6					6	X	
	Elective	6	4						X	X
2411	Internship / Semester Abroad	15							X	
	SEMESTER 7									
2411	Internship / Semester Abroad	15							X	
2412	Bachelor Thesis	12								X
2413	Colloquium	3								X
	Σ	210	114							

	TECHNICAL SPECIALISATIONS									
	ELECTRONICS									
2414	Electrical Engineering 2	6	4	2	1		1		X	X
2415	Design and Manufacturing of Electr.	6	4	2			2		X	X
2416	Microelectronic Control Systems	6	4	2			2		X	
2417	Analog Electronics	6	4	2	1		1		X	X

Module code	Module name	CP	HPW	L	E	S	PT	Pro	Evaluation form	
									Pass/fail	Graded
2418	Sustainable Electronics	6	4	2			2			X
2419	Renewable Energy and Storages	6	4	2			2			X
2420	Practical Electronics	6	4	2			2			X
2421	Drives and Power Electronics	6	4	2	2					X
	INFORMATION AND COMMUNICATION TECHNOLOGY									
2422	Digital Electronics	6	4	2	1		1		X	X
2423	Oscillations, Fields and Waves	6	4	2		1	1			X
2424	Microcontrollers	6	4	2			2		X	X
2425	Signal Processing	6	4	2	1		1		X	X
2426	Embedded Systems	6	4	2			2			X
2427	Communication Technology	6	4	2	2					X
2428	IT Security	6	4	2			2			X
2429	Audio and Speech Processing	6	4	2			2			X
	ROBOTICS									
2430	Dynamics	6	4	2	2					X
2431	Statistical Learning	6	4	2			2			X
2432	Modelling and Numerical Simulation	6	4	2			2			X
2433	Machine Learning	6	4	2			2			X
2434	System Theory and Controls	6	4	2	1		1			X
2435	Robot Kinematics	6	4	3	1					X
2436	Multibody Dynamics	6	4	2			2			X
2437	Robot Intelligence	6	4	2			2			X
	PRODUCT DEVELOPMENT									
2438	Metallic Materials and Testing	6	4	2			2			X
2439	Applied Manufacturing Technology	6	4	2			2			X
2440	Non-metallic Materials	6	4	2	1		1			X
2441	3D Product Specification	6	4	2			2			X
2442	Materials Technology	6	4	3	1					X
2443	Additive Manufacturing	6	4	2			2			X
2444	Corrosion	6	4	2			2			X
2445	Engineering Design	6	4	2	2					X
	ECONOMIC SPECIALISATIONS									
	BUSINESS OPERATIONS									
2446	Manufacturing Technology and Factory Equipment	6	4	3	1					X
2447	Accounting	6	4	2	2					X
2448	Sustainability, Quality and Business Process Management	6	4	3	1					X
2449	Statistics and Probability	6	4	2	2					X
2450	Production and Supply Chain Management	6	4	2	2					X
2451	Operations Research and Data Analytics	6	4	2	2					X
2452	Technical Investment Planning and Purchasing	6	4	1				3		X
2453	General Management	6	4	2			2		X	X

Module code	Module name	CP	HPW	L	E	S	PT	Pro	Evaluation form	
									Pass/fail	Graded
	ENTREPRENEUR- AND LEADERSHIP									
2454	Civil & Corporate Law	6	4	2	2					X
2447	Accounting	6	4	2	2					X
2455	B2B Marketing and Sales	6	4	2	2					X
2449	Statistics and Probability	6	4	2	2					X
2456	Technology and Innovation Management	6	4	2			2			X
2451	Operations Research and Data Analytics	6	4	2	2					X
2457	Business Performance Management	6	4	2	2				X	X
2453	General Management	6	4	2			2		X	X
ELECTIVES										
2474	Low Power Design	6	4	2			2			X
2475	Optoelectronics	6	4	2			2			X
2476	Brain-Computer Interfaces	6	4	2	1		1			X
2477	Entrepreneurship	6	4	1				3		X
2478	Numerical Mathematics	6	4	2	2					X
2479	Advanced Programming Concepts	6	4	2			2			X
2480	Enterprise Resource Planning	6	4	2	2				X	X
2499	Module from any Bachelor Study Course HSRW	6								

Explanations

* Regarding the module “2411 Internship / Semester Abroad”: If an internship is chosen, it must be 20 weeks long. If a study abroad semester is chosen, students must complete a full semester at a university abroad.

** The faculty reserves the right to set both a minimum number of participants for an elective module to take place and a maximum number of participants.

Abbreviations

CP = Credit points according the European Credit Transfer and Accumulation System (ECTS)
HPW = credit hours per week (SWS = *Semesterwochenstunden* in German)
L = Lecture
E = Exercise
S = Seminar
PT = Practical Training
Pro = Project

Annex 2: Module dependencies

SUBSEQUENT MODULES

Module ↓ \ Prerequisite →	2400 Mathematics 1	2401 Mechanics	2402 Programming	2403 Electr. Engineering 1	2404 Fund. of Bus. & Mgmt.	2405 Mentoring	2406 Mathematics 2	2407 Project Managament	2409 Pers. & Social Comp.	2416 Microelectr. Ctrl. Syst.	2417 Analog Electronics	2424 Microcontrollers	2430 Dynamics	2431 Statistical Learning	2432 Modell. & Num. Sim.	2438 Metallic Mat. & Test.	2447 Accounting
2409 Pers. and Social Comp.						X											
2410 Group Project	X	X	X	X	X	X	X	X	X								
2411 Internship/Semester A.						X											
2412 Bachelor Thesis						X											
2413 Colloquium						X											
2417 Analog Electronics				X													
2418 Sustainable Electronics				X		X											
2419 Renew. Energy & Stor.				X		X											
2420 Practical Electronics						X				X	X						
2421 Drives & Power Electr.	X	X		X		X											
2424 Microcontrollers			X														
2425 Signal Processing	X			X													
2426 Embedded Systems			X			X											
2427 Communication Techn.						X											
2428 IT Security						X						X					
2429 Audio & Speech Proc.	X		X			X											
2432 Modelling & Num. Sim.		X															
2433 Machine Learning	X		X														
2434 System Theory & Ctrl.	X					X	X										
2435 Robot Kinematics	X	X		X		X							X				
2436 Multibody Dynamics			X			X							X				
2437 Robot Intelligence						X								X	X		
2442 Materials Technology		X				X											
2443 Additive Manufacturing						X											
2444 Corrosion						X										X	
2445 Engineering Design						X											
2449 Statistics & Probability	X		X														
2450 Product. & Supply Ch.						X											
2451 Operations Research ..	X		X			X											
2452 Techn. Investm. Plan.						X		X									X
2453 General Management						X											X
2455 B2B Marketing & Sales					X												
2456 Techn. & Innov. Mgmt.					X	X											
2457 Busin. Perfom. Mgmt.						X											X
2474 Low Power Design				X		X											
2475 Optoelectronics						X					X						
2476 Brain-Comp. Interfaces						X											
2477 Entrepreneurship						X											

Module ↓ \ Prerequisite →	2400 Mathematics 1	2401 Mechanics	2402 Programming	2403 Electr. Engineering 1	2404 Fund. of Bus. & Mgmt.	2405 Mentoring	2406 Mathematics 2	2407 Project Managament	2409 Pers. & Social Comp.	2416 Microelectr. Ctrl. Syst.	2417 Analog Electronics	2424 Microcontrollers	2430 Dynamics	2431 Statistical Learning	2432 Modell. & Num. Sim.	2438 Metallic Mat. & Test.	2447 Accounting
2478 Numerical Math.	X					X	X										
2479 Adv. Programm. Conc.						X											
2480 Enterprise Resource Pl.						X											
2499 Module from any B.						X											

Annex 3: Permitted specialisation paths with corresponding subject area combinations

Designated specialisation paths are:

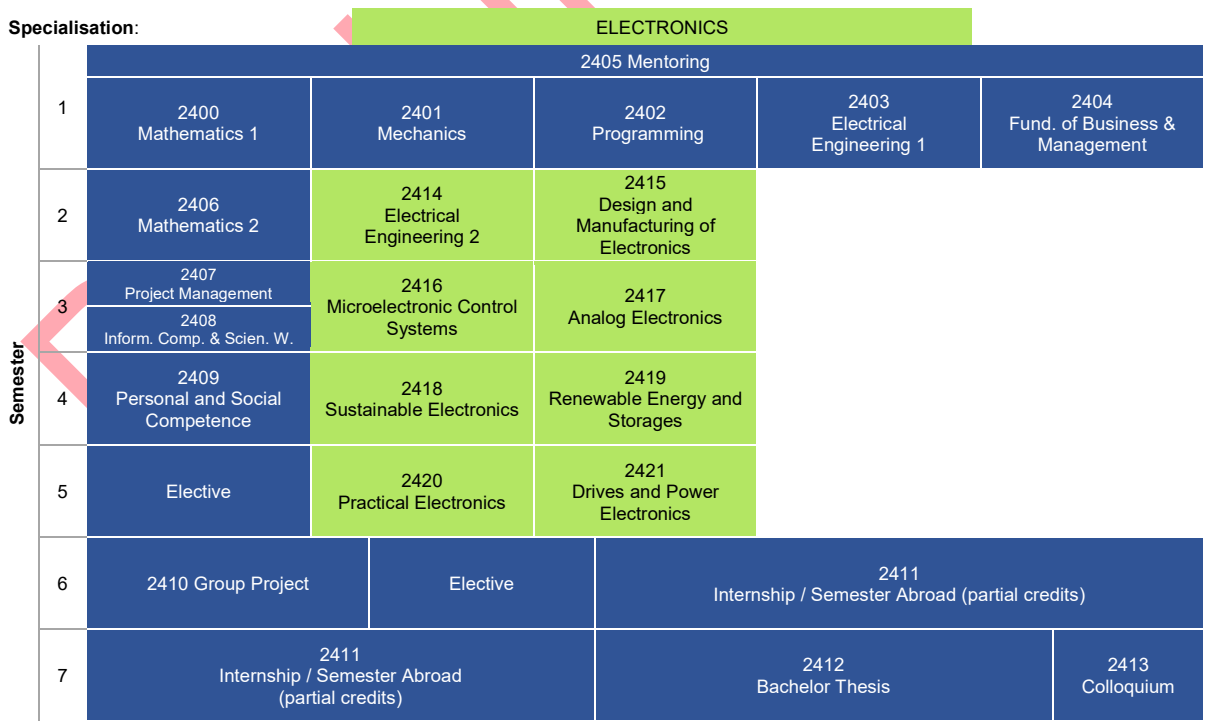
technical	economic
Electronics	Business Operations
Information and Communication Technology	Entrepreneur- and Leadership
Robotics	
Product Development	

The corresponding modules and the designated semesters in which they are to be taken are shown schematically below.

Special combinations of technical and economic specialisations can be awarded in the final documents:

- Specialisations in *Electronics* and *Information and Communication Technology* result in the degree *B.Sc. in Electrical Engineering*.
- A specialisation in *Robotics* combined with a specialisation either in *Electronics* or *Information and Communication Technology* results in the degree *B.Sc. in Mechatronics*.
- A specialisation in one of the four technical specialisation paths in combination with one of the two economic specialisation paths results in the degree *B.Sc. in Business Engineering*.

Choosing a different combination of specialisations, or not fully completing the requirements of the second specialisation path, will not result in a distinguishing title in the final documents. The *B.Sc. in Engineering* degree can still be obtained.



Specialisation: INFORMATION AND COMMUNICATION TECHNOLOGY

Semester					
	2405 Mentoring				
1	2400 Mathematics 1	2401 Mechanics	2402 Programming	2403 Electrical Engineering 1	2404 Fund. of Business & Management
2	2406 Mathematics 2	2422 Digital Electronics	2423 Oscillations, Fields and Waves		
3	2407 Project Management 2408 Inform. Comp. & Scien. W.	2424 Microcontrollers	2425 Signal Processing		
4	2409 Personal and Social Competence	2426 Embedded Systems	2427 Communication Technology		
5	Elective	2428 IT Security	2429 Audio and Speech Processing		
6	2410 Group Project	Elective	2411 Internship / Semester Abroad (partial credits)		
7	2411 Internship / Semester Abroad (partial credits)	2412 Bachelor Thesis	2413 Colloquium		

Specialisation: ROBOTICS

Semester					
	2405 Mentoring				
1	2400 Mathematics 1	2401 Mechanics	2402 Programming	2403 Electrical Engineering 1	2404 Fund. of Business & Management
2	2406 Mathematics 2	2430 Dynamics	2431 Statistical Learning		
3	2407 Project Management 2408 Inform. Comp. & Scien. W.	2432 Modelling and Numerical Simulation	2433 Machine Learning		
4	2409 Personal and Social Competence	2434 System Theory and Controls	2435 Robot Kinematics		
5	Elective	2436 Multibody Dynamics	2437 Robot Intelligence		
6	2410 Group Project	Elective	2411 Internship / Semester Abroad (partial credits)		
7	2411 Internship / Semester Abroad (partial credits)	2412 Bachelor Thesis	2413 Colloquium		

Specialisation: PRODUCT DEVELOPMENT

Semester					
	2405 Mentoring				
1	2400 Mathematics 1	2401 Mechanics	2402 Programming	2403 Electrical Engineering 1	2404 Fund. of Business & Management
2	2406 Mathematics 2	2438 Metallic Materials and Testing	2439 Applied Manufacturing Technology		
3	2407 Project Management 2408 Inform. Comp. & Scien. W.	2440 Non-metallic Materials	2441 3D Product Specification		
4	2409 Personal and Social Competence	2442 Materials Technology	2443 Additive Manufacturing		
5	Elective	2444 Corrosion	2445 Engineering Design		
6	2410 Group Project	Elective	2411 Internship / Semester Abroad (partial credits)		
7	2411 Internship / Semester Abroad (partial credits)	2412 Bachelor Thesis	2413 Colloquium		

Specialisation: BUSINESS OPERATIONS

Semester					
	2405 Mentoring				
1	2400 Mathematics 1	2401 Mechanics	2402 Programming	2403 Electrical Engineering 1	2404 Fund. of Business & Management
2	2406 Mathematics 2	2446 Manufacturing Techn. & Factory Equipment	2447 Accounting		
3	2407 Project Management 2408 Inform. Comp. & Scien. W.	2448 Sustain., Quality & Busin. Proc. Mgmt.	2449 Statistics and Probability		
4	2409 Personal and Social Competence	2450 Production & Supply Chain Management	2451 Operat. Research and Data Analytics		
5	Elective	2452 Technical Investment Planning & Purchasing	2453 General Management		
6	2410 Group Project	Elective	2411 Internship / Semester Abroad (partial credits)		
7	2411 Internship / Semester Abroad (partial credits)	2412 Bachelor Thesis	2413 Colloquium		

Specialisation: ENTREPRENEUR- AND LEADERSHIP

Semester					
	2405 Mentoring				
1	2400 Mathematics 1	2401 Mechanics	2402 Programming	2403 Electrical Engineering 1	2404 Fund. of Business & Management
2	2406 Mathematics 2	2454 Civil & Corporate Law	2447 Accounting		
3	2407 Project Management 2408 Inform. Comp. & Scien. W.	2455 B2B Marketing & Sales	2449 Statistics and Probability		
4	2409 Personal and Social Competence	2456 Technology & Innov. Management	2451 Operations Research and Data Analytics		
5	Elective	2457 Business Performance Management	2453 General Management		
6	2410 Group Project	Elective	2411 Internship / Semester Abroad (partial credits)		
7	2411 Internship / Semester Abroad (partial credits)	2412 Bachelor Thesis	2413 Colloquium		

Example of a combination of two specialisations

Specialisations: INFORMATION AND COMMUNICATION TECHNOLOGY, ROBOTICS

Semester					
	2405 Mentoring				
1	2400 Mathematics 1	2401 Mechanics	2402 Programming	2403 Electrical Engineering 1	2404 Fund. of Business & Management
2	2406 Mathematics 2	2422 Digital Electronics	2423 Oscillations, Fields and Waves	2430 Dynamics	2431 Statistical Learning
3	2407 Project Management 2408 Inform. Comp. & Scien. W.	2424 Microcontrollers	2425 Signal Processing	2432 Modelling and Numerical Simulation	2433 Machine Learning
4	2409 Personal and Social Competence	2426 Embedded Systems	2427 Communication Technology	2434 System Theory and Controls	2435 Robot Kinematics
5	Elective	2428 IT Security	2429 Audio and Speech Processing	2436 Multibody Dynamics	2437 Robot Intelligence
6	2410 Group Project	Elective	2411 Internship / Semester Abroad (partial credits)		
7	2411 Internship / Semester Abroad (partial credits)	2412 Bachelor Thesis	2413 Colloquium		