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HOCHSCHULE RHEIN-WAAL
Rhine-Waal University of Applied Sciences

Examination Regulations

for Mechanical Engineering B.Sc.

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

Dated 9 January 2018

(Official Notice 18/2018)

As amended by the third amending statutes

Dated 9 April 2024

(Official Notice 04/2024)

Contents

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, and are valid 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) This degree programme concludes with the bachelor's examination, which forms the basis for the professionally qualifying nature of the degree. The overall aims and objectives for this degree 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 the continuous goal of expanding and honing students' technical language and communication skills.

(2) The academic degree "Bachelor of Arts", abbreviated as "B.A.", 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) Applicants are ineligible for admission if they 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.

(4) Acceptable proof of English proficiency is defined in Section 4 (5a) RPO.

(5) *Intentionally omitted.*

(6) *Intentionally omitted.*

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 that 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 sum of 210 credits in accordance with 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.

(4 a) Students can choose to complete the compulsory module "2002 Numerical Mathematics" or the compulsory module "2723 Thermodynamics of Multicomponent Systems" in their 4th semester of study. This decision is binding and irreversible. The decision is made based on which examination students are first admitted to. Students with unsuccessful examination attempts in the compulsory module "2002 Numerical Mathematics", which were undertaken prior to these examination regulations, have a one-time opportunity to switch to the module "2723 Thermodynamics of Multicomponent Systems". Requests to switch must be submitted in writing to the Examination Board of the Faculty of Technology and Bionics. This opportunity to switch modules does not apply to students who have irrevocably failed their final examination attempt in the module "2002 Numerical Mathematics".

(5) Progression in this degree programme is limited by the following thresholds:

(a) In order to register for examinations scheduled for the fourth semester or later, students must have achieved at least 53 credits through modules scheduled for the first two semesters of study in accordance with 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 later, students must have achieved at least 63 credits through modules scheduled for the first two semesters of study in accordance with the study and examination plan. This prerequisite does not apply to the elective module Foreign Language.

(c) The admission prerequisites for the internship semester / semester abroad 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 searching for 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 semesters abroad. 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 this is 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 semester abroad is considered failed if fewer than 15 credits were obtained.

(4) Students planning a semester abroad 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 beyond their control must report their circumstances to the Examination Board without delay to arrange a new learning agreement. If students fail to report changes to their learning agreement, the Examination Board can decide in justified situations whether to accept credits from modules or courses that were not defined in the learning agreement.

Section 7
Scope of examinations

(1) The time allotted for a written examination depends on the number of obtainable 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 lasts 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 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 requirements for admission to the thesis defined under Section 24 (1) no. 3 RPO, students must also have obtained 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 obtained at least 207 credits.

Section 10
Credit values for the thesis and colloquium

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

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

Section 11
Awarding 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

(1) These examination regulations will enter into force on the day after publication in the Official Notices of Rhine-Waal University of Applied Sciences.

(2) Students who are currently enrolled in the dual study version of Mechanical Engineering B.Sc. may continue their studies according to the previous examination regulations dated 9 January 2018 (Official Notice 18/2018), as amended by the first amending statutes from 4 June 2020 (Official Notices 21/2020), until 28 February 2030 at the latest.

(3) Students currently enrolled in the dual study version of this degree programme may submit a written request to the Examination Board to switch to the full-time study version of this degree programme instead.

Note: These examination regulations entered into force in their current version on 23 May 2024.

Annex 1: Recommended study and examination plan for Mechanical Engineering B.Sc., full time

Curriculum ME		HPW	Type						Examination form		CP	HPW						
			V	SL	S	Ü	Pra	Pro	Attestation	graded		WS1	SS2	WS3	SS4	WS5	SS6	WS7
1st Semester																		
2000	Introductory Mathematics	8	5			3				x	8	8						
2007	Chemistry of Materials	4	2			2				x	5	4						
2008	Statics and Strength of Materials	4	2			2				x	5	4						
2011	Programming	4	2				2		x	x	**5**	4						
2013	Business Economics and Project Management	4	3				1		x		5	4						
2700	Introduction to Mechanical Engineering	3	2		1				x		**3**	3						
2nd Semester																		
2001	Applied Mathematics	8	5			3				x	7		8					
2003	Physics	4	2			1	1		x	x	5		4					
2009	Advanced Strength of Materials	4	2			2				x	5		4					
2014	Cross-Cultural Management and Creativity	4	2			2			x		5		4					
2106	Metallic Materials and Testing	4	2				2			x	5		4					
2701	Engineering Drawing and Design	4	2			1	1		x	x	5		4					
3rd Semester																		
2010	Dynamics	4	2			2				x	5			4				
2107	Non-metallic Materials	4	2			1	1			x	5			4				
2305	Fundamentals of Electrical Engineering	4	2			1	1		x	x	5			4				
2702	Advanced Engineering Design	4	2			1		1		x	5			4				
2708	Thermodynamics	4	2			1	1			x	5			4				
2711	Drive Systems	4	2			2				x	5			4				
4th Semester																		
	Alternative Module																	
2002	Numerical Mathematics	4	3			1				x	5				4			
2723	Thermodynamics of Multicomponent Systems	4	2			2				x	5							
2703	Product Design	4	2			1		1		x	5				4			
2706	Manufacturing Technology	4	3			1				x	5				4			
2302	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			
5th Semester																		
2015	Group Project	1						1	x		5					1		
2707	Quality and Production Management	4	3				1			x	5					4		
2303	Controls	4	2			1	1			x	5					4		
2304	Modelling and Simulation	4	2				**2**			x	5					4		
	Focus Field (see catalogue individual subjects: Focus Fields)																	
	Focus Field Subject 3	4									5					4		
	Focus Field Subject 4	4									5					4		
6th Semester																		
2016	Internship / Semester abroad								x		30							
7th Semester																		
2017	Bachelor Thesis									x	12							
2018	Colloquium									x	3							
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		**137**	**V**	**SL**	**S**	**Ü**	**Pra**	**Pro**	**Attestation**	**graded**	**215**	**27**	**28**	**24**	**24**	**21**		**9**
		HPW	**Type**						**Examination form**		**CP**	**WS1**	**SS2**	**WS3**	**SS4**	**WS5**	**SS6**	**WS7**
															HPW			

Catalogue Individual Subjects ME		HPW	Type						Examination form		CP	HPW						
			V	SL	S	Ü	Pra	Pro	Attestation	graded		WS1	SS2	WS3	SS4	WS5	SS6	WS7
Focus Fields *//***/**** **																		
	Focus Field Design	**16**	**8**			**5**	**3**				**20**				**8**	**8**		
2121	Material Testing and Failure Analysis	4	2				2			x	5				4			
2714	Virtual Product Development	4	2			1	1			x	5				4			
2704	Advanced Product Design	4	2			2				x	5					4		
2305	Finite Element Method	4	2			2				x	5					4		
	Focus Field Process Engineering	**16**	**8**			**3**	**5**				**20**				**8**	**8**		
2709	Fundamentals of Process Engineering	4	2			1	1			x	5				4			
2710	Fluid Mechanics	4	2			1	1			x	5				4			
2712	Design of Plants	4	2				2			x	5					4		
2713	Control of Plants in Process Engineering	4	2			1	1			x	5					4		
	Focus Field Machinery and Systems	**16**	**8**			**7**	**1**				**20**				**8**	**8**		
2715	Material Handling Systems	4	2			2				x	5				4			
2716	Agricultural Engineering	4	2			2				x	5				4			
2717	Mobile Hydraulics	4	2			1	1			x	5					4		
2718	**Gear Technology**	4	2			2				x	5					4		
	Focus Field Simulation and Validation	**16**	**8**			**7**	**1**				**20**				**8**	**8**		
2719	Applied Strength of Materials	4	2			2				x	5				4			
2308	Multibody Dynamics	4	2			2				x	5				4			
2720	Machine Dynamics	4	2			1	1			x	5					4		
2305	Finite Element Method	4	2			2				x	5					4		
	Focus Field Applied Business Economics	**16**	**7**			**4**	**2**	**3**			**20**				**8**	**8**		
2513	Global Economy and Trade	4	2			2				x	5				4			
2514	Technical Investment Planning and Purchasing	4	1					3		x	5				4			
2516	**Enterprise Resource Planning**	**4**	**2**				**2**			**x**	5					4		
2503	Fundamentals of Law, Investment and Financing	4	2			2				x	5					4		
	Focus Field Bionics	**16**	**8**			**4**	**2**	**2**			**20**				**8**	**8**		
2723	Biomimetic Science	4	2			2				x	5				4			
2724	Zoological Physics	4	2				2			x	5				4			
2725	Bioinspiration	4	2			2				x	5					4		
2726	Bionic Design	4	2					2	x		5					4		
Electives																		
2019	Scientific Methods (Block or online)	4	2			2			x		5							4
2020	Foreign Language								x		5							
2021	Module from any other Bachelor study course HSRW								x	x	5							
2721	Design of Membrane Plants	4	2				2			x	5							4
2722	Leadership	3			3				x		5							3

Explanations / Conditions

* Die Fakultät behält sich das Recht vor, sowohl eine Mindestteilnehmerzahl für das Zustandekommen eines Faches im Fokusfeld / Wahlbereich als auch eine Maximalteilnehmerzahl festzulegen. Die Möglichkeit des Erreichens der vorgeschriebenen Kreditpunktanzahl aus dem Vertiefungsfeld bleibt unberührt./ * The faculty reserves the right to determine a minimum and a maximum number of participants for offering a subject in the focus fields / electives. The possibility to obtain the required number of credit points remains unaffected.

** Aus dem Wahlbereich können mit dem Einverständnis des Prüfungsausschusses der Fakultät Technologie und Bionik auch Fächer mit einem Gesamtumfang von 5 Kreditpunkten aus dem gesamten Bachelor-Studienangebot der Hochschule Rhein Waal gewählt werden. Die Zustimmung wird erteilt, sofern die gewählten Module inhaltlich dem Schwerpunkt des Wahlpflichtkatalogs entsprechen oder eine adäquate Ergänzung darstellen / As elective a maximum of 5 CP can be chosen with the consent of the examination committee of the faculty Technology and Bionics from any Bachelor study programme at the Rhine-Waal University of Applied Science. Approval will be granted provided that the modules chosen correspond in content to the focus of the elective catalog or are an adequate complement.

*** Die Fakultät Technologie und Bionik behält sich das Recht vor, das Fächerangebot im Wahlbereich zu ändern / The faculty Technology and Bionics reserves the right to change the catalogue of electives.

**** Aufgrund von stundenplantechnischen Randbedingungen ist nicht auszuschließen, dass Fächer verschiedener Fokusfelder sowie Fächer des Wahlbereichs zeitgleich angeboten werden / Due to time tabling constraints subjects from different focus fields and electives may be offered concurrently.

Abbreviations

HPW	Semesterwochenstunden / hours per week
CP	Kreditpunkte / credit points
V	Vorlesung / lecture
SL	Seminaristische Vorlesung / seminar lecture
S	Seminar / seminar
Ü	Übung / exercise
Pra	Praktikum / practical work
Pro	Projekt / project
WSx	Wintersemester / winter semester
SSx	Sommersemester / summer semester