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Examination Regulations

for

Bionics M.Sc.

Rhine-Waal University of Applied Sciences

Dated 6 August 2019

(Official Notice 28/2019)

As amended by the first amending statutes

Dated 26 January 2022

(Official Notice 5/2022)

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Section 1 Scope

These examination regulations apply to the master's degree programme Bionics M.Sc., offered in English by the Faculty of Technology and Bionics of Rhine-Waal University of Applied Sciences, in conjunction with the General Examination Regulations for Undergraduate and Postgraduate Degree Programmes of Rhine-Waal University of Applied Sciences ("RPO"). They govern the contents, structure and progression of the degree programme, as well as related assessments, including examinations.

Section 2 Academic objectives; Purpose of examination; Master's degree

(1) Building upon a professionally qualifying first degree, this degree programme results in an additional, advanced professional qualification which entitles the holder for admission to a doctoral programme in accordance with Section 67 (4) sentence 1 (c) of the Higher Education Act NRW.

(2) Academic aims and objectives are outlined in Section 3 RPO.

(3) 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 expanding and honing students' technical language and communication skills.

(4) The academic title "Master of Science", abbreviated as "M.Sc.", is awarded for passing the final postgraduate assessment.

(5) The name of the degree programme indicated in the graduation certificate will be expanded to include the graduate's chosen focus field (refer to Section 4 (3)). The following combinations are possible:

- "Bionics – Robotics"
- "Bionics – Materials Science"
- "Bionics – Biomimetics"

Section 3 Admission requirements

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

(2) Admission to this degree programme is further regulated by the Admission Regulations for Mechanical Engineering M.Sc. and Bionics M.Sc. of Rhine-Waal University of Applied Sciences.

Section 4

Standard duration of study; programme structure; volume of instruction hours

- (1) The standard study duration, the programme structure and the volume of instruction hours are defined in Section 5 (2) RPO.
- (2) The total volume of instruction for this degree programme is 36 semester hours (SWS).
- (3) The degree programme is divided into the following focus fields: “Robotics”, “Materials Science” or “Biomimetics”. Students must select one of these fields over the course of their studies.

Section 5

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, for a total duration up to, but not exceeding, two hours.
- (2) An oral examination generally lasts between 30 and 45 minutes.
- (3) Assignments, term papers or projects should generally not exceed 10,000 words.

Section 6

Components of the final postgraduate assessment; credit points

- (1) The final postgraduate assessment, as well as the rules regarding the awarding of credit points, is broken down in Section 6 RPO.

Section 7

Admission to the thesis and colloquium

- (1) Admission to the thesis is regulated by Section 24 (1) RPO.
- (2) Students must have obtained at least 50 credits to be eligible for admission to the thesis.
- (3) Admission to the colloquium is regulated by Section 27 (2) RPO.
- (4) Students must have obtained at least 87 credits to be eligible for admission to the colloquium.

Section 8

Thesis

- (1) The rules regarding the completion and submission of the thesis are defined in Sections 25 and 26 RPO.
- (2) The text portion of the thesis should generally be between 15,000 and 20,000 words in length. The thesis may also be supplemented with other media as well, 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.

Section 9
Credit values for the thesis and colloquium

- (1) Twenty-two credits are awarded for passing the thesis.
- (2) Three credits are awarded for passing the colloquium.

Section 10
Awarding of the master's degree

The awarding of the master's degree is regulated by Sections 3 (4) and 30 (1) RPO.

Section 11
Entry into force

(1) These Examination Regulations shall enter into force on the day after their publication as an Official Notice of Rhine-Waal University of Applied Sciences. They apply to students who first enrolled in Bionics M.Sc. of the Faculty of Technology and Bionics of Rhine-Waal University of Applied Sciences in or after winter semester 2019-20.

(2) Students who enrolled in Bionics M.Sc. before winter semester 2019-20 may continue their studies according to the previous examination regulations dated 29 July 2011 (Official Notice 13/2011), as amended by the third amending statutes dated 28 May 2018 (Official Notice 38/2019), until 28 February 2022 at the latest. The examination regulations dated 29 July 2011 (Official Notice 13/2011), as amended by the third amending statutes on 28 May 2018 (Official Notice 38/2018), shall expire on 1 March 2022.

(3) Students currently studying according to the examination regulations dated 29 July 2011 (Official Notice 13/2011), as amended by the third amending statutes dated 28 May 2018 (Official Notices 38/2018), may submit a written request to the Faculty Examination Board to switch to the examination regulations defined in this document. The Examination Board is responsible for all credit recognition decisions for previously completed modules and examinations.

Note: *These examination regulations entered into force on 30 April 2022.*

Annex 1: Recommended full-time study and examination plan for Bionics, M.Sc., full time

Curriculum MB		HPW	Type					Examination form		CP	HPW		
			V	SL	S	Ü	Pra	Pro	Attestation		graded	SS 1	WS 2
Core Modules													
Module Code	Modules												
3300	Research Methods for Engineers	3	1		1	1		x		5		x	
3301	Numerical Methods of Simulation	3	2		1				x	5		x	
3302	General Management	3	2			1		x		5	x		
3600	Principles of Bionics	3	2			1			x	5	x		
3601	Bionics of Sensing	3	2			1			x	5		x	
Focusfield Robotic*													
Module Code	Core Modules												
3402	Principles of Software Development	3	2			1			x	5	x		
Module Code	Focusfield Modules												
3603	Human Machine Interaction	3	2			1		x		5	x		
3606	Physics of Agent Behaviour	3	2			1			x	5	x		
3407	Computational Multibody Dynamics	3	1			2			x	5	x		
3602	Bioinspired Machine Learning	3	2			1			x	5		x	
3604	Autonomous Robotics	3	2			1			x	5		x	
3605	Evolutionary Algorithms	3	2			1			x	5		x	
Focusfield Materials*													
Module Code	Core Modules												
3608	Sustainability	3	2			1			x	5		x	
Module Code	Focusfield Modules												
3609	Advanced Chemistry of Materials	3	2			1			x	5	x		
3611	Bioplastics	3	2			1		x		5	x		
3613	Biomimetic Engineering Materials	3	2			1			x	5	x		
3403	Materials Selection and Simulation	3	2			1			x	5	x		
3610	Smart Materials and Surface Technology	3	2			1			x	5		x	
3612	Lightweight Materials and Joining	3	2			1			x	5		x	
Focusfield Biomimetics*													
Modul Code	Core Modules												
3614	Biological Systems	3	2			1			x	5	x		
Modul Code	Focus Field Modules												
3615	Surfaces, Membranes and Skins	3	2			1			X	5		x	
3606	Physics of Agent Behaviour	3	2			1			X	5	x		
3616	Biomechanics	3	2			1			X	5		x	
3617	Structural Biomaterials	3	2			1			X	5		x	
3618	Plant Biomimetics	3	1			2			X	5	x		
3619	Biological Transformation	3	2			1			X	5	x		
Final Semester													
Modulcode	Modules												
3303	Applied Research Project (ARP)									5		x	
3304	Master thesis									22		x	
3305	Colloquium									3		x	
<p>Explanations</p> <p>* Die Fakultät behält sich das Recht vor, sowohl eine Mindestteilnehmerzahl für das Zustandekommen eines Fokusfeldes / Wahlbereiches als auch eine Maximalteilnehmerzahl festzulegen. / * The faculty reserves the right to determine a minimum and a maximum number of participants for offering a focus fields / electives.</p>													
<p>Abbreviations</p> <p>HPW Semesterwochenstunden / hours per week</p> <p>CP Kreditpunkte / credit points</p>													