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Examination Regulations for the Master's Programme Mechanical Engineering of Hochschule Düsseldorf – University of Applied Sciences

Dated 17 June 2021

Pursuant to sections 2 subsection 4, 64 subsection 1 of the law on the higher education institutions in the federal state of North Rhine-Westphalia (*Hochschulgesetz*, HG) of 16 September 2014 (gazette of laws and ordinances NRW GV, p. 547) as last amended, Hochschule Düsseldorf – University of Applied Sciences has issued the following programme-specific examination regulations. These examination regulations are only valid in conjunction with the framework examination regulations of the Faculty of Mechanical and Process Engineering of Hochschule Düsseldorf – University of Applied Sciences of 15 February 2016 as last amended.

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SECTION 1 – SCOPE

These Examination Regulations apply to the master's programme Mechanical Engineering of the Faculty of Mechanical and Process Engineering of Hochschule Düsseldorf – University of Applied Sciences.

SECTION 2 – STUDY PROGRAMME OBJECTIVES; PROGRAMME START

(1) The master's programme referred to in section 1 is a further academic programme which qualifies graduates for entry into a profession and follows on consecutively from the bachelor's programmes of the Faculty of Mechanical and Process Engineering of Hochschule Düsseldorf – University of Applied Sciences.

(2) The objective of this master's programme is to broaden the professional prospects for graduates of the bachelor's programmes referred to above or of comparable bachelor's or *Diplom* programmes.

(3) The graduates have acquired in-depth knowledge in the fields of mathematics and engineering, in particular in a broad range of mechanics topics, including solid mechanics, mechanics of multi-body systems and fluid mechanics. In addition, they have acquired know-how in computer-based measurement technology. They have also gained thorough methodological skills: They can use modern simulation tools proficiently, which enables them to calculate technical processes and predict their effects. As English is the language of instruction, the graduates have a written and oral command of English vocabulary across a wide spectrum of mechanical engineering. They write and speak confidently about technical subjects in English.

(4) The graduates are able to develop and refine solutions to problems in their specialist fields. They are capable of collecting, interpreting, and evaluating relevant information and of deducing sound scientific conclusions from them. They can describe their findings appropriately, present them to an audience, justify and defend them. They have also acquired the ability to take responsibility in teams.

(5) The programme starts in the summer and winter semester of the respective year.

SECTION 3 – PURPOSE OF THE MASTER'S EXAMINATION; MASTER'S DEGREE

(1) The master's examination marks the end of studies in the master's programme referred to in section 1, which qualifies graduates for entry into a profession. The purpose of the master's examination is to ascertain whether students have acquired the subject-related and methodical skills required for independent scientific work. Successful completion of the master's examination categorically entitles graduates to proceed with a *Promotion* [translator's note: A *Promotion* is a German qualification; doctoral studies.] in a subject related to their master's studies.

(2) The language of instruction in the programme is English.

(3) Hochschule Düsseldorf – University of Applied Sciences awards students who have passed the master's examination the Master of Science (MSc) degree.

SECTION 4 – ADMISSION REQUIREMENTS

(1) The admission requirements for commencing studies in the master's programme Mechanical Engineering are:

- a) Successful completion of one of the bachelor's programmes Mechanical Engineering – Product Development (MPE), Mechanical Engineering – Production Technology (MPT), Energy and Environmental Technology (EUT) or Environmental and Process Technology (UVT) at the Faculty of Mechanical and Process Engineering of Hochschule Düsseldorf – University of Applied Sciences covering 210 ECTS credit points. Successful completion of a comparable bachelor's or *Diplom* programme at Hochschule Düsseldorf – University of Applied Sciences or a comparable bachelor's or *Diplom* programme at another higher education institution within the jurisdiction of the German Basic Law or a qualification from a higher education institution abroad recognised as equivalent are also accepted. Responsibility for establishing comparability lies with the Examination Board.
- b) The bachelor's examination for the programme under a) must have been awarded an overall grade of 2.50 (good) [translator's note: according to the German grading system] or better or the ECTS grade of A or B.
- c) Students must furthermore produce proof of English language proficiency of B2 level of the Common European Framework of Reference for Languages (CEFR). Proof can be produced by presenting one of the following documents and certificates:
 - Cambridge Certificate: First Certificate in English (FCE) B2: minimum of 160 points
 - IELTS: minimum of 6.0 points
 - TELC: B2
 - TOEFL (IBT): minimum of 72 points
 - TOEIC 4Skills: minimum of 1095 points
 - School certificates including grades or other school certificates certifying that B2 level was achieved.

Applicants who have attained their higher education entrance qualification in the context of an English-speaking educational programme or have completed the study programme according to letter a) in English are exempt from the obligation to produce proof referred to in sentence 1.

(2) By derogation from subsection 1 letter a) an applicant holding a comparable bachelor's degree covering 180 ECTS credit points may be admitted to the programme subject to certain conditions. The Examination Board determines the content and scale of these conditions (usually 30 additional ECTS credits). The conditions are fulfilled when the applicant has produced proof by the time they register for the master's thesis that the required study and examination achievements have been attained.

(3) Applicants who cannot provide proof of the admission requirements according to subsection 1 letters a), b) by the time of the application deadline may also be admitted to the study programme if they are no more than 30 ECTS credits short of successfully completing their degree. For the admission procedure, the admission requirements according to subsection 1 letter b) will be temporarily replaced by proof of an average grade – taking into account all available examination results achieved up until the date of application. Proof of meeting the admission requirements according to subsection 1 letters a), b) must be provided within ten weeks from the application deadline in case of a study programme with restricted admission, and by 15 October in the winter semester or 15 April in the summer semester of the year the applicant commences their studies in case of a programme with unrestricted admission; otherwise the enrolment is terminated with effect for the future.

(4) Enrolment in the programme shall be refused if the applicant has irredeemably failed an examination required in the examination regulations in a study programme at a higher education

institution within the jurisdiction of German Basic Law and both the unsuccessful programme as well as the examination irredeemably failed display considerable similarity with regard to content of the master's programme Mechanical Engineering. Such similarity with regard to content is deemed to exist if at least 60 % of the content of the unsuccessful programme and at least 60 % of the content of the examination irredeemably failed have the same content as the master's programme Mechanical Engineering and the examination foreseen in the examination regulations.

SECTION 5 – NORMAL PROGRAMME LENGTH; WORKLOAD

(1) The normal programme length including the master's thesis is three semesters. It comprises the theoretical semesters as well as the examinations including the master's thesis. The structure is shown in detail in the Syllabus and Examination Plan (annex).

(2) The total scope of the programme amounts to 90 credits in accordance with section 5 of the framework examination regulations.

SECTION 6 – ENTRY INTO FORCE; REPEAL

(1) These examination regulations enter into force on 1 September 2021 and are published in the HSD *Verkündungsblatt* (university bulletin). They are only valid in conjunction with the framework examination regulations of 15 February 2016 as last amended and apply to students who commence their studies from winter semester 2021/22 onwards in the programme referred to in section 1.

(2) The examination regulations for the master's programme Mechanical Engineering of 15 February 2016 (university bulletin HSD *Verkündungsblatt*, official announcement no. 426) as amended on 19 June 2018 (university bulletin HSD *Verkündungsblatt*, official announcement no. 613), amended on 18 February 2021 (university bulletin HSD *Verkündungsblatt*, official announcement no. 741), will be repealed at the end of summer semester 2023. This date also applies to repeat examinations.

(3) Students who commenced their studies before these examination regulations entered into force shall be transferred to the scope of these examination regulations upon application; the transfer can only be applied for once and is irrevocable. Previous examination achievements and failed examinations are transferred wherever possible. Students in accordance with sentence 1, clause 1, who have not yet completed their studies or have not yet applied for transfer at the time when the regulations according to subsection 2 are repealed shall be transferred ex officio to these examination regulations.

Issued on the basis of the resolution of the Faculty Council of the Faculty of Mechanical and Process Engineering of 30 April 2021 and the establishment of the legality by the Board of Management on 2 June 2021.

Düsseldorf, 17 June 2021

The Vice Dean for Student and Academic Affairs
of the Faculty
of Mechanical and Process Engineering
of Hochschule Düsseldorf – University of Applied Sciences
Prof. Dr.-Ing. Carl Justus Heckmann

REFERENCE TO THE LEGAL CONSEQUENCES PURSUANT TO SECTION 12 SUBSECTION 5 HG

After one year from the announcement of these regulations, a violation of procedural or formal requirements of the HG or of the disciplinary regulations or the right to autonomous administration of Hochschule Düsseldorf – University of Applied Sciences may only be asserted under the conditions of section 12 subsection 5 nos. 1–4 HG; otherwise, a complaint is excluded.

ANNEX 1: SYLLABUS AND EXAMINATION PLAN – PROGRAMME START IN THE SUMMER SEMESTER

Module	V	Ü*	P	S	SWS	CP				Number of exams
							1	2	3	
							SS	WS	SS	
General Studies										
Engineering Mathematics	3	1	1		5	6	6			2
Simulation of Mechanical Systems	2	2	1		5	6		6		2
Signal Processing for Mechanical and Process Engineering	2		3		5	6	6			2
Finite Element Method (FEM)	3		2		5	6		6		2
Computational Fluid Dynamics (CFD)	3	1	1		5	6	6			2
Specialisation (electives)										
Elective Course I*				4	4	6	6			1
Elective Course II*				4	4	6	6			1
Elective Course III*				4	4	6		6		1
Elective Course IV* or Project R&D II				4	4	6		6		1
Projects, R&D										
Project (Research & Development)						6		6		1
Project Seminar				2	2					
Engineering Conferences				4	4	6			6	1
Master Thesis					0	21			21	1
Colloquium					0	3			3	1
					Credits		90			
					Credits per sem.		30	30	30	
					Total credits		90			

ANNEX 2: SYLLABUS AND EXAMINATION PLAN – PROGRAMME START IN THE WINTER SEMESTER

Module	V	Ü*	P	S	SWS	CP				Number of exams
							1	2	3	
							WS	SS	WS	
General Studies										
Engineering Mathematics	3	1	1		5	6		6		2
Simulation of Mechanical Systems	2	2	1		5	6	6			2
Signal Processing for Mechanical and Process Engineering	2		3		5	6		6		2
Finite Element Method (FEM)	3		2		5	6	6			2
Computational Fluid Dynamics (CFD)	3	1	1		5	6		6		2
Specialisation (electives)										
Elective Course I*				4	4	6	6			1
Elective Course II*				4	4	6	6			1
Elective Course III*				4	4	6		6		1
Elective Course IV* or Project R&D II				4	4	6		6		1
Projects, R&D										
Project (Research & Development)						6	6			1
Project Seminar		2		2						
Engineering Conferences		4		4	4	6			6	1
Master Thesis				0		21			21	1
Colloquium				0		3			3	1
						Credits			90	
						Credits per sem.	30	30	30	
						Total credits			90	