

**Programme-specific examination and study regulations for the
Bachelor's degree programme Mechanical Engineering
at the Hamburg University of Applied Sciences
(Hamburg University of Applied Sciences)**

From 13 December 2023

This is an English translation of the original German text of these Regulations. It is provided for informational purposes only and has no force independent of the original German text. The original German version as issued and amended on the above dates shall be authoritative and definitive in all cases of dispute.

In the interest of non-discriminatory use of language, this English translation uses the singular 'they' or plurals wherever possible.

On 13 December 2023, the Presidential Board of the Hamburg University of Applied Sciences, pursuant to Section 108 (1) sentence 3 of the Hamburg Higher Education Act - HmbHG - of 18 July 2001 (HmbGVBl. p. 171), last amended on 11 July 2023 (HmbGVBl. p. 250, 254), approved the amendment of 23 November 2023 pursuant to Section 91 (2) no. 1 HmbHG. November 2023 pursuant to Section 91 (2) no. 1 HmbHG by the Faculty Council of the Faculty of Engineering and Computer Science at the proposal of the Departmental Council of Mechanical Engineering and Production of 9 November 2023 in accordance with Section 14 (4) no. 2 of the Basic Regulations of the Hamburg University of Applied Sciences in conjunction with Section 92 (1) sentence 2 no. 2 HmbHG. § Section 92 (1) sentence 2 number 2 and (5) HmbHG, the "Programme-specific examination and study regulations for the Bachelor's degree programme in Mechanical Engineering at Hamburg University of Applied Sciences" were approved in the following version.

§ 1 Scope of application

These regulations supplement the provisions of the "General Examination and Study Regulations for Bachelor's and Master's Degree Programmes in Engineering, Natural and Health Sciences and Computer Science at the Hamburg University of Applied Sciences (APSO-INGI)" as amended.

§ 2 Programme objective, standard period of study and structure

(1) The aim of the English-language Bachelor's degree programme in Mechanical Engineering is for graduates to acquire the skills to act in an ethically responsible and sustainable manner in the globally positioned, digitalised companies of tomorrow. Graduates have basic knowledge of the natural sciences and engineering. This enables them to deal with the tasks that arise in the product life cycle of machines and systems in their working environment, especially in their development and production. The acquired skills primarily include the design, calculation and construction of machines and systems, but also the organisational and economic design and optimisation of the associated production processes in socio-technical systems. Graduates are able to identify, abstract and structure complex technical tasks using the methods they have learnt. They have the problem-solving and action competence to systematically bring about application-orientated innovative solutions, taking into account aspects of economic efficiency, sustainability and ethics. Strengthened by the recurring project work during their studies, graduates are socially competent

enough to work together effectively in intercultural teams. They are able to present their position constructively in discussions and presentations with the help of comprehensible arguments.

(2) The standard period of study is seven semesters. A total of 210 credit points (CP) are awarded for successful completion of the programme. The workload is 30 hours per credit point.

(3) The degree programme consists of the core course and the specialisation course. The core programme lays the foundations in mechanical engineering, natural sciences, engineering and business studies. In the specialisation programme, knowledge is deepened, expanded and applied in a practice-oriented manner with regard to the professional fields of activity. Within the degree programme, a practice-oriented specialisation takes place in the "Industrial Internship" module, which is preferably completed at the beginning of the seventh semester. The degree programme ends with the Bachelor's thesis, which is completed in the seventh semester.

(4) The entire course and examination programme can be found in the overviews of the study semesters in § 5. The exact descriptions of the subject content can be found in the module handbook in its currently valid version, published on the HAW Hamburg website in the section Regulations in Studies and Teaching.

§ 3 Academic degree

Upon successful completion of the programme, the academic degree "Bachelor of Science (B.Sc.)" is awarded.

§ 4 Practical module

(1) The degree programme includes a 13-week "Industrial internship" practical engineering module, which should be integrated into the seventh semester. The module can only be started once all modules of the first three semesters have been passed. Exceptions can be approved by the representative for practical matters if the regulation leads to undue hardship, in particular to an extension of the degree programme that cannot be justified for social or family reasons and the deviation does not conflict with a sensible structure of the degree programme.

(2) Further details on the implementation and proof of the internship module are regulated in the guidelines for the main internship of the Bachelor's degree programmes in Mechanical Engineering and Production / Mechanical Engineering and Production (dual) of the Department of Mechanical Engineering and Production in their current version.

§ 5 Modules, credit points and language

(1) The Bachelor's examination is a course-related examination. It consists of compulsory modules, compulsory elective modules and the assigned examination and study achievements of the seven study semesters. The entire course and examination programme can be found in the following overview in paragraph 4. In the first two years of study, the chronological order of the modules is didactically based. Students are recommended to complete the programme in this order. (2) The language of instruction and examination is English.

(3) If different forms of examination are permitted for coursework and examinations, the lecturer shall make a binding determination of the examination form at the beginning of the course.

(4) The range of courses and examinations on offer is set out in the following table. The compulsory modules (modules no. 1 to 22) totalling 115 credit points must be completed for the core study programme. The specialisation studies, which take place in the fourth, fifth and sixth semesters, consist of the compulsory elective modules "Study Research Paper" or "Machine Elements and

Systems C Design Work" (modules no. 23 and 24), one of which must be completed with five credit points, as well as a further 18 compulsory elective modules of the specialisation (modules no. 25 to 42), twelve of which must be completed with a total of 60 credit points. must be completed. The specialisation programme concludes in the seventh semester with an internship and a Bachelor's thesis with colloquium. In order to pass the compulsory elective module "Machine Elements and Systems C Design Project", "Machine Elements and Systems C" must also be passed.

lfd. Nr.	Module Name	Modul Type	Semester	SWH	CP	Weighting	Type	Exam
Kernstudium								
1	Mathematics 1	SC	1	8	8	8	PL	WE (OE)
2	Mathematics 2	SC	2	4	5	5	PL	WE (OE)
		Ex		1				
3	Engineering Mechanics 1	SC	1	4	4	4	PL	WE (OE, PP)
4	Engineering Mechanics 2	SC	2	3	5	5	PL	WE (OE, PP)
		Ex		1				
5	Engineering Mechanics 3	SC	3	4	5	5	PL	WE (OE, PP)
6	Industrial Management	SC	1	3	3	3	PL	WE (OE, THP)
7	Cost Accounting	SC	2	3	3	3	PL	WE (OE, THP)
8	Experimental Physics	SC	1	4,5	6	6	PL	WE
		Lab	2	1,5			SL	LWC
9	Technical Drawing and CAD	SC	1	2,5	6	6	PL	PP (WE, WP, OE)
		Lab		1,5			SL	LWC
10	Machine Elements and Systems A	SC	2	3	6	6	PL	WE (OE, Pro)
		CPT		1,5			SL	EDT
11	Machine Elements and Systems B	SC	3	3	6	6	PL	WE (OE, Pro)
		CPT		1,5			SL	EDT
12	Materials Science	SC	1	3	7	7	PL	WE (OE, THP)
		SC	2	2,5			SL	LWC
		Lab		1,5				
13	Introductory Lab / Learn Project	Lab	1	1	3	3	SL	LWC
		Pro	2	1			SL	Pro
14	Manufacturing Technology	SC	2	4,5	6	6	PL	WE (OE)
		Lab	3	1,5			SL	LWC
15	Applied Computer Science	SC	3	4,5	6	6	PL	WE (OE)
		Lab		1,5			SL	LWC
16	Technical Thermodynamics 1	SC	3	4	5	5	PL	WE (OE)
17	Fluid Mechanics 1	SC	3	2	3	3	PL	WE (OE)
		Lab		0,5			SL	LWC
18	Electrical Engineering Fundamentals	SC	3	3	4	4	PL	WE (OE)
19	Electrical Drives	SC	4	3,5	5	5	PL	WE (OE)
		Lab		1,5			SL	LWC
20	German Language	SC	4	4	4	4	SL	PP (R, WE, OE, WP, Pro)
21	Measurement and Control Systems	SC	5/6	6,5	9	9	PL	WE (OE)
		Lab		1,5			SL	LWC
22	Project Management Fundamentals / Bachelor Project	SC	5/6	1	6	6	SL	PP
		Proxx		2,5			SL	Pro

lfd. Nr.	Module Name	Module Type	Semester	SWH	CP	Weighting	Type	Exam
Vertiefungsstudium								
Wahlpflichtmodul Studien- oder Hausarbeit (1 aus 2)								
23	Study Research Paper (Studienarbeit)	Pro	4/5/6	-	5	15	H	WP(PL)
24	Machine Elements and Systems C Design Project	Pro	4/5/6	1,5	5	15	KN	WP(PL)
Wahlpflichtmodule Vertiefung (12 aus 18)								
25	Machine Elements and Systems C	SC	4/5/6	3	5	15	PL	WE (OE)
		Lab		1			SL	LWC
26	Finite Element Methods	SC	4/5/6	3	5	15	PL	WE (OE, PP)
		Lab		1			SL	LWC
27	Systematic Product Development	SC	4/5/6	3	5	15	PL	PP (WP, WE)
		Lab		1			SL	LWC
28	Technology and Ethics	SC	4/5/6	3	5	15	PL	PP (WP, WE)
		Lab		1			SL	LWC
29	Energy from Biomass	SC	4/5/6	3	5	15	PL	PP (OE)
		Lab		1			SL	LWC
30	Thermal Modeling of Real Systems	SC	4/5/6	3	5	15	PL	WE (OE)
		Lab		1			SL	LWC
31	Technical Thermodynamics 2	SC	4/5/6	3	5	15	PL	WE (OE)
		Lab		1			SL	LWC
32	Wind Turbines	SC	4/5/6	3	5	15	PL	WE (OE)
		Lab		1			SL	LWC
33	Production Planning and Control	SC	4/5/6	3	5	15	PL	WE (OE, PP)
		Lab		1			SL	LWC
34	Cyber Physical Production Systems	SC	4/5/6	3	5	15	PL	Pro (PP, WE)
		Lab		1			SL	LWC
35	Robot-based Manufacturing	SC	4/5/6	3	5	15	PL	OE (WE)
		Lab		1			SL	LWC
36	Joining Technology	SC	4/5/6	3	5	15	PL	WE (OE)
		Lab		1			SL	LWC
37	Additive Manufacturing	SC	4/5/6	3	5	15	PL	OE (WE)
		Lab		1			SL	LWC
38	Mechatronics	SC	4/5/6	3	5	15	PL	WE (OE)
		Lab		1			SL	LWC
39	Software Applications in Mechanical Engineering	SC	4/5/6	3	5	15	PL	Pro (OE, WE)
		Lab		1			SL	LWC
40	Introduction to Commercial Vehicle Design	SC	4/5/6	3	5	15	PL	WE (OE, WP, Pres, T)
		Lab		1			SL	LWC
41	Introduction to Vehicle Dynamics	SC	4/5/6	3	5	15	PL	WE (OE, WP)
		Lab		1			SL	LWC
42	Introduction to Car Body Design	SC	4/5/6	3	5	15	PL	WE (Pres, WP)
		Lab		1			SL	LWC
Praktikum und Bachelorarbeit mit Kolloquium								
43	Industrial Internship	-	7	1,5	15	-	SL	PP
44	Bachelor Thesis with Colloquium	-	7	-	12	72	PL	BA
					3	18		KO

CP = Credit Points
SWH = Semester Week Hours

Module Type

SC = Seminar-style Class
CPT = Construction and
Planning Task
Pro = Project
Lab = Laboratory
Stud = Student research project
Ex = Exercise

Type

SL = Academic achievement (ungraded)
PL = Examination performance (graded)

Exam

(The regular examination forms are listed in the tables. Other possible forms of examination are shown in brackets).

BA = Bachelor Thesis
WP = Written Paper
WE = Written Exam
CO = Colloquium
EDT = Engineering Design Task
LWC = Lab work completion
OE = Oral Exam
Pro = Project
Pres = Presentation
T = Test
PP = Portfolio examination
THP = Take-Home examination

(5) For up to four compulsory elective modules of the specialisation, corresponding modules from the Bachelor's degree programme "Mechanical Engineering and Production", from the faculty and, in exceptional cases, from the Bachelor's degree programme of HAW Hamburg can be selected, provided that at least the same number of credit points is achieved and these modules are relevantly suitable. The selected modules must be clearly assigned to the exchange modules. Any surplus CP from the allocation of the selected modules to the exchange module are forfeited. Approval is granted by the degree programme coordinator. In the seventh semester, the internship module "Industrial Internship" worth 15 credit points and the Bachelor's thesis with colloquium worth 15 credit points must be completed. If a course is completed in German, this will be indicated on the certificate.

§ 6 Bachelor thesis

- (1) The Bachelor's thesis is an academic dissertation in English with a written elaboration and a concluding public university presentation with a colloquium.
- (2) The Bachelor's thesis can be registered if all modules of the first three semesters have been completed and at least 170 credit points have been successfully completed.
- (3) The Bachelor's thesis takes three months to complete.
- (4) The grading of the colloquium is included in the grading of the Bachelor's thesis by each examiner with the same weighting in proportion to the credit points.

§ 7 Taking the examinations

If examination or study achievements from the first semester are missing, no examination achievements from the fourth or higher semesters can be taken.

§ 8 Assessment and grading

- (1) The grading of the examinations is carried out in accordance with § 21 paragraph APSO-INGI .
- (2) The overall grade of the Bachelor's examination is calculated from the sum of the weighted grades of all examinations. The weighting of the module examinations can be found in the overviews in § 5.
- (3) It must be ensured that a repeat examination is offered in the following semester for students who have failed an examination.
- (4) The assessment of the tests in accordance with Section 14 (3) subsection 11 APSO-INGI will be included in the assessment of the written examinations up to 20%.

§ 9 Entry into force

These regulations come into force one day after their publication in the University Gazette of the Hamburg University of Applied Sciences. They apply for the first time to all students enrolled in the first semester from the summer semester 2025.

Hamburg, 13 December 2023
Hochschule für Angewandte Wissenschaften Hamburg