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Subject-related Examination and Study Regulations for the Master's degree programme Chemistry: Materials, Engineering and Sustainability dated 22 January 2025

On the basis of § 5 para. 1 sentence 2, 10 para. 5 sentence 2 in conjunction with § 20 para. 2 sentence 1, § 23 para. 2 sentence 1, § 70 para. 2 no. 8 and § 81 para. 2 sentence 1 no. 1 of the Brandenburg Higher Education Act (BbgHG) of 9 April 2024 (GVBl. I/24, [No. 12]. I/24, []) GVBl. I/24, [No. 12]GVBlNo. 30, p. 32), amended by Article 2 of the Act of 21 June 2024 () and § 16 para. 2 no. 1 and § 29 para. 4 p. 32. June 2024 (GVBl. I/24, [No. 30], p. 32) and Section 16 para. 2 no. 1 and Section 29 para. 4 sentence 1 no. 1 of the Constitution of the Brandenburg University of Technology Cottbus-Senftenberg (GO BTU) of 8 January 2016, last amended by the Third Amendment Statute of 26 September 2024 (AMbl. 26 September 2024 (AMbl. 39/2024) and § 1 of the General Examination and Study Regulations for Master's study programmes at the BTU Cottbus-Senftenberg (RahmenO-MA) of 12 September 2016 (AMbl. 14/2016), last amended by the Fifth Amendment Statute (AMbl. 30/2024 of 29 August 2024), the Brandenburg University of Technology Cottbus-Senftenberg (BTU) has adopted the following statutes:

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§ 1 Scope of validity

[1]These statutes regulate the subject-related features of the Master's study programme Chemistry: Materials, Engineering and Sustainability. [2]They supplement the General Examination and Study Regulations for Master's study programmes at BTU (RahmenO-MA) in their current version.

§ 2 Content profile of the study programme, goals of the programme

(1) [1]Students receive in-depth training in scientific and engineering subjects. [2]In two specialisations, they are familiarised with chemical aspects of the development, characterisation and application of inorganic and organic materials, including polymer and biomaterials, the analysis, modelling and development of material and energy conversion processes and their implementation in plant engineering. [3]Graduates will thus be able to independently carry out processes of chemical synthesis and technical material and energy conversion, provide analytical support using suitable chemical and physical methods, develop new processes and characterise the processes and materials, taking into account all ecological, economic, exergetic and energetic aspects as well as the associated life cycle analysis. [4]The study programme in this Master's degree course lays the foundations for doctoral studies in natural sciences and engineering subjects. [5]Future fields of activity for graduates are in research and development, production and Quality Management in various areas of the materials and Energy Economics (e.. chemical industry, power plants, recycling companies), with developers and manufacturers of measuring instruments, devices and production facilities for chemical-physical processes, in the scientific service sector (planning, service and sales) as well as in authorities, universities and research institutions.[6]In addition to the comprehensive expansion of specialist and methodological skills, project skills in particular are further developed in a targeted manner.

(2) The Master's degree programme Chemistry: Materials, Engineering and Sustainability is an international study programme.

§ 3 Graduation, Degree

Upon successful completion of the Master's study programme Chemistry: Materials, Engineering and Sustainability, the academic degree "Master of Science" (M. Sc.) is awarded.

§ 4 Special admission requirements and enrolment requirements

The basic requirement for admission to the Master's degree programme is an undergraduate degree (at least a Bachelor's degree) with at least 180 credits and a strong focus on materials chemistry or process engineering subjects.

§ 5 Credits for the standard programme and regular duration of the programme

(1) The degree programme comprises 120 credits with a regular duration of the standard programme of four semesters, whereby one credit corresponds to a workload of 30 hours.

(2) The degree programme begins in the winter semester.

(3) The study programme is offered as a full-time study programme with the option of individual part-time studies in accordance with § 6 RahmenO-MA.

§ 6 Structure and form of the programme

(1) The language of teaching and examination is English.

(2) [1]The degree programme consists of the curriculum shown in Annex 1:

- Compulsory elective modules totalling 54 LP,
- General Studies (FÜS) with 6 LP,
- the Practical Research Training with 30 LP,
- and the Master's thesis incl. defence with 30 LP

together.

[2]In the compulsory elective area, the specialisations Specialisation Materials Chemistry and Specialisation Fluid and Process Engineering are offered. [3]At least one of the two specialisations must be completed to the extent of at least 18 CP. [4]The completed specialisations are listed on the certificate.[5]A maximum of 12 ECTS credits can be earned for the acquisition of German language skills from the Language Competence module complex. [6]Both the third and fourth semesters are designed as mobility windows. [7]In the third semester, a research internship is completed at research institutions or industrial companies with their own research departments with a scientific or process engineering focus under the supervision of a chair involved in the study programme, usually outside BTU (see annex 3). [8]The Master's thesis is usually written in a chair involved in the study programme, including cooperation with external research institutions in Germany and abroad.

(2) The standard programme plan shown in Annex 2 provides a recommendation for the time structure of the degree programme.

(3) [1]The range of compulsory elective modules can be adjusted and published by the director of studies on a semester-by-semester basis if necessary. [2]The ability to study within the regular duration of the standard programme must be guaranteed in any case. [3]The director of studies must notify the administration (Campus Management System) one month before the start of the semester of any changes to the compulsory elective modules.

§ 7 Special regulations for organisation of examinations

There are no special regulations for organisation of examinations.

§ 8 Master Thesis

(1) [1]The Master's thesis module has a scope of 30 CP. [2]It consists of the written or creative work and a defence. [3]The processing time for the written or creative part of the Master's thesis is 18 weeks from registration.

(2) Admission to the Master's thesis is granted to students who have acquired at least 72 CP including the Practical Research Training at the time of registration.

§ 9 Further supplementary regulations

There are no further supplementary regulations.

§ 10 Efficacy, interim regulations, expiry

(1) These regulations come into force in the winter semester 2025/2026.

(2) These regulations apply to all students enrolled on the Master's degree programme Chemistry: Materials, Engineering and Sustainability from the winter semester 2025/26.

(3) Students on the Master's degree programme in Materials Chemistry from 17 September 2018 (AMbl. 17/2018) can apply to transfer to the Master's degree programme in Chemistry: Materials, Engineering and Sustainability.

(4) The examination and study regulations for the Master's degree programme in Materials

Chemistry dated 17 September 2018 (AMbl. 17/2018) expire after the last enrolment at the end of the regular duration of the standard programme plus four semesters.

(5) These examination and study regulations dated 22 January 2025 (AMbl. 01/2025) expire after the last enrolment at the end of the regular duration of the standard programme plus four semesters

Issued on the basis of the resolutions of the Faculty Council of Faculty 2 Environment and Natural Sciences of 1 June 2022 and 12 June 2024, the statement of the Senate of 27 June 2024 and the approval by the President of the Brandenburg University of Technology Cottbus-Senftenberg of 30 September 2024.

Cottbus, 22 January 2025

Prof. Dr Gesine Grande
President

Annex 1: Overview of modules, status, credits (LP)

Module no.	Complexes and modules	Status	Valuation	credits
	Compulsory elective area			**54**
	Specialisation Materials Chemistry[a]			
14327	Crystal Chemistry and Crystal Growth	WP	Check	
14326	Solid State Chemistry	WP	Check	6
14293	Porous Materials	WP	Check	6
14294	Lab Course Processes in Porous Materials	WP	Check	6
14284	Heterogeneous Equilibriums (Constitution Theory of Metallurgy)	WP	Check	6
14296	Thermo-mechanical Treatment of Metallic Materials	WP	Check	6
11803	Fundamentals of Additive Manufacturing	WP	Check	6
14298	Methods in Material Analytics	WP	Check	6
14286	Principles of Spectrochemistry	WP	Check	6
14285	Interfacial Chemistry	WP	Check	6
14287	Materials for Energy Conversion and Storage	WP	Check	6
14297	Polymer Chemistry	WP	Check	6
14408	Biomaterials I	WP	Check	6
14409	Biomaterials II Lab Course	WP	Check	6
14309	Modern Concepts of Materials Design	WP	Check	6
	Specialisation Fluid and Process Engineering[a]			
13515	Advanced Methods in Process, Energy and Systems Engineering	WP	Check	6
13832	Optimisation in Process and Energy Systems Engineering	WP	Check	6
13831	Process Simulation in Chemical and Process Engineering	WP	Check	6
44408	Safety Technology	WP	Check	6
44107	Safety- and Risk-Analysis for Process Plants	WP	Check	6
12989	Process System Technology II	WP	Check	6
13278	Energy Systems Engineering	WP	Check	6
13519	CFD 1	WP	Check	6

Module no.	Complexes and modules	Status	Valuation	credits
12233	Experiments in Aerodynamics and Fluid Mechanics	WP	Check	6
12886	Flow Measurements	WP	Check	6
14333	Downstream Processing for Products of Industrial Microbiology	WP	Check	6
13717	Decarbonisation of Industrial Processes	WP	Check	6
	Environment, Economy, Human, Law			
13234	Communication of Science and Technology	WP	Check	6
14132	Multidimensional Approaches for Technology Assessment	WP	Check	6
43201	Corporate Environmental Protection	WP	Check	6
13705	Sociology of Sustainable Development	WP	Check	6
11648	Sustainable Waste Management	WP	Check	6
	Language Competence[b]			
13363	German as a foreign language Start A1	WP	Check	6
13364	German as a foreign language A2	WP	Check	6
14152	Study strategies & specialised German Sustainability	WP	Check	6
12818	Basic German for everyday university life	WP	Check	6
13658	Uni-German for advanced learners	WP	Check	6
13819	Study strategies and technical language	WP	Check	6
	General Studies			**6**
	FÜS module[c]	WP		6
14310	Practical Research Training	P	Check	**30**
14311	Master Thesis	P	Check	**30**
	Total			**120**

[a)] In accordance with § 6, one of the two specialisations must be completed to the extent of at least 18 CP. The additional CP in the compulsory elective area can either also be acquired from this specialisation or from the other specialisation or from the module complexes Environmental, Economy, Human, Law or Language Competence.

[b)] According to § 6, a maximum of 12 CP can be acquired for the acquisition of German language skills from the Language Competence module complex.

[c)] To be selected from the module catalogue of the General Studies (FÜS) at BTU

P: Compulsory modules; WP: Compulsory elective modules / Exam: performance verification; SL: academic performances

Annex 2: Standard programme plan (allocation of modules and credits to semesters)

Complex or module	**Credits (LP) in the semester**			
	1	**2**	**3**	**4**
Modules from the compulsory elective area	24			
Modules from the compulsory elective area		30		
FÜS	6			
Practical Research Training			30	
Master Thesis				30
Total	**30**	**30**	**30**	**30**
Total amount	**120**			

Annex 3: Internship regulations

1. Scope of validity

[1]These internship regulations apply to interns who are completing a Practical Research Training (internship) in accordance with § 6 of the subject-related Examination and Study Regulations in the Master's degree programme. [2]Interns within the meaning of these regulations are BTU students on the Master's study programme Chemistry: Materials, Engineering and Sustainability.

2. Purpose of the internship

[1]The internship with a duration of 18 consecutive weeks is a compulsory internship and serves to apply, supplement, deepen and expand the material learnt in an environment typical of materials chemistry or Process Engineering research practice. [2]During the internship, students have the opportunity to familiarise themselves with and use new methods and technologies that are not available at BTU by using the infrastructure of external research institutions. [3]In addition, students can make their first contacts in terms of scientific or professional networking.

3. Application for an internship

[1]Students are responsible for finding an internship. [2]University lecturers at BTU do not arrange internships, but can act in an advisory capacity. [3]If there are valid reasons, the examination board can assign a project topic that is worked on at BTU under conditions close to research practice.

4. Supervisor of interns

[1] The internship must be supervised by a university lecturer in the field of Materials Chemistry or Process Engineering and Materials at BTU (Faculty 2 or 3) and led by a mentor at the relevant institution. [2]The assignment of the internship task is carried out by the mentor in consultation with the supervisor.

5. Final thesis and assessment

[1]A written thesis must be prepared on the internship and presented in a public university presentation. [2] Internship, thesis and presentation are assessed jointly by the supervisor and mentor. [3]Further details are regulated in the module description.

6. Verification and recognition

(1) Certificates of the internship must be issued by the internship institution clearly stating the duration, type and location of the activity.

(2) [1]A detailed internship report must be prepared which presents, discusses and evaluates a scientific or engineering problem from the internship, including the solutions developed or possible solutions, in a scientific form relevant to the subject area. [2]The confidentiality interests of the internship institution must be taken into account and measures in this regard must be agreed before the internship begins.

(3) The following must be submitted for the internship to be recognised:

- informal application (name, study programme, student ID number, type of internship, number of weeks to be recognised),
- Final thesis
- Proof of assessment of the thesis and presentation
- Original internship certificates.

(4) The supervisor decides to what extent the practical activity complies with these regulations and is recognised as an internship.

(5) The supervisor may prescribe additional weeks of internship if the documents submitted show that individual sections of the internship do not meet the specified objectives.

7. Decision-making authority

The examination board decides on the application and interpretation of these regulations