University of Applied Sciences Nordhausen

Study Regulations

for the Master's programmes in the Department of Engineering at Nordhausen University of Applied Sciences

Reading Version in English language

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Pursuant to Section 3 (1) in conjunction with Section 37 (1) No. 2 of the Thuringian Higher Education Act (ThürHG) of 10 May 2018 (GVBl. p. 149), as last amended by Article 27 of the Act of 6 June 2018 (GVBl. p. 229), and Section 10 (1) No. 2 of the Basic Regulations of the University of Applied Sciences Nordhausen (Official Gazette of the Thuringian Ministry of Education No. 28/2019, p. 1087) the Nordhausen University of Applied Sciences shall issue the following study regulations for the mastercourses at the Nordhausen University of Applied Sciences in the Department of Engineering of the Nordhausen University of Applied Sciences on the basis of the approved examination regulations for the master courses by the President on 15 April 2020. The Faculty Council for Engineering Sciences adopted the study regulations on 08 April 2020. The study regulations were approved by the President on 15 April 2020.

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§ 1
Scope of the study regulations

These study regulations regulate the objectives, contents and structure of the Master's programmes in the Department of Engineering at Nordhausen University of Applied Sciences.

§ 2
Goal of study, qualification profile, degree

(1) The Master's programmes in the Department of Engineering provide the students with a scientifically oriented basic education. The Master's programmes in the Department of Engineering include the programs listed in the annexes to these regulations. Students are taught the necessary scientific knowledge, skills and methods, taking into account the requirements and changes in the professional world, so that they can apply them independently and responsibly and classify them critically.

(2) The Master's examination is the scientifically and professionally qualifying degree of the study programme. The aim of the Master's examination is to determine whether the students have acquired the specialist knowledge necessary for scientific and professional work and have the ability to work independently on problems on the basis of scientific findings and methods. With this conclusion, the qualification for a further scientific activity that can lead to a doctorate is given.

(3) After passing the Master's examination, the University of Applied Sciences Nordhausen awards the degree "Master of Engineering", abbreviated to "M.Eng.".

§ 3
Admission requirements

(1) The general admission requirements are laid down in the Admission Regulations of the University of Applied Sciences Nordhausen.

(2) Prerequisites for admission to the program are also:

1. proof of completion of a suitable course of study as a Bachelor of Engineering or Bachelor of Science with a total of 210 ECTS - credit points in accordance with the "European Credit Transfer and Accumulation System" - European System for the Recognition, Transfer and Accumulation of Study Achievements (ECTS) or as a Diplom-Engineer at a university of applied sciences or university with a scope of 240 ECTS credit points.

   or

2. proof of a suitable Bachelor of Engineering or Bachelor of Science degree with 180 ECTS credit points according to the "European Credit Transfer and Accumulation System" (ECTS).

In deviation from § 4 (1), the enrolment of the students mentioned under point 2 can already take place in the winter semester, in connection with the requirement to provide a qualification of 30 ECTS credit points. The qualification can be achieved via:

a) an industrial internship of at least 18 weeks qualifying as an engineer-scientist. The contents of the internship shall be described in an internship report and shall be defended in a colloquium. The credit points to be achieved with this qualification build-up are broken down as follows:

Internship: 18 ECTS credit points
Internship Report: 9 ECTS credit points
Colloquium: 3 ECTS credit points.

The colloquium and the internship report must be completed by the beginning of the first semester; The repeatability applies to the regulations from § 14 of the examination regulations.

or

b) a qualifying engineer-scientific professional activity with a minimum duration of 6 months. The contents of the work shall be described in a work report which shall be defended in a colloquium. The credit points to be achieved with this qualification are broken down as follows:

Professional activity 24 ECTS credit points
Work report 6 ECTS credit points.

or

c) the successful completion of a qualification semester at Nordhausen University of Applied Sciences with at least 30 ECTS credits.

Further details are regulated by the course-specific annexes to these regulations.

(3) To be admitted to a master's programme in the Department of Engineering at Nordhausen University of Applied Sciences, a qualified degree is required.
A qualified degree is awarded if the applicant is one of the best 35% of the graduates in his or her programme. If an ECTS grading table according to the ECTS Users' Guide is used, it will be interpolated linearly to determine the intermediate grade up to which the student is to be assumed to belong to the best 35% of the graduates of the course, assuming equal distribution of the intermediate grades within a grade class.
A qualified degree is given if the overall grade is 2.5 or better; if the overall grade is not based on the grading system applicable to the Master's programme at Nordhausen University of Applied Sciences in accordance with the examination regulations, the overall grade is converted into this grading system.
If proof of the degree is not possible by the end of the application period, admission may be granted on condition that proof of the degree is furnished within a period to be determined by the Dean of Studies.

(4) For students of a German-language degree programme whose native language is a language other than German and who have not completed their higher education entrance qualification or their first degree in German, proof of sufficient knowledge of German is a DSH-2 certificate (Deutsche Sprachprüfung für den Hochschulzugang ausländischer Studienbewerber - German Language Examination for Admission of Foreign Students) or Level 4 in each skill in the test "Deutsch als Fremdsprache" (TestDAF), the passed examination part "Deutsch" in the context of the Feststellungsprüfung an Studienkollegs or a German Language Diploma (Level II) of the Kultusministerkonferenz (DSD II), further admission requirements.

(5) Students of an English-language degree programme whose first language is a language other than English and who have not completed their higher education entrance qualification or their first degree in English are required to prove sufficient knowledge of English at level B2 of the Common European Framework of Reference for Languages.

(6) Suitable studies in the sense of paragraph 2.1 or 2.2 are considered to be the degrees listed in the programme-specific annexes to this regulations. In the case of qualifications not listed, the board of

examiners decides on suitability. The examining Board shall decide whether the other requirements set out in paragraphs 2 to 5 have been met.

(7) If applicable, further admission requirements are listed in the course-specific annexes.

(8) In cases of doubt, the appropriate examination board decides whether the admission requirements pursuant to paragraphs 3, 4, 5, 6 and 7 are fulfilled.

§ 4
Start and duration of studies

(1) As a rule, studies begin with the summer semester. Courses are usually offered on an annual basis. Students who change their place of study and students with a prerequisite according to § 3 paragraph 2 number 2 can also enroll in the winter semester.

(2) The standard period of study, including all examinations, is three semesters. If the study requirements according to Section 3 Paragraph 2 Number 2 are met, the standard period of study is four semesters.

§ 5
Scope of studies and weighting of examination performance

(1) The study volume in the first two semesters amounts to a total of 60 ECTS credit points. In addition, there is the Master's thesis with 26 ECTS credit points and its defense with 4 ECTS credit points.

(2) For the successful completion of the study 90 ECTS credit points must be compiled according to the ECTS.

(3) The examination performances to be achieved are weighted in the calculation of the grade of the Master's examination according to their share in the total number of 90 ECTS credit points.

§ 6
Structure, content and procedure of the studies

(1) The course has a modular structure. Modules can consist of several study units, which are thematically and temporally coordinated. Further details can be found in the study plan (see study program specific annexes).

(2) The modules differ between mandatory and optional modules. The compulsory elective modules approved for the course of study are announced by a notice before the beginning of the semester.

(3) The Master's thesis is a scientifically demanding work to be completed in the last semester of study. The processing time is usually five months.

(4) The prerequisites for admission to the Master's thesis and the Master's Colloquium are regulated in the examination regulations for the Master's programmes with 90 ECTS credits in the Engineering Faculty.

§ 7
Types of events, forms of teaching and learning, proof of attendance

(1) Basically, the following forms of teaching and learning can be considered during the course of study:
- Lecture
- Exercise
- Seminar
- Internship
- Project work.

a. Lecture:
It serves the coherent presentation of a subject matter and the deepening of facts and methods.

b. Practice:
Teaching materials and contexts are systematically worked through and applied to practical cases. Under guidance, students work individually or in groups on solutions to given problems.

c. Seminar:
Here the development of special expertise and facts as well as the processing of complex problems takes place in alternation of lecture, presentation and discussion.

d. Internship:
It serves to acquire, supplement and deepen knowledge and finished products by working on practical experimental tasks.

e. Project work:
Here, a larger task is processed by a group or an individual. The processing takes place in the form of a laboratory, programming or homework under regular control by the teacher or lecturer. If the task is carried out externally, i.e. in an institute or a company, an agreement must first be reached between the institution and the teacher or lecturer on the assignment and the scope of work.

(2) The types of events are determined by the module manager and are anchored in the module manual. They are coordinated in terms of content and timing and are designed in such a way that students learn to work independently and scientifically as early as possible. In addition to imparting specialist competence, the courses promote responsible scientific and practice-oriented attitudes and behaviour.

(3) In special cases, the courses can also be offered as block courses or partly remotely.

(4) If the examination regulations for the Master's programmes with 90 ECTS credits in the field of Engineering provide for proof of attendance, the lecturer responsible for the course will determine the conditions for its issue.

(5) As an integral part of the course of study, academic self-study plays a particularly important role in all phases of education in promoting critical, methodical and creative thinking and the ability to work independently on complex tasks. In the subject counselling (cf. § 9 Para. 2) problems of self-study are also discussed with the students. The content and scope of the courses are designed in such a way that they can be prepared and followed up by the students.

§ 8
Study plan, module manual

(1) On the basis of these study regulations, study plans are drawn up for the individual study programmes and attached as annexes. They guarantee the proper structure of the studies and contain:

- the modules,
- the choice options via the mandatory elective modules,
- the number of semester hours per week per course,
- the type of event (V, Ü, S, P, Pr),
- the ECTS credits (CP) awarded for the modules,
- the type of examination.

(2) The description of the contents of the courses/test areas can be found in the module handbook of the Master's programmes of the Department of Engineering at the University of Applied Sciences Nordhausen.

§ 9
Student counselling

(1) Guidance for students is provided by the general student counselling service of the Nordhausen University of Applied Sciences. It covers questions of study suitability and, in particular, information on study opportunities, study contents, study structure and study requirements. It also includes psychosocial counselling in the event of personal difficulties caused by the student's studies.

(2) The department is responsible for advising students on their studies. It supports students especially in questions of study design and study techniques.

(3) The use of study counselling is particularly recommended in the following cases:

- at the beginning of studies,
- in the planning and organisation of studies,
- if you have difficulties during your studies,
- before and after a longer interruption of studies,
- in the event of failure to pass examinations,
- before a planned termination of studies.

§ 10
Regulations for students with childcare and care responsibilities, disability or chronic illness

The specific needs of students with childcare and care responsibilities as well as of students with disabilities or chronic illnesses will be adequately taken into account in the design of the course of studies and in the provision of evidence of achievement.

§ 11

Equality Regulations

Designations of status and functions in this order apply to people of all genders.

§ 12
Coming into effect and publication

(1) These study regulations come into effect on the day following their publication in the official announcements of the Nordhausen University of Applied Sciences.

(2) These study regulations apply to students who are enrolled for the first time in a technical/scientific Master's programme from the winter semester 2020/21 onwards.

Nordhausen, 15. April 2020

President	Dean
University of Applied Sciences Nordhausen	University of Applied Sciences Nordhausen
	Department of Engineering Sciences

Appendix 3: Renewable Energy Systems course of studies

One of the major challenges of the 21st century is to ensure a secure and environmentally sound energy supply in the face of increasing global energy demand, dwindling fossil resources and progressive climate change. Increased use of renewable energy sources is a way of meeting these challenges. This requires engineers with global qualifications who have a broad knowledge of the energy industry, business administration, social and political framework conditions and renewable energy systems.

The study course Renewable Energy Systems at the University of Applied Sciences Nordhausen is intended to enable students to pursue a profession as Master of Engineering. Its graduates can use scientific methods to analyse energy problems, develop technological and business solutions and make appropriate decisions.

The programme is aimed at German and foreign students with good English language skills. The modules of the program are held in English (with the exception of the module "German as a Foreign Language"). If the Bachelor's degree was not obtained at an English-speaking university, the applicant must prove at least language level B2 according to the Common European Framework of Reference for Languages. Proof is provided by the certificate of higher education entrance qualification or TOEFL, IELTS, TELC as well as comparable certificates.

According to § 3 para. 2, the admission to the course of studies Renewable Energy Systems is subject to the following Bachelor's degrees:

- Mechanical engineering
- Electrical engineering
- Energy Technology
- Regenerative energy technology

According to § 3 paragraph 7, the following additional admission requirements apply to the course of studies Renewable Energy Systems:

(1) The program is admission restricted. The number of admissions is determined by the Statute for the determination of admission numbers in courses of study with restricted admissions at Nordhausen University of Applied Sciences

(2) If the number of applications exceeds the number of available study places, the study places will be allocated according to the grade of the Bachelor's degree. The following criteria each lead to an upgrading of the Bachelor's grade to the indicated extent:

a. Applicants with 210 ECTS credit points will receive a grade upgrade of 0.2.

b. Applicants with proven scientific publications (bachelor thesis, scientific article) receive a grade upgrade of 0.1.

c. Applicants with proven basic knowledge of the German language (language level A1 according to the Common European Framework of Reference for Languages) will receive a grade increase of 0.1.

(3) In accordance with § 3 paragraph 2c, students with a Bachelor of Engineering or Bachelor of Science degree with an amount of 180 ECTS credit points must successfully complete the qualification semester RES.

Course of studies Renewable Energy Systems (M.Eng.)

Qualification Semester RES

Q. Semester (Winter Semester)	SWS V/Ü/Pr	CP	PA
Basics in Electrical Engineering (870)	4/0/0	5	PL
Basics in Thermal Engineering (871)	4/0/0	5	PL
Introduction in Renewables Energy Systems (872)	4/0/0	5	PL
Scientific Practice & Writing (873)	4/0/0	5	PL
Basics in Mechanical Engineering (1012)	4/0/0	5	PL
German as a Foreign Language (908)	4/0/0	5	PL
Total sum	24	30	

Mandatory study plan for students coming from UAS Nordhausen

1. Semester (Summer Semester)	SWS V/Ü/Pr	CP	PA	2. Semester (Winter Semester)	SWS V/Ü/Pr	CP	PA
Project Management (568)	4/0/0	5	PL	Bioengineering (864)	4/0/0	5	PL
Life Cycle Assessment (732)	4/0/0	5	PL	Renewable Raw Material (738)	2/0/2	5	PL
Bioenergy Systems (854)	3/0/1	5	PL	Scientific Project (858)	0/0/8	10	PL
Environmental and Sustainability Management (733)	4/0/0	5	PL	Project Module RES (1112)	0/0/4	5	PL
Project Module RES (1111)	0/0/4	5	PL				
Obligatory Elective Course	4	5	PL	Obligatory Elective Course	4	5	PL
Total sum	24	30			24	30	

Mandatory study plan for students coming from university other than UAS Nordhausen

1. Semester (Summer Semester)	SWS V/Ü/Pr	CP	PA	2. Semester (Winter Semester)	SWS V/Ü/Pr	CP	PA
Project Management (568)	4/0/0	5	PL	Wind Power Plants (851)	4/0/0	5	PL
Life Cycle Assessment (732)	4/0/0	5	PL	Photovoltaic Systems (852)	2/0/2	5	PL
Power-to-X (1010)	3/0/1	5	PL	Solar Thermal Laboratory (859)	4/0/0	5	PL
Bioenergy Systems (854)	0/0/4	5	PL	Scientific Project (858)	0/0/8	10	PL
German as a Foreign Language (910)	0/0/4	5	PL				
Obligatory Elective Course	4	5	PL	Obligatory Elective Course	4	5	PL
Total sum	24	30			24	30	

3. Semester (Summer Semester)	CP
Masterthesis (860A)	26
Presentation and Defence (860B)	4

Obligatory Elective Courses

Through the elective subjects, students can deepen their technical knowledge depending on their interests or expand their knowledge and learn about areas of application by choosing courses from another subject. The following table lists some possible subjects as examples. Other subjects can be added depending on the course on offer:

1. Semester (Summer Semester)	SWS V/Ü/Pr	CP	PA	2. Semester (Winter Semester)	SWS V/Ü/Pr	CP	PA
Numerical Methods in Heat and MassTransfer (867)	2/2/0	5	PL	Bioengineering (864)	4/0/0	5	PL
Fuel Cell Technologies (863)	4/0/0	5	PL	Computer Aided (Process) Engineering (869)	2/1/1	5	PL

Explanation of abbreviations:

SWS	Semester hours per week	CP	Credit points
V	Lecture	Ü	Practice
Pr	Internship	PA	Type of examination
PL	Examination		

The course covers a wide range of topics, from embedded systems to cloud computing and AI. This gives the students a comprehensive understanding of the structure of today's complex distributed systems as well as of the structure and interaction of the components in these systems. This enables students to develop systems for collecting and evaluating data and information. A central area of application for such systems is now the IoT with applications in industry (Industry 4.0), the energy sector, automotive, smart home or health sector. For the design and development of applications in these areas, knowledge of technical implementation and use of embedded systems, their integration into existing network structures, as well as the storage and processing of large amounts of data in cloud systems are taught. The course lays the necessary technical foundations in the hardware and software area for the design and development of corresponding systems and applications, as well as the methodological foundations for engineering tasks.

The Computer Engineering for IoT Systems master's degree program at the Nordhausen University of Applied Sciences enables students to work as a Master of Engineering and to do research. Its graduates can use scientific methods to design and develop applications for a broad spectrum of ICT systems, ranging from embedded systems and distributed applications to cloud solutions.

The course is aimed at German-language and international students with good English language skills. The modules of the course are generally taught in English. However, there is the possibility of taking parts of some modules in German in order to deal more intensively with German-language skills and, if an internship or work on the German market is planned, to achieve better integration.

The students are supported by offering German courses in the compulsory elective area. The applicant must prove sufficient knowledge of English at level B2 of the Common European Framework of Reference for Languages. The certificate of higher education entrance qualification or corresponding TOEFL, IELTS, TELC results and comparable certificates are valid as proof.

According to § 3 (2), the subsequent qualified Bachelor degrees are suitable for admission to the Computer Engineering for IoT Systems course:

Computer sciences and related courses.

According to § 3 (7), the following additional admission requirements apply to the Computer Engineering for IoT Systems degree program:

(1) The course of study is subject to admission restrictions. The number of admissions is determined by the statute for determining admission numbers in courses of study with admission restrictions at Nordhausen University of Applied Sciences.

(2) According to Section 3 Paragraph 2c, students with a Bachelor of Engineering or Bachelor of Science degree totaling 180 credit points (CP) must successfully complete a qualifying semester.

(3) If the number of applications exceeds the number of study places available, study places will be allocated following a local selection procedure within the meaning of Section 7a of the ThürHZG in accordance with the statutes on "Admission and selection procedure of the Department of Engineering for the degree program Computer Engineering for IoT Systems with the degree of Master of Engineering at Nordhausen University of Applied Sciences", dated May 19, 2022 (Official Announcements of Nordhausen University of Applied Sciences No. 11/2022, p. 2).

Qualification semester Computer Engineering for IoT Systems

Q. Semester (Winter Semester)	SWS V/Ü/Pr	CP	PA
Basics in Electrical Engineering (870)	3/1/0	5	PL
Information and Communication Technology (716)	2/2/0	5	PL
Scientific Practice & Writing (873)	3/1/0	5	PL
Distributed Systems (255)	3/1/0	5	PL
IT Service Management (1024)	4/0/0	5	PL
German as a foreign Language I (908) or Technical English I (912)	4/0/0	5	PL
Total sum	24	30	

Compulsory courses

1. Semester (Summer Semester)	SWS V/Ü/Pr	CP	PA
Embedded Systems (787)	2/1/1	5	PL
Dependable System Design (781)	3/1/0	5	PL
Signals and Controls (783)	3/1/0	5	PL
Seminar on topics in computer engineering (784)	0/0/2	5	PL
Obligatory Elective Course	4	5	PL
German as a Foreign Language II (910) or Technical English II (914)	4/0/0	5	PL
Total sum	22	30	

2. Semester (Winter Semester)	SWS V/Ü/Pr	CP	PA
Embedded Software Design and Programming (782)	2/2/0	5	PL
Cloud Computing and Big Data (786)	3/1/0	5	PL
Wireless Sensor Networks (780)	2/1/1	5	PL
IT-System Performance Analysis (788)	2/2/0	5	PL
Scientific Seminar (789)	0/0/2	5	PL
Obligatory Elective Course	4	5	PL
	22	30	

3. Semester (Summer Semester)	CP
Masterthesis (940A)	26
Presentation and Defence (940B)	4

Obligatory Elective Courses

Through the elective subjects, students can deepen their technical knowledge depending on their interests or expand their knowledge and learn about areas of application by choosing courses from another subject. The following table lists some possible subjects as examples. Other subjects can be added depending on the course on offer:

1. Semester (Summer Semester)	SWS V/Ü/Pr	CP	PA	2. Semester (Winter Semester)	SWS V/Ü/Pr	CP	PA
Project Management (568)	2/0/2	5	PL	Industry 4.0 (755)	2/0/2	5	PL
Process and Value Chain Management (ICM11)	0/0/4	5	PL	Bioengineering (864)	4/0/0	5	PL
Data Science in Python (762)	2/0/2	5	PL	Digital Transformation (15)	2/0/2	7	PL
Mechatronic Systems (1013)	2/2/0	5	PL	Life Cycle Assessment (732)	4/0/0	5	PL
Foreign Language Module	4	5	PL	Foreign Language Module	4	5	PL

Explanation of abbreviations:
SWS Semester hours per week
CP Credit points
V lecture
Ü a practice
Pr internship
PA Type of examination
PL Examination performance

Annex 7: Environmental and Recycling Technology (ERT)

One of the major challenges of the 21st century is to ensure a safe and environmentally friendly supply of raw materials in the face of a growing global population, dwindling fossil resources and advancing climate change. The increased use of secondary raw materials in recycling is one way to meet these challenges. This requires qualified engineers worldwide who have broad knowledge of environmental technology, recycling technology, management principles, social and political as well as legal framework conditions. The Environmental and Recycling Technology degree program is offered with 2 specializations, with the specialization taking place entirely in the 2nd semester:

- Specialization 1: Environmental Technology (ET)
- Specialization 2: Recycling Technology (RT)

The Environmental and Recycling Technology degree program at Nordhausen University of Applied Sciences is designed to enable students to pursue a career as a Master of Engineering. Its graduates can use scientific methods to analyze engineering problems in environmental and recycling technology, develop technological and business solutions, and make appropriate decisions. The degree program is aimed at German and foreign students with good English language skills. The modules of the degree program are taught in English (with the exception of the "German as a Foreign Language" module). The applicant must demonstrate at least a B2 level of English in accordance with the Common European Framework of Reference for Languages. Proof of this is a university entrance qualification or corresponding TO-EFL, IELTS, TELC results, and comparable certificates.

According to § 3 para. 2, the admission to the course of studies of Environmental and Recycling Technology is subject to the following Bachelor's degrees:

- Environmental and recycling technology
- Waste management
- Process engineering
- Geotechnics
- Mechanical engineering
- Environmental sciences

According to § 3 paragraph 7, the following additional admission requirements apply to the course of studies of Environmental and Recycling Technology:

(1) The program is admission restricted. The number of admissions is determined by the Statute for the determination of admission numbers in courses of study with restricted admissions at Nordhausen University of Applied Sciences

(2) If the number of applications exceeds the number of available study places, the study places will be allocated according to the grade of the Bachelor's degree. The following criteria each lead to an upgrading of the Bachelor's grade to the indicated extent:

   a. Applicants with 210 ECTS credit points will receive a grade upgrade of 0.2.

   c. Applicants with proven basic knowledge of the German language (language level A1 according to the Common European Framework of Reference for Languages) will receive a grade increase of 0.1.

(3) In accordance with § 3 paragraph 2c, students with a Bachelor of Engineering or Bachelor of Science degree with an amount of 180 ECTS credit points must successfully complete the qualification semester ERT.

The “Environmental and Recycling Technology” degree program is offered with 2 specializations, with the specialization taking place entirely in the 2nd semester:

- Specialization 1: Environmental Technology (ET)
- Specialization 2: Recycling Technology (RT)

Qualification semester Environmental and Recycling Technology

Q. Semester (Winter Semester)	SWS V/Ü/Pr	CP	LA
Basics in Electrical Engineering (870)	4 3/1/0	5	P
Basics in Thermal Engineering (871)	4 2/2/0	5	P
Introduction in Environmental and Recycling Technology (747)	4 3/1/0	5	P
Scientific Practice & Writing (873)	4 3/1/0	5	P
Basics in Mechanical Engineering (1012)	4 4/0/0	5	P
German as a Foreign Language I (908) or Technical English I (912)	4 2/2/0	5	P
Total sum	24	30	

Specialization Environmental Technology (ET)

1st Semester (Summer Semester)	SWS V/Ü/Pr	CP	L A	2nd Semester (Winter Semester)	SWS V/Ü/Pr	CP	L A
Project Management (568)	4 2/2/0	5	P	Bioengineering (864)	4 4/0/0	5	P
Proseminar / Soft Skills (731)	4 2/2/0	5	P	Environmental Pollutants and Chemistry Aspects (735)	4 4/0/0	5	P
Life Cycle Assessment (732)	4 3/1/0	5	P	Wastewater Engineering (736)	4 4/0/0	5	P

Environmental and Sustainability Management (733)	4 4/0/0	5	P	Plant Planning for Environmental Technology / Project Work (737)	4 2/1/1	5	P
Environmental Law (734)	4 4/0/0	5	P	Renewable Raw Material (738)	4 4/0/0	5	P
German as a Foreign Language II (910) or Technical English II (914)	4 2/2/0	5	P	Elective Course	4 4/0/0	5	P
Total sum	24	30			24	30	

Specialization Recycling Technology (RT)

1st Semester (Summer Semester)	SWS V/Ü/Pr	CP	L A	2nd Semester (Winter Semester)	SWS V/Ü/Pr	CP	L A
Project Management (568)	4 2/2/0	5	P	Urban Mining/Circular Economy (739)	4 4/0/0	5	P
Proseminar / Soft Skills (731)	4 2/2/0	5	P	Recycling Technologies of Anthro-pogenic Material Flows (740)	4 4/0/0	5	P
Life Cycle Assessment (732)	4 3/1/0	5	P	Preparation of Energy Raw Materials and Recovery (742)	4 4/0/0	5	P
Environmental and Sustainability Management (733)	4 4/0/0	5	P	Plant Planning for Recycling Technology / Project Work (743)	4 2/1/1	5	P
Environmental Law (734)	4 4/0/0	5	P	Future Technologies of Recycling Practice / Project Work (744)	4 2/1/1	5	P
German as a Foreign Language II (910) / Technical English II (914)	4 2/2/0	5	P	Elective Course	4 4/0/0	5	P
Total sum	24	30			24	30	

3th Semester (Summer Semester)	SWS V/Ü/Pr	CP	L A
Master Thesis and Colloquium (941)	20	30	P
Zwischensumme	20	30	
Gesamtsumme	68	90	

Foreign Language Module

Students in the qualification semester who do not speak German as their native language must choose the German as a Foreign Language I module. Students whose native language is German must choose the Technical English I module.

In the compulsory area of the Master's, students who do not speak German as their native language choose a German as a Foreign Language module that they have not taken before. Students whose native language is German choose a Technical English module that they have not taken before.

Deutsch als Fremdsprache I (908)	4/0/0	5
Deutsch als Fremdsprache II (910)	4/0/0	5
Technical English I (912)	4/0/0	5
Technical English II (914)	4/0/0	5

Obligatory Elective Courses

Through the elective subjects, students can deepen their technical knowledge depending on their interests or expand their knowledge and learn about areas of application by choosing courses from another subject. The following table lists some possible subjects as examples. Other subjects can be added depending on the course on offer:

Specialisation Environmental Technology	SWS V/Ü/Pr	CP	PA
Urban Mining / Circular Economy (739)	4/0/0	5	PL
Recycling Technologies of Anthropogenic Material Flows (740)	4/0/0	5	PL
Preparation of Energy Raw Materials and Recovery (742)	4/0/0	5	PL
Future Technologies of Recycling Practice / Project Work (744)	4/0/0	5	PL

SpecialisationRecycling Technology	SWS V/Ü/Pr	CP	PA
Bioengineering (864)	4/0/0	5	PL
Environmental Pollutants and Chemistry Aspects (735)	4/0/0	5	PL
Wastewater Engineering (736)	4/0/0	5	PL
Renewable Raw Material (738)	4/0/0	5	PL