TECHNISCHE HOCHSCHULE
OSTWESTFALEN-LIPPE
UNIVERSITY OF
APPLIED SCIENCES
AND ARTS

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Study Program Examination Regulations for the
Bachelor's Program General Engineering
of the Technische Hochschule Ostwestfalen-Lippe
(SPO General Engineering)

May 15, 2024

"This is an English translation.
The German version is legally binding."

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Study Program Examination Regulations for the Bachelor's Program General Engineering of the Technische Hochschule Ostwestfalen-Lippe (SPO General Engineering)

of July 17, 2024

The Technische Hochschule Ostwestfalen-Lippe (hereinafter: TH OWL) has issued the following statutes on the basis of Section 2 (4) and Section 64 (1) of the North Rhine-Westphalia Higher Education Act (Hochschulgesetz - HG) of September 16, 2014 (GV. NRW p. 543), last amended by the Act of December 5, 2023 (GV. NRW. p. 1275):

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I. General Information

§ 1
Scope

These Degree Program Examination Regulations (hereinafter: SPO) apply together with the General Part of the Bachelor's and Master's Degree Programs (hereinafter: ATPO) in the respective current version as the Examination Regulations of the degree program.

§ 2
Objective of the Degree Program and Purpose of the Bachelor's Examination

(1) The bilingual degree program is aimed at applicants from Germany and abroad and combines theoretical knowledge with technical skills and practical experience in a holistic approach for various professional fields of engineering. Taking into account the requirements and changes in the industrial professional world, students should acquire the necessary technical and personal knowledge as well as the methodological skills as a central prerequisite so that they are able to apply scientific-technical and planning-organizational knowledge and methods, to critically classify scientific findings and to act in a socially, economically and ecologically responsible and sustainable manner. Building on a solid foundation in basic science, engineering and language subjects and a practical semester, students specialize in one of the engineering programs. The Bachelor's examination provides access to a Master's degree program.

(2) The objective of the Bachelor's degree program is to enable students to enter the engineering profession, in particular to impart the necessary technical knowledge and methodological skills within the chosen specialization, taking into account the requirements and changes in the professional world.

(3) The Bachelor's examination forms the first professional qualification of the degree program. The Bachelor's examination is intended to determine whether the candidate has acquired the in-depth specialist knowledge required for a professional activity and is able to work on the basis of scientific-technical and planning-organizational knowledge and methods.

§ 3
Final Degree

On the basis of the Bachelor's examination passed by the candidate and depending on the specialization chosen, the academic degree

Bachelor of Science (B.Sc.)

is awarded.

§ 4
Special Admission Requirements

(1) The degree program is aimed at applicants who have obtained their higher education entrance qualification at a German or German-speaking institution and wish to deepen their English language skills during their studies in order to be able to compete on the international job market. It is also aimed at applicants who have obtained their higher education entrance qualification at a non-German-speaking institution and therefore have little or no German language skills. They will acquire these during their studies and prove them at a later date.

(2) A prerequisite for admission to the bilingual Bachelor's degree program in General Engineering is the proof of English language proficiency at level B2, documented by a suitable certificate, which will be announced by the International Office of TH OWL.
Applicants who can present one of the following certificates are generally exempt from the obligation to provide proof of their English language skills:

- a professional stay in an English-speaking country (Australia, Great Britain, Ireland, Canada, New Zealand, USA) of at least one year,
- Secondary school leaving certificate from Australia, Canada, USA (High school diploma), Great Britain (A-Level Certificate), Ireland, New Zealand (National Certificate of Educational Achievement), Scotland (Qualifications Certificate) or
- University degree from Australia, Great Britain, Ireland, Canada, New Zealand, USA.

(3) Furthermore, German language skills at level A1 are required, documented by suitable proof, which will be announced by the International Office of TH OWL. Applicants who are unable to provide this proof may be admitted by way of exception if they explain their motivation with regard to the degree in Germany and the required language skills still to be acquired in a letter of motivation.

The Examination Board decides on admission on the basis of the letter of motivation. It can also delegate the decision to a selection committee.

(4) At the latest when registering for the Bachelor's thesis, German language skills at level B2 must be demonstrated, documented by suitable proof, which will be announced by the International Office of TH OWL. Applicants who have obtained their higher education entrance qualification in German or in a country where German is the native language, or who already hold a German-speaking Bachelor's degree are exempt from providing proof of language qualifications.

§ 5
Scope of Degree Program, Standard Period of Study, Specializations, Content and Structure of Degree Program, Language of Instruction and Examination

(1) The degree program, including the Bachelor's examination, comprises eight semesters with a workload of 240 credits. The degree program is divided into three study phases: the entry phase, the orientation phase and the specialization phase.

(2) The entry phase comprises two semesters. One of the following specializations must be chosen by the end of the entry phase at the latest:

- Food Technology
- Life Sciences: Industrial Pharmacy, Biotechnology and Cosmetic Technology
- Computer Science
- Electrical Engineering
- Mechanical Engineering
- Mechatronics
- Virtual Product Development
- Digital Production Engineering
- Wood Technology

The choice of specialization defines access to the subject-specific compulsory module catalogs in the orientation phase.

(3) The orientation phase comprises two semesters and is divided into a synchronization semester and a subsequent practical semester in a company. In the synchronization semester, subject-specific compulsory module catalogs are offered for each specialization.
Courses in the first to third semesters are taught exclusively in English. The practical semester takes place in English and German.

(4) The specialization phase comprises four semesters. The courses offered depend on the chosen specialization (see Appendix 3 and 4).

(5) Courses in the specialization phase are held in German. They may also be offered in English. It is also possible to offer only parts of the courses in English or German. This is specified in the module description, as is the language of the examination. The examination may also be conducted in the other language at the request of the candidate and with the consent of the lecturer.

(6) The university supports applicants with integrated language courses in German and English, in particular in obtaining the required German language certificates.

§ 6
Examination Board

(1) The Examination Board consists of the chair, deputy chair and five other members. The chair, deputy chair and two further members are elected from the group of professors, a further member is elected from the group of academic staff and two members are elected from the group of students. Accordingly, personal deputies (representatives) are elected for the members of the Examination Board with the exception of the chair and deputy chair.

(2) By decision of the Examination Board, a second examination date of a semester may be restricted to repeaters. Only examinees who have taken but not passed the corresponding examination in the previous examination date of a semester are to be regarded as repeaters. This applies regardless of whether a second examination date of a semester takes place at the beginning of the following semester.

II. Module Examinations

§ 7
Module Examinations

(1) In the first two semesters, 60 credits must be earned in compulsory modules by taking module examinations in accordance with Appendix 1.

(2) In the third semester, students must take examinations in compulsory modules (subject-specific compulsory module catalog) in accordance with Appendix 2, depending on the chosen specialization. This requires the acquisition of 30 credits.

(3) The practical semester takes place in the fourth semester. In accordance with section 8, 25 credits must be earned.

(4) A total of 120 credits must be earned in each specialization. The decision on the choice of specialization has to be made by the end of the second semester at the latest.

(5) The admission requirement for all module examinations in compulsory modules in the fifth to eighth semesters as shown in Appendix 3 is the passing of the examinations in the modules of the first and second semesters as shown in Appendix 1 as well as the examinations in the modules of the third and fourth semesters as shown in Appendix 2, with the exception of two modules amounting to a maximum total of 10 credits. The German language modules of the first to fourth semesters must be passed.

(6) At the candidate's request, the Examination Board may approve a maximum of two compulsory elective modules per candidate from the modules offered by TH OWL or other universities as supplementary compulsory elective modules.

(7) Admission of a module requires in particular that the examinee earns at least 5 credits in the module through one or more examinations.

(8) Section 10 of the ATPO of the TH OWL remains unaffected when choosing supplementary compulsory elective modules from the modules offered by the TH OWL or other universities; multiple consideration of examinations completed in another degree program is excluded. The student must submit the documents required for the Examination Board's findings.

§ 8
Practical Semester

(1) Students on this Bachelor's degree program must complete a practical semester in Germany or abroad.

(2) The practical semester in the fourth semester earns 25 credits.

(3) The practical semester encompasses at least 17 weeks and should be carried out in English and/or German. It is intended to introduce students to professional activity through specific tasks and practical work in companies in the professional field. In particular, it should serve to review and apply the knowledge and skills acquired during previous studies and to reflect on and evaluate the experience gained during practical work. Students should gain experience in interdisciplinary work and thus prepare themselves for further studies and later employment in professional practice.

(4) Students who have passed all examinations in the compulsory modules of the first two semesters listed in Appendix 1 and at least two compulsory modules of the third semester listed in Appendix 2 will be admitted to the practical semester upon application.

(5) The Examination Board decides on exceptions as well as on recognition and admission to the practical semester and approval of the respective practical semester place.

(6) Successful participation in the practical semester will be confirmed by the Examination Office after submission of a certificate from the provider of the practical semester for the minimum duration specified in paragraph 3 and a brief overview of the fields of activity covered in the internship.

(7) The practical semester is documented in a report, which is intended to provide a comprehensive insight into the experiences gained and ensure in-depth reflection with regard to the course and the professional field.
Successful participation in the practical semester and submission of the report will earn 25 ECTS points following an examination in the form of a presentation by a professor in the department of the chosen specialization.

§ 9
Bachelor Thesis

(1) The Bachelor’s thesis should demonstrate that the examinee is capable of independently working on a practice-oriented task from his or her subject area and specialization within a prescribed period of time, both in its technical details and in interdisciplinary contexts, using scientific methods. As a rule, the Bachelor's thesis consists of an independent investigation with an engineering task as well as a detailed description and explanation of its solution. In suitable cases, it can also be a written term paper with specialized literary content. The guideline for the length of the Bachelor's thesis is 30 pages.

(2) The processing time for the Bachelor's thesis is eight weeks. The topic, task and scope of the Bachelor's thesis must be limited by the supervisor in such a way that the deadline for completing the Bachelor's thesis can be met.

(3) Passing the Bachelor's thesis earns 12 credits.

§ 10
Admission to the Bachelor Thesis

Only those students can be admitted to the Bachelor’s thesis who

1.) have passed the module examinations of the Bachelor's examination (§ 7),

2.) have completed the German B2 language certificate.

§ 11
Assessment of the Bachelor Thesis with (Presentation and) Colloquium

(1) The Bachelor's thesis with presentation and colloquium are assessed as a unit. If the thesis is not submitted on time, the final part of the examination (thesis including supplementary presentation with colloquium) is deemed to have been assessed as “failure” (5.0).

(2) The Bachelor's thesis must be assessed by two examiners and evaluated individually. In addition to the examiner who supervised the thesis, a second examiner shall be appointed by the Examination Board. The individual assessment must be justified in writing.

(3) The presentation and colloquium shall be conducted jointly by the examiners appointed for the thesis, unless a third examiner has been appointed by the Examination Board in accordance with paragraph 4. The examiners shall hear each other before determining the grade. The essential objects and results of the presentation and the colloquium, in particular the facts relevant to the grade, are to be recorded by both examiners in minutes. The individual assessment must be justified in writing.

(4) The grade for the final part of the examination is calculated from the arithmetic mean of the individual assessments, provided the difference does not exceed 2.0. If the difference is more than 2.0, a third examiner shall be appointed by the Examination Board. In this case, the grade for the final part of the examination is calculated from the arithmetic mean of the two better grades. However, the final part of the examination can only be assessed as "sufficient" or better if at least two grades are "sufficient" or better.

(5) The result of the final part of the examination is usually announced to the examinee following the colloquium. Audience members are not permitted during the consultation and announcement of the examination result.

(6) Passing the presentation and colloquium earns 3 or 5 credits, depending on the specialization.

III. Final Provisions

§ 12
Entry into Force and Publication

(1) These statutes shall be published in the Announcement Sheet of the TH OWL (*Verkündungsblatt*). It shall enter into force on the day after publication and shall apply for the first time to the application procedure in the winter semester 2024/2025.

(2) These statutes are issued after review by the Presidential Board of TH OWL and on the basis of the resolutions passed by the Department Councils of the Department of Life Science Technologies, the Department of Mechanical Engineering and Mechatronics and the Department of Production and Wood Technology on April 17, 2024, the Department of Electrical Engineering and Computer Engineering on April 24, 2024.

Lemgo, May 15, 2024

The President
of Technische Hochschule Ostwestfalen-Lippe

Prof. Dr. Jürgen Krahl

Note:
After one year from the announcement of these regulations, violations of procedural or formal requirements of the Higher Education Act or the regulatory or other law of the university can only be asserted under the conditions of § 12 (5) No. 1 to No. 4 of the North Rhine-Westphalia University Act. Otherwise, such a complaint is excluded.

Appendix 1

Degree Catalog
Bachelor Degree Program General Engineering
ENTRY PHASE (Semester 1-2)

Module No.	Module	Abbr.	Total		Semester/SWS							
			SWS	CR	1	2	3	4	5	6	7	8
	COMPULSORY MODULES [1)]											
	Entry Phase – STEM basics											
15212	Mathematics 1 *[Mathematik 1]*		4	5	4							
15246	Programming 1 *[Programmieren 1]*		4	5	4							
15262	General Chemistry *[Allgemeine Chemie]*		4	5	4							
14984	Introduction to Physics *[Einführung in Physik]*		4	5	4							
15123	Electrical Engineering 1 *[Elektrotechnik 1]*		4	5	4							
15232	Mathematics 2 *[Mathematik 2]*		4	5		4						
15195	Basics of Digitalization *[Grundlagen der Digitalisierung]*		4	5		4						
15226	Materials Science *[Werkstoffkunde]*		4	5		4						
15198	Technical Mechanics 1 – Statics *[Technische Mechanik 1 – Statik]*		4	5		4						
15029	General Engineering (PRACTICE) *[General Engineering (PRAXIS)]*		4	5		4						
	TOTAL COMPULSORY MODULE ENTRY PHASE		**40**	**50**	**20**	**20**						
	COMPULSORY ELECTIVE MODULES [2)]											
	Entry Phase – Languages [2)] **GERMAN WPM**											
14987	German A1 *[Deutsch A1]*		4	5	4							
15192	German A2 *[Deutsch A2]*		4	5		4						
	Entry Phase – Languages [2)] **ENGLISH WPM**											
15122	Business/Technical English *[Business/Technisches Englisch]*		4	5	4							
15040	Presenting in English *[Präsentieren in Englisch]*		4	5		4						
	TOTAL COMPULSORY ELECTIVE MODULE ENTRY PHASE		**8**	**10**								
	TOTAL ENTRY PHASE		**48**	**60**	**24**	**24**						

CR = Credits SWS = Semesterwochenstunden [contact hours] WPM = Wahlpflichtmodul [compulsory elective module]

1) An examination must be taken in each of the compulsory modules with a module number.

2) The compulsory elective modules "Languages" must be taken depending on the existing level of German. German-speaking students (native speaker or at least level B2) take Languages – ENGLISH. All other students take Languages – GERMAN in order to achieve a sufficient level of German.

Appendix 2

Degree Catalog
Bachelor Degree Program General Engineering
ORIENTATION PHASE (Semester 3-4)

Module No.	Module	Abbr.	Total		Semester/SWS							
			SWS	CR	1	2	3	4	5	6	7	8
	COMPULSORY MODULES [1]											
	Orientation phase – Specialization [2] **Food Technology / Life Sciences**											
15020	Introduction to Life Science: Products *[Einführung in Life Science: Produkte]*		4	5			4					
15146	Introduction to Life Science: Processes *[Einführung in Life Science: Prozesse]*		4	5			4					
15326	Applied Chemistry *[Angewandte Chemie]*		4	5			4					
15346	Thermodynamics *[Thermodynamik]*		4	5			4					
15182	Probability and Statistics *[Wahrscheinlichkeit und Statistik]*		4	5			4					
	Orientation phase – Specialization [2] **Electrical Engineering / Computer Science**											
14968	Mathematics 3 *[Mathematik 3]*		4	5			4					
15089	Mathematics 4 *[Mathematik 4]*		4	5			4					
15086	Algorithms and Data Structures *[Algorithmen und Datenstrukturen]*		4	5			4					
15132	Electrical Engineering 2 *[Elektrotechnik 2]*		4	5			4					
15019	Programming 2 *[Programmieren 2]*		4	5			4					
	Orientation phase – Specialization [2] **Mechatronics**											
14968	Mathematics 3 *[Mathematik 3]*		4	5			4					
15089	Mathematics 4 *[Mathematik 4]*		4	5			4					
15132	Electrical Engineering 2 *[Elektrotechnik 2]*		4	5			4					
14995	Technical Mechanics 2 – Elastostatics *[Technische Mechanik 2 – Festigkeit]*		4	5			4					
15167	Measurement Technology *[Grundlagen Messtechnik]*		4	5			4					
	Orientation phase – Specialization [2] **Mechanical Engineering / Virtual Product Development**											
14995	Technical Mechanics 2 – Elastostatics *[Technische Mechanik 2 – Festigkeit]*		4	5			4					
15167	Measurement Technology *[Grundlagen Messtechnik]*		4	5			4					
14974	CAD Construction *[Grundlagen CAD]*		4	5			4					
15250	Machine Elements A *[Maschinenelemente A]*		4	5			4					
15218	Machine Elements B *[Maschinenelemente B]*		4	5			4					

	Orientation phase – Specialization [2] **Digital Production Engineering**											
14974	CAD Construction *[Grundlagen CAD]*		4	5			4					
15125	Industrial Management *[Industriebetriebslehre]*		4	5			4					
12366	Software Engineering *[Softwareengineering]*		4	5			4					
15048	Polymer Processing *[Polymere Werkstoffe und Kunststoffverarbeitung]*		4	5			4					
14995	Technical Mechanics 2 – Elastostatics *[Technische Mechanik 2 – Festigkeit]*		4	5			4					
	Orientation phase – Specialization [2] **Wood Technology**											
15125	Industrial Management *[Industriebetriebslehre]*		4	5			4					
14951	Materials Technology: Wood *[Werkstofftechnologie Holz]*		4	5			4					
15128	Manufacturing Technology: Wood *[Fertigungstechnik Holz]*		4	5			4					
15171	Development in furniture and interior design *[Konstruktion im Möbel- und Innenausbau]*		4	5			4					
14995	Technical Mechanics 2 – Elastostatics *[Technische Mechanik 2 – Festigkeit]*		4	5			4					
	TOTAL COMPULSORY MODULE ORIENTATION PHASE		**20**	**25**			**20**					
	COMPULSORY ELECTIVE MODULES [3]											
	Orientation phase – Languages [3] **GERMAN WPM**											
15161	German B1 (I) *[Deutsch B1 (I)]*		4	5			4					
15225	German B1 (II) – block course *[Deutsch B1 (II) – Blockveranstaltung]*		4	5				4				
	Orientation phase – Languages [3] **ENGLISH WPM**											
15258	Intercultural Competences *[Interkulturelle Kompetenz]*		4	5			4					
15174	Company Tour (block course) *[Unternehmensbesuche (Blockveranstaltung)]*		4	5				4				
	TOTAL COMPULSORY ELECTIVE MODULE ORIENTATION PHASE		**8**	**10**			**4**	**4**				
15145	**PRACTICAL SEMESTER** ***[PRAXISSEMESTER]***		**20**	**25**				**20**				
	TOTAL ORIENTATION PHASE		**48**	**60**			**24**	**24**				

CR = Credits SWS = Semesterwochenstunden [contact hours] WPM = Wahlpflichtmodul [compulsory elective module]

1) An examination must be taken in each of the compulsory modules with a module number.
2) A subject-specific catalog must be selected depending on the chosen specialization and taken accordingly.
3) The compulsory elective modules "Languages" must be taken depending on the existing level of German. German-speaking students (native speaker or at least level B2) take Languages – ENGLISH. All other students take Languages – GERMAN in order to achieve a sufficient level of German.

Appendix 3

Degree Catalog
Bachelor Degree Program General Engineering
SPECIALIZATION PHASE (Semester 5-8)
Specialization – FOOD TECHNOLOGY
Main focus area: Beverage Technology

Module No.	Module	Abbr.	Total		Semester/SWS							
			SWS	CR	1	2	3	4	5	6	7	8
	COMPULSORY MODULES [1]											
	TOTAL ENTRY PHASE		**48**	**60**	**24**	**24**						
	TOTAL ORIENTATION PHASE		**48**	**60**			**24**	**24**				
	Specialization Phase – Food Technology											
13144	Chemisch-analytisches Praktikum	CAP	4	3					4			
13748	Grundlagen der Mikrobiologie	GMB	4	4					4			
15076/ 15216	Grundlagen der betrieblichen Technik	GBT	4	5					4			
15221	Technisches Zeichnen und Maschinenelemente	TZM	2	3					2			
13706	Grundlagen der Verfahrenstechnik	GVT	6	7					6			
13937	Lebensmittelchemie und -recht	LCR	6	7					6			
12258	Angewandte Mikrobiologie u. Betriebshygiene	AMB	4	4						4		
12929	Verfahrenstechnik	VTP	4	4						4		
14052	Lebensmittelchemisches Praktikum	LCP	4	4						4		
12056	Qualitätsmanagement für Life Science Technologies	QMT	6	7							6	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE		**44**	**48**					**26**	**12**	**6**	
	COMPULSORY MODULES – Beverage Technology											
13727	Getränketechnologische Grundoperationen	GGO	6	7						6		
12106	Alkoholfreie Getränke	AFG	6	7						6		
13585	Praxis der Getränkeherstellung	PDG	6	7							6	
13650	Technologie Fermentierter Getränke	TFG	6	7							6	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE Beverage Technology		**24**	**28**						**12**	**12**	
	COMPULSORY ELECTIVE MODULES [2]											
	WPM 1		4	5						4		
	WPM 2		4	5							4	
	WPM 3		4	5							4	
	TOTAL COMPULSORY ELECTIVE MODULE		**12**	**15**						**4**	**8**	
	FINAL EXAMINATION PART: BACHELOR THESIS											
15131	Studienarbeit		8	12								8
15064	Bachelorarbeit		8	12								8
15255	Kolloquium			5								
	TOTAL THESIS		**16**	**29**								**16**
	Total SWS		**192**		**24**	**24**	**24**	**24**	**26**	**28**	**26**	**16**
	Total Credits			**240**	**30**	**30**	**30**	**30**	**29**	**31**	**31**	**29**

CR = Credits SWS = Semesterwochenstunden [contact hours] WPM = Wahlpflichtmodul [compulsory elective module]

1) An examination must be taken in each of the compulsory modules with a module number.
2) The compulsory elective modules are to be selected from the compulsory elective module catalog of the specialization according to the main focus area (Appendix 4).

Appendix 4

Degree Catalog
Bachelor Degree Program General Engineering
SPECIALIZATION PHASE (Semester 5-8)
Specialization – FOOD TECHNOLOGY
Main focus area: Protein-based Food Technology

Module No.	Module	Abbr.	Total		Semester/SWS							
			SWS	CR	1	2	3	4	5	6	7	8
	COMPULSORY MODULES [1]											
	TOTAL ENTRY PHASE		**48**	**60**	**24**	**24**						
	TOTAL ORIENTATION PHASE		**48**	**60**			**24**	**24**				
	Specialization Phase – Food Technology											
13144	Chemisch-analytisches Praktikum	CAP	4	3					4			
13748	Grundlagen der Mikrobiologie	GMB	4	4					4			
15076/ 15216	Grundlagen der betrieblichen Technik	GBT	4	5					4			
15221	Technisches Zeichnen und Maschinenelemente	TZM	2	3					2			
13706	Grundlagen der Verfahrenstechnik	GVT	6	7					6			
13937	Lebensmittelchemie und -recht	LCR	6	7					6			
12258	Angewandte Mikrobiologie u. Betriebshygiene	AMB	4	4						4		
12929	Verfahrenstechnik	VTP	4	4						4		
14052	Lebensmittelchemisches Praktikum	LCP	4	4						4		
12056	Qualitätsmanagement für Life Science Technologies	QMT	6	7							6	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE		**44**	**48**					**26**	**12**	**6**	
	COMPULSORY MODULES – Protein-based Food Technology											
11921	Proteingrundlagen	PGL	6	7						6		
15238	Technologie prozessierter Fleischerzeugnisse	TPF	6	7						6		
14522	Proteinreiche Lebensmittel: Technologie und Behandlung	PTB	6	7							6	
12471	Convenience- und Tiefkühlerzeugnisse	CTK	6	7							6	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE Protein-based Food Technology		**24**	**28**						**12**	**12**	
	COMPULSORY ELECTIVE MODULES [2]											
	WPM 1		4	5						4		
	WPM 2		4	5							4	
	WPM 3		4	5							4	
	TOTAL COMPULSORY ELECTIVE MODULE		**12**	**15**						**4**	**8**	
	FINAL EXAMINATION PART: BACHELOR THESIS											
15131	Studienarbeit		8	12								8
15064	Bachelorarbeit		8	12								8
15255	Kolloquium			5								
	TOTAL THESIS		**16**	**29**								**16**
	Total SWS		**192**		**24**	**24**	**24**	**24**	**26**	**28**	**26**	**16**
	Total Credits			**240**	**30**	**30**	**30**	**30**	**29**	**31**	**31**	**29**

CR = Credits SWS = Semesterwochenstunden [contact hours] WPM = Wahlpflichtmodul [compulsory elective module]

1) An examination must be taken in each of the compulsory modules with a module number.
2) The compulsory elective modules are to be selected from the compulsory elective module catalog of the specialization according to the main focus area (Appendix 4).

Appendix 4

Degree Catalog
Bachelor Degree Program General Engineering
SPECIALIZATION PHASE (Semester 5-8)
Specialization – FOOD TECHNOLOGY
Main focus area: Bakery and Confectionery Technology

Module No.	Module	Abbr.	Total		Semester/SWS							
			SWS	CR	1	2	3	4	5	6	7	8
	COMPULSORY MODULES [1]											
	TOTAL ENTRY PHASE		**48**	**60**	**24**	**24**						
	TOTAL ORIENTATION PHASE		**48**	**60**			**24**	**24**				
	Specialization Phase – Food Technology											
13144	Chemisch-analytisches Praktikum	CAP	4	3					4			
13748	Grundlagen der Mikrobiologie	GMB	4	4					4			
15076/ 15216	Grundlagen der betrieblichen Technik	GBT	4	5					4			
15221	Technisches Zeichnen und Maschinenelemente	TZM	2	3					2			
13706	Grundlagen der Verfahrenstechnik	GVT	6	7					6			
13937	Lebensmittelchemie und -recht	LCR	6	7					6			
12258	Angewandte Mikrobiologie u. Betriebshygiene	AMB	4	4						4		
12929	Verfahrenstechnik	VTP	4	4						4		
14052	Lebensmittelchemisches Praktikum	LCP	4	4						4		
12056	Qualitätsmanagement für Life Science Technologies	QMT	6	7							6	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE		**44**	**48**					**26**	**12**	**6**	
	COMPULSORY MODULE – Bakery and Confectionery Technology											
13362	Rohstoffe der Backwaren	RBW	6	7						6		
12698	Backwarentechnologie	BWT	6	7						6		
13473	Rohstoffe der Süßwaren	RSW	6	7							6	
14006	Süßwarenproduktion	SWP	6	7							6	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE Bakery and Confectionery Technology		**24**	**28**						**12**	**12**	
	COMPULSORY ELECTIVE MODULES [2]											
	WPM 1		4	5						4		
	WPM 2		4	5							4	
	WPM 3		4	5							4	
	TOTAL COMPULSORY ELECTIVE MODULE		**12**	**15**						**4**	**8**	
	FINAL EXAMINATION PART: BACHELOR THESIS											
15131	Studienarbeit		8	12								8
15064	Bachelorarbeit		8	12								8
15255	Kolloquium			5								
	TOTAL THESIS		**16**	**29**								**16**
	Total SWS		**192**		**24**	**24**	**24**	**24**	**26**	**28**	**26**	**16**
	Total Credits			**240**	**30**	**30**	**30**	**30**	**29**	**31**	**31**	**29**

CR = Credits SWS = Semesterwochenstunden [contact hours] WPM = Wahlpflichtmodul [compulsory elective module]

1) An examination must be taken in each of the compulsory modules with a module number.
2) The compulsory elective modules are to be selected from the compulsory elective module catalog of the specialization according to the main focus area (Appendix 4).

Appendix 4

Degree Catalog
Bachelor Degree Program General Engineering
SPECIALIZATION PHASE (Semester 5-8)
Specialization – LIFE SCIENCES
Main focus area: Cosmetic Technology

Module No.	Module	Abbr.	Total		Semester/SWS							
			SWS	CR	1	2	3	4	5	6	7	8
	COMPULSORY MODULES [1)]											
	TOTAL ENTRY PHASE		**48**	**60**	**24**	**24**						
	TOTAL ORIENTATION PHASE		**48**	**60**			**24**	**24**				
	Specialization Phase – Life Sciences: Industrial Pharmacy, Biotechnology, Cosmetic Technology											
13144	Chemisch-analytisches Praktikum	CAP	4	3					4			
13748	Grundlagen der Mikrobiologie	GMB	4	4					4			
15076/ 15216	Grundlagen der betrieblichen Technik	GBT	4	5					4			
15221	Technisches Zeichnen und Maschinenelemente	TZM	2	3					2			
13706	Grundlagen der Verfahrenstechnik	GVT	6	7					6			
13937	Lebensmittelchemie und -recht	LCR	6	7					6			
12258	Angewandte Mikrobiologie u. Betriebshygiene	AMB	4	4						4		
12929	Verfahrenstechnik	VTP	4	4						4		
14052	Lebensmittelchemisches Praktikum	LCP	4	4						4		
12056	Qualitätsmanagement für Life Science Technologies	QMT	6	7							6	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE		**44**	**48**					**26**	**12**	**6**	
	COMPULSORY MODULES – Cosmetic Technology											
13358	Präparate- und Wirkstoffkunde	PWK	6	7						6		
12221	Grundlagen der Kosmetiktechnologie	GKT	6	7						6		
13890	Angewandte Kosmetiktechnologie	AKT	6	7							6	
13583	Formulierungstechnik	FTK	6	7							6	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE Cosmetic Technology		**24**	**28**						**12**	**12**	
	COMPULSORY ELECTIVE MODULES [2)]											
	WPM 1		4	5						4		
	WPM 2		4	5							4	
	WPM 3		4	5							4	
	TOTAL COMPULSORY ELECTIVE MODULE		**12**	**15**						**4**	**8**	
	FINAL EXAMINATION PART: BACHELOR THESIS											
15131	Studienarbeit		8	12								8
15064	Bachelorarbeit		8	12								8
15255	Kolloquium			5								
	TOTAL THESIS		**16**	**29**								**16**
	Total SWS		**192**		**24**	**24**	**24**	**24**	**26**	**28**	**26**	**16**
	Total Credits			**240**	**30**	**30**	**30**	**30**	**29**	**31**	**31**	**29**

CR = Credits SWS = Semesterwochenstunden [contact hours] WPM = Wahlpflichtmodul [compulsory elective module]

1) An examination must be taken in each of the compulsory modules with a module number.
2) The compulsory elective modules are to be selected from the compulsory elective module catalog of the specialization according to the main focus area (Appendix 4).

Appendix 4

Degree Catalog
Bachelor Degree Program General Engineering
SPECIALIZATION PHASE (Semester 5-8)
Specialization – LIFE SCIENCES
Main focus area: Biotechnology

Module No.	Module	Abbr.	Total		Semester/SWS							
			SWS	CR	1	2	3	4	5	6	7	8
	COMPULSORY MODULES [1]											
	TOTAL ENTRY PHASE		**48**	**60**	**24**	**24**						
	TOTAL ORIENTATION PHASE		**48**	**60**			**24**	**24**				
	Specialization Phase – Life Sciences: Industrial Pharmacy, Biotechnology, Cosmetic Technology											
13144	Chemisch-analytisches Praktikum	CAP	4	3					4			
13748	Grundlagen der Mikrobiologie	GMB	4	4					4			
15076/ 15216	Grundlagen der betrieblichen Technik	GBT	4	5					4			
15221	Technisches Zeichnen und Maschinenelemente	TZM	2	3					2			
13706	Grundlagen der Verfahrenstechnik	GVT	6	7					6			
13937	Lebensmittelchemie und -recht	LCR	6	7					6			
12258	Angewandte Mikrobiologie u. Betriebshygiene	AMB	4	4						4		
12929	Verfahrenstechnik	VTP	4	4						4		
14052	Lebensmittelchemisches Praktikum	LCP	4	4						4		
12056	Qualitätsmanagement für Life Science Technologies	QMT	6	7							6	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE		**44**	**48**					**26**	**12**	**6**	
	COMPULSORY MODULES – Biotechnology											
12530	Fermentation und Aufarbeitung	FEA	6	7						6		
13259	Bioprozessentwicklung	BPE	6	7						6		
13854	Biotechnologische Prozesse	BIP	6	7							6	
13175	Zellkultur- und Anlagentechnik	ZAT	6	7							6	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE Biotechnology		**24**	**28**						**12**	**12**	
	COMPULSORY ELECTIVE MODULES [2]											
	WPM 1		4	5						4		
	WPM 2		4	5							4	
	WPM 3		4	5							4	
	TOTAL COMPULSORY ELECTIVE MODULE		**12**	**15**						**4**	**8**	
	FINAL EXAMINATION PART: BACHELOR THESIS											
15131	Studienarbeit		8	12								8
15064	Bachelorarbeit		8	12								8
15255	Kolloquium			5								
	TOTAL THESIS		**16**	**29**								**16**
	Total SWS		**192**		**24**	**24**	**24**	**24**	**26**	**28**	**26**	**16**
	Total Credits			**240**	**30**	**30**	**30**	**30**	**29**	**31**	**31**	**29**

CR = Credits SWS = Semesterwochenstunden [contact hours] WPM = Wahlpflichtmodul [compulsory elective module]

1) An examination must be taken in each of the compulsory modules with a module number.
2) The compulsory elective modules are to be selected from the compulsory elective module catalog of the specialization according to the main focus area (Appendix 4).

Appendix 4

Degree Catalog
Bachelor Degree Program General Engineering
SPECIALIZATION PHASE (Semester 5-8)
Specialization – LIFE SCIENCES
Main focus area: Industrial Pharmacy

Module No.	Module	Abbr.	Total		Semester/SWS							
			SWS	CR	1	2	3	4	5	6	7	8
	COMPULSORY MODULES [1)]											
	TOTAL ENTRY PHASE		**48**	**60**	**24**	**24**						
	TOTAL ORIENTATION PHASE		**48**	**60**			**24**	**24**				
	Specialization Phase – Life Sciences: Industrial Pharmacy, Biotechnology, Cosmetic Technology											
13144	Chemisch-analytisches Praktikum	CAP	4	3					4			
13748	Grundlagen der Mikrobiologie	GMB	4	4					4			
15076/ 15216	Grundlagen der betrieblichen Technik	GBT	4	5					4			
15221	Technisches Zeichnen und Maschinenelemente	TZM	2	3					2			
13706	Grundlagen der Verfahrenstechnik	GVT	6	7					6			
13937	Lebensmittelchemie und -recht	LCR	6	7					6			
12258	Angewandte Mikrobiologie u. Betriebshygiene	AMB	4	4						4		
12929	Verfahrenstechnik	VTP	4	4						4		
14052	Lebensmittelchemisches Praktikum	LCP	4	4						4		
12056	Qualitätsmanagement für Life Science Technologies	QMT	6	7							6	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE		**44**	**48**					**26**	**12**	**6**	
	COMPULSORY MODULES – Industrial Pharmacy											
10720	Pharmazeutisch-Analytische Validierung	PAV	6	7						6		
10866	Arzneiformenlehre	AFL	6	7						6		
11170	Pharmazeutische Produktion und Validierung	PPV	6	7							6	
13175	Zellkultur- und Anlagentechnik	ZAT	6	7							6	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE Industrial Pharmacy		**24**	**28**						**12**	**12**	
	COMPULSORY ELECTIVE MODULES [2)]											
	WPM 1		4	5						4		
	WPM 2		4	5							4	
	WPM 3		4	5							4	
	TOTAL COMPULSORY ELECTIVE MODULE		**12**	**15**						**4**	**8**	
	FINAL EXAMINATION PART: BACHELOR THESIS											
15131	Studienarbeit		8	12								8
15064	Bachelorarbeit		8	12								8
15255	Kolloquium			5								
	TOTAL THESIS		**16**	**29**								**16**
	Total SWS		**192**		**24**	**24**	**24**	**24**	**26**	**28**	**26**	**16**
	Total Credits			**240**	**30**	**30**	**30**	**30**	**29**	**31**	**31**	**29**

CR = Credits SWS = Semesterwochenstunden [contact hours] WPM = Wahlpflichtmodul [compulsory elective module]

1) An examination must be taken in each of the compulsory modules with a module number.
2) The compulsory elective modules are to be selected from the compulsory elective module catalog of the specialization according to the main focus area (Appendix 4).

Appendix 4

Degree Catalog
Bachelor Degree Program General Engineering
SPECIALIZATION PHASE (Semester 5-8)
Specialization – ELECTRICAL ENGINEERING

Module No.	Module	Abbr.	Total		Semester/SWS							
			SWS	CR	1	2	3	4	5	6	7	8
	COMPULSORY MODULES [1]											
	TOTAL ENTRY PHASE		**48**	**60**	**24**	**24**						
	TOTAL ORIENTATION PHASE		**48**	**60**			**24**	**24**				
	Specialization Phase – Electrical Engineering											
13859	Programmierung eingebetteter Systeme	PE	4	5					4			
13363	Elektronik 1	EL1	4	5					4			
13484	Elektronik 2	EL2	4	5						4		
13909	Signale und Systeme	SY	4	5					4			
12434	Entwurf digitaler Systeme	ED	4	5					4			
12363	Messtechnik	MT	4	5					4			
13827	Messtechnikpraktikum	MP	2	3					2			
13099	Vertiefungspraktikum	VP	2	2					2			
13201	Regelungstechnik 1	RT1	4	5						4		
13643	Kommunikationstechnik 1	KT1	4	5						4		
12723	Elektrische Maschinen	EM	4	5						4		
13688	Regelungstechnik 2	RT2	4	5							4	
12068	Leistungselektronik	LE	4	5							4	
13143	Elektrische Energietechnik	EE	4	5							4	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE		**52**	**65**					**24**	**16**	**12**	
	COMPULSORY ELECTIVE MODULES [2]											
	WPM 1		4	5						4		
	WPM 2		4	5						4		
	WPM 3		4	5							4	
	WPM 4		4	5							4	
	WPM 5		4	5							4	
	WPM 6		4	5								4
	TOTAL COMPULSORY ELECTIVE MODULE		**24**	**30**						**8**	**12**	**4**
	FINAL EXAMINATION PART: BACHELOR THESIS											
15131	Studienarbeit		8	10								8
15064	Bachelorarbeit		12	12								12
15255	Kolloquium			3								
	TOTAL THESIS		**20**	**25**								**20**
	Total SWS		**192**		**24**	**24**	**24**	**24**	**24**	**24**	**24**	**24**
	Total Credits			**240**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**

CR = Credits SWS = Semesterwochenstunden [contact hours] WPM = Wahlpflichtmodul [compulsory elective module]

1) An examination must be taken in each of the compulsory modules with a module number.
2) The compulsory elective modules are to be selected from the compulsory elective module catalog of the specialization (Appendix 4).

Appendix 4

Degree Catalog
Bachelor Degree Program General Engineering
SPECIALIZATION PHASE (Semester 5-8)
Specialization – COMPUTER SCIENCE

Module No.	Module	Abbr.	Total		Semester/SWS							
			SWS	CR	1	2	3	4	5	6	7	8
	COMPULSORY MODULES [1]											
	TOTAL ENTRY PHASE		**48**	**60**	**24**	**24**						
	TOTAL ORIENTATION PHASE		**48**	**60**			**24**	**24**				
	Specialization Phase – Computer Science											
13909	Signale und Systeme	SY	4	5					4			
12434	Entwurf digitaler Systeme	ED	4	5					4			
13328	Rechnerorganisation und Betriebssysteme	RO	4	5					4			
13679	Software-Design	SD	4	5					4			
12226	Komplexität und Berechenbarkeit	KB	4	5					4			
12375	Objektorientierte Analyse und Design	OA	4	5					4			
12745	Rechnernetze	RN	4	5						4		
12588	Echtzeit-Datenverarbeitung	EZ	4	5						4		
13668	Datensicherheit	DC	4	5						4		
13040	Datenbanken	DB	4	5						4		
12735	Maschinelles Lernen	ML	4	5							4	
12531	Numerische Mathematik	NM	4	5							4	
13725	Künstliche Intelligenz	KI	4	5							4	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE		**52**	**65**					**24**	**16**	**12**	
	COMPULSORY ELECTIVE MODULES [2]											
	WPM 1		4	5						4		
	WPM 2		4	5						4		
	WPM 3		4	5							4	
	WPM 4		4	5							4	
	WPM 5		4	5							4	
	WPM 6		4	5								4
	TOTAL COMPULSORY ELECTIVE MODULE		**24**	**30**						**8**	**12**	**4**
	FINAL EXAMINATION PART: BACHELOR THESIS											
15131	Studienarbeit		8	10								8
15064	Bachelorarbeit		12	12								12
15255	Kolloquium			3								
	TOTAL THESIS		**20**	**25**								**20**
	Total SWS		**192**		**24**	**24**	**24**	**24**	**24**	**24**	**24**	**24**
	Total Credits			**240**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**

CR = Credits SWS = Semesterwochenstunden [contact hours] WPM = Wahlpflichtmodul [compulsory elective module]

1) An examination must be taken in each of the compulsory modules with a module number.
2) The compulsory elective modules are to be selected from the compulsory elective module catalog of the specialization (Appendix 4).

Appendix 4

Degree Catalog
Bachelor Degree Program General Engineering
SPECIALIZATION PHASE (Semester 5-8)
Specialization – MECHANICAL ENGINEERING

Module No.	Module	Abbr.	Total		Semester/SWS							
			SWS	CR	1	2	3	4	5	6	7	8
	COMPULSORY MODULES [1]											
	TOTAL ENTRY PHASE		**48**	**60**	**24**	**24**						
	TOTAL ORIENTATION PHASE		**48**	**60**			**24**	**24**				
	Specialization Phase – Mechanical Engineering											
12776	Dynamik	MDN	4	5					4			
12898	Elektrotechnik	MEL	4	5					4			
14979	Thermo- und Fluiddynamik		4	5					4			
12708	Maschinendynamik	MDY	4	5					4			
12355	Fertigungstechnik	MFT	4	5					4			
14980	Konstruktionsprojekt		4	5					4			
13572	Finite Elemente Methode	MFM	4	5						4		
15010	Nachhaltigkeit	MGN	4	5						4		
12756	Programmieren und Automatisieren	MAU	4	5						4		
13283	Projekt- und Kostenmanagement	EPM	4	5						4		
13730	Werkstoffe und ihre Anwendungen	MWA	4	5						4		
15220	Nachhaltige Energieanlagen		4	5						4		
12510	Regelungstechnik	MRT	4	5							4	
15234	Konnektivität		4	5							4	
13548	Fluiddynamik und -simulation	MFS	4	5							4	
12446	Mechatronische Systeme	TMS	4	5							4	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE		**64**	**80**					**24**	**24**	**16**	
	COMPULSORY ELECTIVE MODULES [2]											
	WPM 1		4	5							4	
	WPM 2		4	5							4	
	WPM 3		4	5								4
	TOTAL COMPULSORY ELECTIVE MODULE		**12**	**15**							**8**	**4**
	FINAL EXAMINATION PART: BACHELOR THESIS											
15131	Studienarbeit		8	10								8
15064	Bachelorarbeit		12	12								12
15255	Kolloquium			3								
	TOTAL THESIS		**20**	**25**								**20**
	Total SWS		**192**		**24**	**24**	**24**	**24**	**24**	**24**	**24**	**24**
	Total Credits			**240**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**

CR = Credits SWS = Semesterwochenstunden [contact hours] WPM = Wahlpflichtmodul [compulsory elective module]

1) An examination must be taken in each of the compulsory modules with a module number.
2) The compulsory elective modules are to be chosen in consultation with the chair of the Examination Board from the compulsory elective module catalog of all specializations (Appendix 4). These WPM may not simultaneously be compulsory modules in the specialization in Mechanical Engineering.

Appendix 4

Degree Catalog
Bachelor Degree Program General Engineering
SPECIALIZATION PHASE (Semester 5-8)
Specialization – VIRTUAL PRODUCT DEVELOPMENT

Module No.	Module	Abbr.	Total		Semester/SWS							
			SWS	CR	1	2	3	4	5	6	7	8
	COMPULSORY MODULES [1]											
	TOTAL ENTRY PHASE		**48**	**60**	**24**	**24**						
	TOTAL ORIENTATION PHASE		**48**	**60**			**24**	**24**				
	Specialization Phase – Virtual Product Development											
12776	Dynamik	MDN	4	5					4			
12898	Elektrotechnik	MEL	4	5					4			
14979	Thermo- und Fluiddynamik		4	5					4			
12708	Maschinendynamik	MDY	4	5					4			
12355	Fertigungstechnik	MFT	4	5					4			
14980	Konstruktionsprojekt		4	5					4			
13572	Finite Elemente Methode	MFM	4	5						4		
13283	Projekt- und Kostenmanagement	EPM	4	5						4		
13730	Werkstoffe und ihre Anwendungen	MWA	4	5						4		
12893	Vertiefung CAD	VCD	4	5						4		
15181	KI in Maschinenbau und Mechatronik		4	5						4		
13979	Informatik im Maschinenbau 1	VIM1	4	5						4		
12864	Vertiefung FEM	VFM	4	5							4	
12210	Informatik im Maschinenbau 2	VIM2	4	5							4	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE		**56**	**70**					**24**	**24**	**8**	
	COMPULSORY ELECTIVE MODULES [2]											
	WPM 1		4	5							4	
	WPM 2		4	5							4	
	WPM 3		4	5							4	
	WPM 4		4	5							4	
	WPM 5		4	5								4
	TOTAL COMPULSORY ELECTIVE MODULE		**20**	**25**							**16**	**4**
	FINAL EXAMINATION PART: BACHELOR THESIS											
15131	Studienarbeit		8	10								8
15064	Bachelorarbeit		12	12								12
15255	Kolloquium			3								
	TOTAL THESIS		**20**	**25**								**20**
	Total SWS		**192**		**24**	**24**	**24**	**24**	**24**	**24**	**24**	**24**
	Total Credits			**240**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**

CR = Credits SWS = Semesterwochenstunden [contact hours] WPM = Wahlpflichtmodul [compulsory elective module]

1) An examination must be taken in each of the compulsory modules with a module number.
2) The compulsory elective modules are to be chosen in consultation with the chair of the Examination Board from the compulsory elective module catalog of all specializations (Appendix 4). These WPM may not simultaneously be compulsory modules in the specialization in Virtual Product Development.

Appendix 4

Degree Catalog
Bachelor Degree Program General Engineering
SPECIALIZATION PHASE (Semester 5-8)
Specialization – MECHATRONICS

Module No.	Module	Abbr.	Total		Semester/SWS							
			SWS	CR	1	2	3	4	5	6	7	8
	COMPULSORY MODULES [1]											
	TOTAL ENTRY PHASE		**48**	**60**	**24**	**24**						
	TOTAL ORIENTATION PHASE		**48**	**60**			**24**	**24**				
	Specialization Phase – Mechatronics											
12119	CAD und Grundlagen Konstruieren	ECD	4	5					4			
15096	Maschinenelemente A	MMLA	4	5					4			
12776	Dynamik	MDN	4	5					4			
13572	Finite Elemente Methode	MFM	4	5						4		
13283	Projekt- und Kostenmanagement	EPM	4	5						4		
13730	Werkstoffe und ihre Anwendungen	MWA	4	5						4		
15234	Konnektivität		4	5							4	
12446	Mechatronische Systeme	TMS	4	5							4	
12589	Elektromechanische Antriebstechnik	MAT	4	5						4		
13363	Elektronik 1	EL1	4	5					4			
13484	Elektronik 2	EL2	4	5						4		
13909	Signale und Systeme	SY	4	5					4			
13201	Regelungstechnik 1	RT1	4	5						4		
12068	Leistungselektronik	LE	4	5							4	
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE		**56**	**75**					**20**	**24**	**12**	
	COMPULSORY ELECTIVE MODULES [2]											
	WPM 1		4	5					4			
	WPM 2		4	5							4	
	WPM 3		4	5							4	
	WPM 4		4	5							4	
	WPM 5		4	5								4
	TOTAL COMPULSORY ELECTIVE MODULE		**20**	**20**					**4**		**12**	**4**
	FINAL EXAMINATION PART: BACHELOR THESIS											
15131	Studienarbeit		8	10								8
15064	Bachelorarbeit		12	12								12
15255	Kolloquium			3								
	TOTAL THESIS		**20**	**25**								**20**
	Total SWS		**192**		**24**	**24**	**24**	**24**	**24**	**24**	**24**	**24**
	Total Credits			**240**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**

CR = Credits SWS = Semesterwochenstunden [contact hours] WPM = Wahlpflichtmodul [compulsory elective module]

1) An examination must be taken in each of the compulsory modules with a module number.
2) The compulsory elective modules are to be chosen in consultation with the chair of the Examination Board from the compulsory elective module catalog of all specializations (Appendix 4). These WPM may not simultaneously be compulsory modules in the specialization in Mechatronics.

Appendix 4

Degree Catalog
Bachelor Degree Program General Engineering
SPECIALIZATION PHASE (Semester 5-8)
Specialization – DIGITAL PRODUCTION ENGINEERING

Module No.	Module	Abbr.	Total		Semester/SWS							
			SWS	CR	1	2	3	4	5	6	7	8
	COMPULSORY MODULES [1]											
	TOTAL ENTRY PHASE		**48**	**60**	**24**	**24**						
	TOTAL ORIENTATION PHASE		**48**	**60**			**24**	**24**				
	Specialization Phase – Digital Production Engineering											
13067	Objekt-Orientierte Programmierung	BOMO	4	5					4			
13354	Moderne Fertigungstechnologien 1	BFT1	4	5					4			
13019	Statistik	BSTA	4	5					4			
12713	Additive Fertigung	BADF	4	5					4			
12779	Produktionssysteme	BPRS	4	5					4			
12145	Kunststoffe und ihre Anwendungen	BKUA	4	5						4		
13850	Logistische Systeme	BLOS	4	5						4		
13350	Projektmanagement/Studienprojekt	BPMS	4	5						4		
13401	Systemtheorie und Prozessanalyse	BSYT	4	5						4		
13917	Product Lifecycle Management	BPLM	4	5							4	
13465	Produktionsplanung / -steuerung	BPPS	4	5								4
12025	Arbeitssysteme	BASY	4	5								4
12564	Planspiel Six Sigma	BPLC	4	5								4
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE		**52**	**65**					**20**	**16**	**4**	**12**
	COMPULSORY ELECTIVE MODULES [2]											
	WPM 1		4	5					4			
	WPM 2		4	5						4		
	WPM 3		4	5						4		
	WPM 4		4	5							4	
	WPM 5		4	5							4	
	WPM 6		4	5							4	
	WPM 7		4	5							4	
	WPM 8		4	5							4	
	TOTAL COMPULSORY ELECTIVE MODULE		**32**	**40**					**4**	**8**	**20**	
	FINAL EXAMINATION PART: BACHELOR THESIS											
15064	Bachelorarbeit		8	12								8
15255	Kolloquium		4	3								4
	TOTAL THESIS		**12**	**15**								**12**
	Total SWS		**192**		**24**	**24**	**24**	**24**	**24**	**24**	**24**	**24**
	Total Credits			**240**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**

CR = Credits SWS = Semesterwochenstunden [contact hours] WPM = Wahlpflichtmodul [compulsory elective module]

1) An examination must be taken in each of the compulsory modules with a module number.
2) The compulsory elective modules are to be selected from the compulsory elective module catalog of the specialization (Appendix 4).

Appendix 4

Degree Catalog
Bachelor Degree Program General Engineering
SPECIALIZATION PHASE (Semester 5-8)
Specialization – WOOD TECHNOLOGY

Module No.	Module	Abbr.	Total		Semester/SWS							
			SWS	CR	1	2	3	4	5	6	7	8
	COMPULSORY MODULES [1)]											
	TOTAL ENTRY PHASE		**48**	**60**	**24**	**24**						
	TOTAL ORIENTATION PHASE		**48**	**60**			**24**	**24**				
	Specialization Phase – Wood Technology											
13917	Product Lifecycle Management	BPLM	4	5					4			
13500	Fabrikplanung	BFPA	4	5					4			
12391	Materialflusstechnik	BMFT	4	5					4			
12994	Holzbearbeitungsmaschinen	BHBM	4	5					4			
13809	Möbelbau/ Arbeitsvorbereitung	BMAV	4	5					4			
12779	Produktionssysteme	BPRS	4	5					4			
13367	Holzbaukonstruktion	BHBK	4	5						4		
13180	CAM/CNC	BCAM	4	5						4		
13230	Kunststoffverarbeitung	BKUV	4	5						4		
14034	Werkstofftechnologie Holz 2	BWH2	4	5						4		
14039	Qualtitätsmanagement / Statistik	BQST	4	5						4		
13532	Oberflächen- und Beschichtungstechnik Holz	BOBH	4	5						4		
12324	Holzbaufertigung	BHBF	4	5							4	
12897	Maschinen- und Vorrichtungsbau	BMVH	4	5							4	
13608	Konstruktionsmethodik/Möbelsysteme	BKMT	4	5							4	
13775	Seminar zur Holztechnik	BSMH	4	5							4	
12091	Holzindustrielle Fertigungseinrichtungen	BFHT	4	5							4	
12713	Additive Fertigung	BADF	4	5							4	
13159	Möbelleichtbau	BMLB	4	5								4
12230	Betriebs- und Umwelttechnik	BBUT	4	5								4
12827	Vollholztechnologie	BVHT	4	5								4
	TOTAL COMPULSORY MODULE SPECIALIZATION PHASE		**84**	**105**					**24**	**24**	**24**	**12**
	FINAL EXAMINATION PART: BACHELOR THESIS											
15064	Bachelorarbeit		8	12								8
15255	Kolloquium		4	3								4
	TOTAL THESIS		**12**	**15**								**12**
	Total SWS		**192**		**24**	**24**	**24**	**24**	**24**	**24**	**24**	**24**
	Total Credits			**240**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**

CR = Credits SWS = Semesterwochenstunden [contact hours] WPM = Wahlpflichtmodul [compulsory elective module]

1) An examination must be taken in each of the compulsory modules with a module number.

Appendix 4

CATALOG OF COMPULSORY ELECTIVE MODULES
Specialization – FOOD TECHNOLOGY (FT)
Main focus area: all focus areas in FT

Module No.	Abbreviation	Module	SWS	CR
14977	AZU	Analytik der Lebensmittelzusatzstoffe	4	5
15359	AVA	Analytische Validierung	4	5
14077	ANS	Angewandte Statistik	4	5
14925	ALR	Angewandtes Lebensmittelrecht	4	5
14923	AWL	Anleitung zum Arbeiten mit wissenschaftlicher Literatur	4	5
13139	AMT	Automatisierungstechnik	4	5
12399	BPK	Bestimmung physikalischer Kenngrößen	4	5
15166	BPV	Biotechnologische Produktionsverfahren	4	5
15240	CTG	Chemie und Technologie koffeinhaltiger Genussmittel	4	5
15124	CBF	Convenienceprodukte Back- und Fleischwaren	4	5
13318	DBS	Dauerback- und Süßwaren	4	5
15211	EBS	Entkeimung und biologische Stabilisierung	4	5
15377	EPS	Entrepreneurship	4	5
15262	EDS	Ernährungslehre und diätische Lebensmittel	4	5
15163	FFT	Feinkost und Fertiggerichte	4	5
15051	GEN	Gentechnologie	4	5
15243	GPY	Grundkurs Python	4	5
15379	GAT	Grundlagen analytischer Trennmethoden	4	5
15414	HAG	Herstellung ausgewählter Getränke	4	5
15249	HYM	Hygienemanagement	4	5
12821	ITM	Innovations- und Technologiemanagement	4	5
15183	LPE	Lebensmittelproduktentwicklung	4	5
15189	MPM	Methoden des Projektmanagements	4	5
15169	MSM	Mikrobiologische Schnellmethoden	4	5
15007	OPR	Operations Research	4	5
14911	POM	Physik optischer Methoden	4	5
14994	PIF	Powdered And Instant Food	4	5
15433	PIT	Powdered And Instant Food Technology	4	5
13074	PRO	Projekt LST	4	5
15282	PBC	Proteinbiochemie	4	5
13461	QST	Qualitätssicherung für Technologen	4	5
15347	SGM	Spezielle Gebiete der Mathematik	4	5
15032	SMR	Spezielle Mess- und Regelungstechnik	4	5
13123	SPC	Spezielle physikalische Chemie	4	5
15318	SSL	Spezielle Sensorik der Lebensmittel	4	5
15344	SPS	Spezielle Statistik	4	5
13515	VPG	Verpackung	4	5
	NN*		4	min. 5

* compulsory elective module from the modules offered by the TH OWL or other universities approved by the Examination Board in accordance with Section 7 (6). A maximum of two NN modules can be taken.

In accordance with Section 6 (1) ATPO, the compulsory elective modules of this degree program are offered on a semester-by-semester basis within the scope of the respective possibilities as determined by the dean and are announced to the students in good time. If fewer than five students register for a compulsory elective module, it may be canceled for the respective semester.

Appendix 4

CATALOG OF COMPULSORY ELECTIVE MODULES
Specialization – LIFE SCIENCES
Main focus area: Cosmetic Technology

Module No.	Abbreviation	Module	SWS	CR
15359	AVA	Analytische Validierung	4	5
14077	ANS	Angewandte Statistik	4	5
14923	AWL	Anleitung zum Arbeiten mit wissenschaftlicher Literatur	4	5
13139	AMT	Automatisierungstechnik	4	5
12399	BPK	Bestimmung physikalischer Kenngrößen	4	5
15166	BPV	Biotechnologische Produktionsverfahren	4	5
15240	CTG	Chemie und Technologie koffeinhaltiger Genussmittel	4	5
15124	CBF	Convenienceprodukte Back- und Fleischwaren	4	5
13318	DBS	Dauerback- und Süßwaren	4	5
15211	EBS	Entkeimung und biologische Stabilisierung	4	5
15377	EPS	Entrepreneurship	4	5
15163	FFT	Feinkost und Fertiggerichte	4	5
15051	GEN	Gentechnologie	4	5
15243	GPY	Grundkurs Python	4	5
15379	GAT	Grundlagen analytischer Trennmethoden	4	5
15414	HAG	Herstellung ausgewählter Getränke	4	5
15249	HYM	Hygienemanagement	4	5
12172	IER	Ingredients – Entwicklung, Risikomanagement	4	5
12821	ITM	Innovations- und Technologiemanagement	4	5
15183	LPE	Lebensmittelproduktentwicklung	4	5
15189	MPM	Methoden des Projektmanagements	4	5
15169	MSM	Mikrobiologische Schnellmethoden	4	5
15007	OPR	Operations Research	4	5
14911	POM	Physik optischer Methoden	4	5
15283	PPK	Phytopharmazeutika und Phytokosmetika	4	5
14994	PIF	Powdered And Instant Food	4	5
15433	PIT	Powdered And Instant Food Technology	4	5
13074	PRO	Projekt LST	4	5
15282	PBC	Proteinbiochemie	4	5
13461	QST	Qualitätssicherung für Technologen	4	5
15347	SGM	Spezielle Gebiete der Mathematik	4	5
15032	SMR	Spezielle Mess- und Regelungstechnik	4	5
13123	SPC	Spezielle physikalische Chemie	4	5
15344	SPS	Spezielle Statistik	4	5
13515	VPG	Verpackung	4	5
	NN*		4	min. 5

* compulsory elective module from the modules offered by the TH OWL or other universities approved by the Examination Board in accordance with Section 7 (6). A maximum of two NN modules can be taken.

In accordance with Section 6 (1) ATPO, the compulsory elective modules of this degree program are offered on a semester-by-semester basis within the scope of the respective possibilities as determined by the dean and are announced to the students in good time. If fewer than five students register for a compulsory elective module, it may be canceled for the respective semester.

Appendix 4

CATALOG OF COMPULSORY ELECTIVE MODULES
Specialization – LIFE SCIENCES
Main focus area: Biotechnology

Module No.	Abbreviation	Module	SWS	CR
14977	AZU	Analytik der Lebensmittelzusatzstoffe	4	5
15359	AVA	Analytische Validierung	4	5
14077	ANS	Angewandte Statistik	4	5
14925	ALR	Angewandtes Lebensmittelrecht	4	5
14923	AWL	Anleitung zum Arbeiten mit wissenschaftlicher Literatur	4	5
12399	BPK	Bestimmung physikalischer Kenngrößen	4	5
15166	BPV	Biotechnologische Produktionsverfahren	4	5
15240	CTG	Chemie und Technologie koffeinhaltiger Genussmittel	4	5
15124	CBF	Convenienceprodukte Back- und Fleischwaren	4	5
13318	DBS	Dauerback- und Süßwaren	4	5
15211	EBS	Entkeimung und biologische Stabilisierung	4	5
15377	EPS	Entrepreneurship	4	5
15262	EDS	Ernährungslehre und diätische Lebensmittel	4	5
15163	FFT	Feinkost und Fertiggerichte	4	5
15051	GEN	Gentechnologie	4	5
15243	GPY	Grundkurs Python	4	5
15379	GAT	Grundlagen analytischer Trennmethoden	4	5
15414	HAG	Herstellung ausgewählter Getränke	4	5
15249	HYM	Hygienemanagement	4	5
12172	IER	Ingredients – Entwicklung, Risikomanagement	4	5
12821	ITM	Innovations- und Technologiemanagement	4	5
15183	LPE	Lebensmittelproduktentwicklung	4	5
15189	MPM	Methoden des Projektmanagements	4	5
15169	MSM	Mikrobiologische Schnellmethoden	4	5
15007	OPR	Operations Research	4	5
14911	POM	Physik optischer Methoden	4	5
15283	PPK	Phytopharmazeutika und Phytokosmetika	4	5
14994	PIF	Powdered And Instant Food	4	5
15433	PIT	Powdered And Instant Food Technology	4	5
13074	PRO	Projekt LST	4	5
15282	PBC	Proteinbiochemie	4	5
13461	QST	Qualitätssicherung für Technologen	4	5
15347	SGM	Spezielle Gebiete der Mathematik	4	5
15032	SMR	Spezielle Mess- und Regelungstechnik	4	5
13123	SPC	Spezielle physikalische Chemie	4	5
15318	SSL	Spezielle Sensorik der Lebensmittel	4	5
15344	SPS	Spezielle Statistik	4	5
13515	VPG	Verpackung	4	5
	NN*		4	min. 5

* compulsory elective module from the modules offered by the TH OWL or other universities approved by the Examination Board in accordance with Section 7 (6). A maximum of two NN modules can be taken.

In accordance with Section 6 (1) ATPO, the compulsory elective modules of this degree program are offered on a semester-by-semester basis within the scope of the respective possibilities as determined by the dean and are announced to the students in good time. If fewer than five students register for a compulsory elective module, it may be canceled for the respective semester.

Appendix 4

CATALOG OF COMPULSORY ELECTIVE MODULES

Specialization – LIFE SCIENCES
Main focus area: Industrial Pharmacy

Module No.	Abbreviation	Module	SWS	CR
11215	AA	Anforderungen an Medizinprodukte	4	5
14077	ANS	Angewandte Statistik	4	5
14923	AWL	Anleitung zum Arbeiten mit wissenschaftlicher Literatur	4	5
13139	AMT	Automatisierungstechnik	4	5
12399	BPK	Bestimmung physikalischer Kenngrößen	4	5
15166	BPV	Biotechnologische Produktionsverfahren	4	5
15240	CTG	Chemie und Technologie koffeinhaltiger Genussmittel	4	5
15211	EBS	Entkeimung und biologische Stabilisierung	4	5
15377	EPS	Entrepreneurship	4	5
15051	GEN	Gentechnologie	4	5
15243	GPY	Grundkurs Python	4	5
15379	GAT	Grundlagen analytischer Trennmethoden	4	5
15249	HYM	Hygienemanagement	4	5
12172	IER	Ingredients – Entwicklung, Risikomanagement	4	5
12821	ITM	Innovations- und Technologiemanagement	4	5
15183	LPE	Lebensmittelproduktentwicklung	4	5
15189	MPM	Methoden des Projektmanagements	4	5
15007	OPR	Operations Research	4	5
14911	POM	Physik optischer Methoden	4	5
15283	PPK	Phytopharmazeutika und Phytokosmetika	4	5
13074	PRO	Projekt LST	4	5
15282	PBC	Proteinbiochemie	4	5
13461	QST	Qualitätssicherung für Technologen	4	5
15347	SGM	Spezielle Gebiete der Mathematik	4	5
15416	SKG	Spezielle Kapitel der Getränketechnologie	4	5
13123	SPC	Spezielle physikalische Chemie	4	5
15344	SPS	Spezielle Statistik	4	5
13515	VPG	Verpackung	4	5
15292	WRT	Wasch- und Reinigungsmitteltechnologie	4	5
	NN*		4	min. 5

* compulsory elective module from the modules offered by the TH OWL or other universities approved by the Examination Board in accordance with Section 7 (6). A maximum of two NN modules can be taken.

In accordance with Section 6 (1) ATPO, the compulsory elective modules of this degree program are offered on a semester-by-semester basis within the scope of the respective possibilities as determined by the dean and are announced to the students in good time. If fewer than five students register for a compulsory elective module, it may be canceled for the respective semester.

Appendix 4

CATALOG OF COMPULSORY ELECTIVE MODULES
Specialization – ELECTRICAL ENGINEERING

Module No.	Abbreviation	Module	SWS	CR
12240	AK	Alltagsphysik	4	5
12450	BW	Betriebswirtschaftslehre	4	5
12588	EZ	Echtzeit-Datenverarbeitung	4	5
13022	EA	Elektrische Antriebstechnik	4	5
13039	EV	Elektromagnetische Verträglichkeit	4	5
13527	FS	Funksysteme	4	5
13511	HE	Hardware eingebetteter Systeme	4	5
12292	HD 1	Hardware-Design 1	4	5
14057	HD 2	Hardware-Design 2	4	5
12171	HF	Hochfrequenztechnik	4	5
13093	IM	Innovations- und Technologiemanagement	4	5
13658	KT 2	Kommunikationstechnik 2	4	5
12192	MK	Managementkompetenz	4	5
10910	ML	Maschinelles Lernen	4	5
13094	MV	Maschinennahe Vernetzung	4	5
13469	MO	Mobile Systeme	4	5
13131	MS	Modellierung und Simulation mechatronischer Systeme	4	5
12609	OS	Optische Übertragungstechnik und Sensorik	4	5
12317	PH 2	Physik 2	4	5
12626	RS	Rechnergestützte Numerik und Simulationstechnik	4	5
12744	RA	Regelung elektrischer Antriebe	4	5
13369	ST	Sensortechnik	4	5
12031	SL	Simulation elektronischer Schaltungen	4	5
13607	SU	Spezielle Gebiete der Automatisierungstechnik	4	5
12361	SE	Spezielle Gebiete der Elektronik	4	5
12871	SI	Spezielle Gebiete der Informatik	4	5
13181	SK	Spezielle Gebiete der Kommunikationstechnik	4	5
12037	SS	Spezielle Gebiete der Softwaretechnik	4	5
15104	SP	Spezielle Gebiete der Physik	4	5
12890	VS	Verteilte Systeme	4	5
12322	VD	Vertiefung digitales Entwerfen	4	5
13671	VT	Vertiefung Elektrotechnik	4	5
12234	WV	Weitverkehrsnetze	4	5
	NN*		4	min. 5

* compulsory elective module from the modules offered by the TH OWL or other universities approved by the Examination Board in accordance with Section 7 (6). A maximum of two NN modules can be taken.

In accordance with Section 6 (1) ATPO, the compulsory elective modules of this degree program are offered on a semester-by-semester basis within the scope of the respective possibilities as determined by the dean and are announced to the students in good time. If fewer than five students register for a compulsory elective module, it may be canceled for the respective semester.

Appendix 4

CATALOG OF COMPULSORY ELECTIVE MODULES
Specialization – COMPUTER SCIENCE

Module No.	Abbreviation	Module	SWS	CR
12240	AK	Alltagsphysik	4	5
12454	AS	Angewandte Statistik	4	5
12432	AL	Anwendungen des maschinellen Lernens	4	5
12450	BW	Betriebswirtschaftslehre	4	5
13758	BV	Bildverarbeitung	4	5
14091	DD	Datenerfassung und Datenhaltung	4	5
13504	DV	Datenmanagement und Visualisierung	4	5
13363	EL 1	Elektronik 1	4	5
13484	EL 2	Elektronik 2	4	5
13477	GI	Geodatenbasierte Informationssysteme	4	5
13841	EK	Entwurf von Kommunikationsprotokollen	4	5
13511	HE	Hardware eingebetteter Systeme	4	5
13093	IM	Innovations- und Technologiemanagement	4	5
13643	KT 1	Kommunikationstechnik 1	4	5
12192	MK	Managementkompetenz	4	5
13094	MV	Maschinennahe Vernetzung	4	5
12363	MT	Messtechnik	4	5
13469	MO	Mobile Systeme	4	5
12317	PH 2	Physik 2	4	5
13859	PE	Programmierung eingebetteter Systeme	4	5
12626	RS	Rechnergestützte Numerik und Simulationstechnik	4	5
13201	RT 1	Regelungstechnik 1	4	5
12238	SM	Software Lifecycle Management	4	5
13520	SQ	Software-Qualitätsmanagement	4	5
13607	SU	Spezielle Gebiete der Automatisierungstechnik	4	5
12361	SE	Spezielle Gebiete der Elektronik	4	5
12871	SI	Spezielle Gebiete der Informatik	4	5
13181	SK	Spezielle Gebiete der Kommunikationstechnik	4	5
12037	SS	Spezielle Gebiete der Softwaretechnik	4	5
15104	SP	Spezielle Gebiete der Physik	4	5
12890	VS	Verteilte Systeme	4	5
12322	VD	Vertiefung digitales Entwerfen	4	5
12234	WV	Weitverkehrsnetze	4	5
	NN*		4	min. 5

* compulsory elective module from the modules offered by the TH OWL or other universities approved by the Examination Board in accordance with Section 7 (6). A maximum of two NN modules can be taken.

In accordance with Section 6 (1) ATPO, the compulsory elective modules of this degree program are offered on a semester-by-semester basis within the scope of the respective possibilities as determined by the dean and are announced to the students in good time. If fewer than five students register for a compulsory elective module, it may be canceled for the respective semester.

Appendix 4

CATALOG OF COMPULSORY ELECTIVE MODULES
Specialization – MECHANICAL ENGINEERING / VIRTUAL PRODUCT DEVELOPMENT / MECHATRONICS

Module No.	Abbreviation	Module	SWS	CR
Department Life Science Technologies				
14977	AZU	Analytik der Lebensmittelzusatzstoffe	4	5
15359	AVA	Analytische Validierung	4	5
11215	AA	Anforderungen an Medizinprodukte	4	5
14077	ANS	Angewandte Statistik	4	5
14925	ALR	Angewandtes Lebensmittelrecht	4	5
14923	AWL	Anleitung zum Arbeiten mit wissenschaftlicher Literatur	4	5
13139	AMT	Automatisierungstechnik	4	5
12399	BPK	Bestimmung physikalischer Kenngrößen	4	5
15166	BPV	Biotechnologische Produktionsverfahren	4	5
15240	CTG	Chemie und Technologie koffeinhaltiger Genussmittel	4	5
15124	CBF	Convenienceprodukte Back- und Fleischwaren	4	5
13318	DBS	Dauerback- und Süßwaren	4	5
15211	EBS	Entkeimung und biologische Stabilisierung	4	5
15377	EPS	Entrepreneurship	4	5
15262	EDS	Ernährungslehre und diätische Lebensmittel	4	5
15163	FFT	Feinkost und Fertiggerichte	4	5
15051	GEN	Gentechnologie	4	5
15243	GPY	Grundkurs Python	4	5
15379	GAT	Grundlagen analytischer Trennmethoden	4	5
15414	HAG	Herstellung ausgewählter Getränke	4	5
15249	HYM	Hygienemanagement	4	5
12172	IER	Ingredients – Entwicklung, Risikomanagement	4	5
12821	ITM	Innovations- und Technologiemanagement	4	5
15183	LPE	Lebensmittelproduktentwicklung	4	5
15189	MPM	Methoden des Projektmanagements	4	5
15169	MSM	Mikrobiologische Schnellmethoden	4	5
15007	OPR	Operations Research	4	5
14911	POM	Physik optischer Methoden	4	5
15283	PPK	Phytopharmazeutika und Phytokosmetika	4	5
14994	PIF	Powdered And Instant Food	4	5
15433	PIT	Powdered And Instant Food Technology	4	5
13074	PRO	Projekt LST	4	5
15282	PBC	Proteinbiochemie	4	5
13461	QST	Qualitätssicherung für Technologen	4	5
15347	SGM	Spezielle Gebiete der Mathematik	4	5
15416	SKG	Spezielle Kapitel der Getränketechnologie	4	5
15032	SMR	Spezielle Mess- und Regelungstechnik	4	5
13123	SPC	Spezielle physikalische Chemie	4	5
15318	SSL	Spezielle Sensorik der Lebensmittel	4	5
15344	SPS	Spezielle Statistik	4	5
13515	VPG	Verpackung	4	5
15292	WRT	Wasch- und Reinigungsmitteltechnologie	4	5

Department Electrical Engineering and Computer Science				
12240	AK	Alltagsphysik	4	5
12454	AS	Angewandte Statistik	4	5
12432	AL	Anwendungen des maschinellen Lernens	4	5
12450	BW	Betriebswirtschaftslehre	4	5
13758	BV	Bildverarbeitung	4	5
14091	DD	Datenerfassung und Datenhaltung	4	5
13504	DV	Datenmanagement und Visualisierung	4	5
12588	EZ	Echtzeit-Datenverarbeitung	4	5
13022	EA	Elektrische Antriebstechnik	4	5
13039	EV	Elektromagnetische Verträglichkeit	4	5
13363	EL 1	Elektronik 1	4	5
13484	EL 2	Elektronik 2	4	5
13527	FS	Funksysteme	4	5
13477	GI	Geodatenbasierte Informationssysteme	4	5
13841	EK	Entwurf von Kommunikationsprotokollen	4	5
13511	HE	Hardware eingebetteter Systeme	4	5
12292	HD 1	Hardware-Design 1	4	5
14057	HD 2	Hardware-Design 2	4	5
12171	HF	Hochfrequenztechnik	4	5
13093	IM	Innovations- und Technologiemanagement	4	5
13643	KT 1	Kommunikationstechnik 1	4	5
13658	KT 2	Kommunikationstechnik 2	4	5
12192	MK	Managementkompetenz	4	5
10910	ML	Maschinelles Lernen	4	5
13094	MV	Maschinennahe Vernetzung	4	5
12363	MT	Messtechnik	4	5
13469	MO	Mobile Systeme	4	5
13131	MS	Modellierung und Simulation mechatronischer Systeme	4	5
12609	OS	Optische Übertragungstechnik und Sensorik	4	5
12317	PH 2	Physik 2	4	5
13859	PE	Programmierung eingebetteter Systeme	4	5
12626	RS	Rechnergestützte Numerik und Simulationstechnik	4	5
12744	RA	Regelung elektrischer Antriebe	4	5
13201	RT 1	Regelungstechnik 1	4	5
13369	ST	Sensortechnik	4	5
12031	SL	Simulation elektronischer Schaltungen	4	5
12238	SM	Software Lifecycle Management	4	5
13520	SQ	Software-Qualitätsmanagement	4	5
13607	SU	Spezielle Gebiete der Automatisierungstechnik	4	5
12361	SE	Spezielle Gebiete der Elektronik	4	5
12871	SI	Spezielle Gebiete der Informatik	4	5
13181	SK	Spezielle Gebiete der Kommunikationstechnik	4	5
12037	SS	Spezielle Gebiete der Softwaretechnik	4	5
15104	SP	Spezielle Gebiete der Physik	4	5
12890	VS	Verteilte Systeme	4	5
12322	VD	Vertiefung digitales Entwerfen	4	5
13671	VT	Vertiefung Elektrotechnik	4	5
12234	WV	Weitverkehrsnetze	4	5

Department Production and Wood Technology				
13971	BSMW	Seminar Wirtschaftsingenieurwesen	4	5
13535	BPVT	Produktmanagement & Vertrieb	4	5
12532	BIS2	Instandhaltungsmanagement 2	4	5
12146	BIS1	Instandhaltungsmanagement 1	4	5
13674	BSEN	Service Engineering	4	5
12181	BINF	Investition und Finanzierung	4	5
14064	BKLR	Kosten- und Leistungsrechnung	4	5
12391	BMTF	Materialflusstechnik	4	5
13853	BKKW	Konstruieren mit Kunststoffen / Werkzeugbau	4	5
12656	BPAA	Projektierung Automatisierungsanlagen	4	5
13073	BKUE	Produktentwicklung Kunststoffe	4	5
12327	BBST	Beschichtungstechnik	4	5
13082	BKUP	Kunststoffprüfung	4	5
14000	BQSS	Qualitätssicherung	4	5
13659	BFUG	Fügetechnik	4	5
13878	BKN2	Konstruktion 2	4	5
12232	BABO	Arbeitswissenschaft und Betriebsorganisation	4	5
14075	BWAR	Wirtschafts- und Arbeitsrecht	4	5
12800	BWMC	Werkzeugmaschinen und CNC-Technik	4	5
13024	BSYE	Systems Engineering	4	5
13817	BMOC	Mobile Computing	4	5
12979	BLAT	Lasertechnik	4	5
13822	BPDA	Produktionsdatenanalyse	4	5
13500	BFPA	Fabrikplanung	4	5
11714	BDIP	Datenbanken in der Produktion	4	5
13230	BKUV	Kunststoffverarbeitung	4	5
12452	BFT2	Moderne Fertigungstechnologien 2	4	5
13847	BHHS	Handhabungssysteme	4	5
	NN*		4	min. 5

* compulsory elective module from the modules offered by the TH OWL or other universities approved by the Examination Board in accordance with Section 7 (6). A maximum of two NN modules can be taken.

In accordance with Section 6 (1) ATPO, the compulsory elective modules of this degree program are offered on a semester-by-semester basis within the scope of the respective possibilities as determined by the dean and are announced to the students in good time. If fewer than five students register for a compulsory elective module, it may be canceled for the respective semester.

CATALOG OF COMPULSORY ELECTIVE MODULES
Specialization – DIGITAL PRODUCTION ENGINEERING

Module No.	Abbreviation	Module	SWS	CR
13971	BSMW	Seminar Wirtschaftsingenieurwesen	4	5
13535	BPVT	Produktmanagement & Vertrieb	4	5
12532	BIS2	Instandhaltungsmanagement 2	4	5
12146	BIS1	Instandhaltungsmanagement 1	4	5
13674	BSEN	Service Engineering	4	5
12181	BINF	Investition und Finanzierung	4	5
14064	BKLR	Kosten- und Leistungsrechnung	4	5
12391	BMTF	Materialflusstechnik	4	5
13853	BKKW	Konstruieren mit Kunststoffen / Werkzeugbau	4	5
12656	BPAA	Projektierung Automatisierungsanlagen	4	5
13073	BKUE	Produktentwicklung Kunststoffe	4	5
12327	BBST	Beschichtungstechnik	4	5
13082	BKUP	Kunststoffprüfung	4	5
14000	BQSS	Qualitätssicherung	4	5
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13878	BKN2	Konstruktion 2	4	5
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13817	BMOC	Mobile Computing	4	5
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11714	BDIP	Datenbanken in der Produktion	4	5
13230	BKUV	Kunststoffverarbeitung	4	5
12452	BFT2	Moderne Fertigungstechnologien 2	4	5
13847	BHHS	Handhabungssysteme	4	5
	NN*		4	min. 5

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