



Hochschule  
Zittau/Görlitz  
UNIVERSITY OF APPLIED SCIENCES

**Degree Course Regulations  
for the  
Bachelor's degree course in  
Automation and Mechatronics  
at  
Zittau/Görlitz University of Applied  
Sciences  
of  
06/08/2014  
as amended on  
05/09/2018**

**Degree Course Regulations  
for the Bachelor's Degree Course in Automation and Mechatronics  
at Zittau/Görlitz University of Applied Sciences**

According to Section 13(4) in conjunction with Section 36 of the act on the autonomy of higher education institutions in Saxony (Saxon Higher Education Autonomy Act, Sächsisches Hochschulfreiheitsgesetz – SächsHSFG), in the version published on 15 January 2013 (SächsGVBl, p 3), last amended by Article 44 of the act of 26 April 2018 (SächsGVBl, p 198), the Zittau/Görlitz University of Applied Sciences (Hochschule Zittau/Görlitz) has adopted the following Degree Course Regulations as amended on 05/09/2018 for the Bachelor's degree course in Automation and Mechatronics as statutes.

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**Annexes:**

Annex no. 1): Curriculum  
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## **Division I: General provisions**

### **Section 1 Scope**

These Degree Course Regulations define aims, content, structure and organization of the Bachelor's degree course based on the Examination Regulations of the Bachelor's degree course in Automation and Mechatronics at the Zittau/Görlitz University of Applied Sciences.

### **Section 2 Criteria for admission**

To be admitted to study at the Zittau/Görlitz University of Applied Sciences, the admissions criteria according to § 17 SächsHSFG and the regulations for admission to the Zittau/Görlitz University of Applied Sciences must be met. Normally, admission requires a general higher education entrance qualification, a subject-linked university entrance qualification relevant to the degree subject, a university of applied sciences entrance qualification or a master craftsman's certificate (*Meisterprüfung*) related to the degree subject. Admission can also be granted by passing an entrance examination according to § 17(5) SächsHSFG.

(2) An in-depth knowledge of mathematics, physics, German and a foreign language, ideally English, is a particularly desirable qualification for taking part in the Bachelor's degree course in automation and mechatronics.

### **Section 3 Modules and credit points (ECTS credits)**

(1) A module constitutes a unit that has a time limit, is self-contained and examinable, consistent in method and content, as well as having credit points (hereinafter referred to as "ECTS credits"). At the same time, the unit is defined through intended learning outcomes, described as competencies, knowledge, abilities and skills. Usually the modules take one semester and are completed by a module examination. Module examinations lead to a degree. The latter is set out in the Examination Regulations.

(2) Every module has its own associated ECTS credits. The number of ECTS credits is based on the average workload involved for the student in the individual module. This involves participation in classes, preparation and follow-up of courses, preparation for examinations, the examinations themselves, including placements, laboratory work, and all kinds of autodidactic study. One credit point corresponds to a workload of 30 hours.

(3) After successfully completing the module, the ECTS credits associated will be recorded and credited to the student. The condition for this is that the student has passed the module examination with a minimum mark of "ausreichend" (Note 4), ("sufficient" (4)). The crediting of all ECTS credits as a quantitative unit will take place in full, independently of the relative and absolute grade.

### **Section 4 Commencement and duration of the degree course**

(1) The Bachelor's degree course in automation and mechatronics commences annually with the winter semester and is conceived as a full-time course.

(2) The standard time to degree including placements, and the Bachelor's thesis and its defence comprises seven semesters.

(3) In addition to the modules listed in the curriculum, there will normally be preparatory courses and information events, usually in September during the first semester. The exact dates will be made public in due time before the beginning of the course.

## Division 2: Aim, structure and content of the degree course

### Section 5 Aim of the degree course

(1) The Bachelor's degree course in automation and mechatronics at Zittau/Görlitz University of Applied Sciences aims to qualify experts in the areas of electrical energy supply, power station engineering, mechatronics and automation for international deployment. It is characterized by an interdisciplinary approach to teaching and acquiring skills. The aim is to develop a comprehensive understanding of the interdependence of technical, economic, social and ecological contexts.

(2) The intention of the course is to prepare graduates for an occupation in the areas listed under subsection (1). Since graduates of the Bachelor's degree course must be able to adapt to new professional developments, there is a strong emphasis on acquiring solid foundations in the areas of automation, power station engineering and thermal engineering. Furthermore, the students will attain legal, linguistic and intercultural skills.

(3) Apart from the specialist goals stated, the course aims to enable graduates to act responsibly and think academically. Students are expected to develop qualities that are essential to academic work, eg

1. Abstract reasoning and flexibility.
2. Solid specialist skills.
3. Resourcefulness and desire for knowledge.
4. The ability to work independently and access specialist literature.
5. Communication skills and the ability to work in a team.
6. The ability to voice and accept criticism.

(4) Furthermore, graduates should be able to take on changing roles in their careers by expanding their knowledge and skills in accordance with advances in science and technology.

### Section 6 Structure and content of the degree course

(1) The course structure is organized in modules. The descriptions of the modules correspond to the state of scientific knowledge at the time of their creation and are subject to regular updates on the basis of new discoveries in the respective academic field. The curriculum with the titles of the modules, their length in semester credit hours (contact hours per week), the total time commitment for the students in ECTS credits as well as the chronological order of the modules is set out as Annex 1 in these regulations. The necessary module examinations, examinations and compulsory coursework are listed in the Examination Regulations of the Bachelor's degree course in automation and mechatronics at the Zittau/Görlitz University of Applied Sciences. Observing this curriculum enables students to graduate within the standard time to degree.

(2) The modules are divided into

- Core modules (*Pflichtmodule*, subsection (3)).
- Elective core modules (*Wahlpflichtmodule*, subsection (4)).
- The final module (*Abschlussmodul*, subsection (5)); and
- Optional modules (*Wahlmodule*, subsection (6)).

(3) Core modules must be completed by the student. They are listed in the curriculum (*Studienablaufplan*) (see Annex 1). By enrolment or re-enrolment, the students are automatically registered for the core modules.

(4) Elective core modules (*Wahlpflichtmodule*) consist of different teaching units. Students must choose a specified number of teaching units totalling a minimum amount of ECTS credits, matching their subject-specific interests from a list of teaching units as set out in Annex 1. For this they register for the teaching units/modules they have chosen in the respective faculty. When registering these then become a mandatory part of their degree course. The relevant teaching unit/module will only be offered if at least five students have registered for it.

(5) The final module in the seventh study semester includes the Bachelor's thesis and its defence. The final module comprises a workload totalling 12 ECTS credits.

(6) Students also have the option of voluntarily taking part in further teaching units that are not listed in their curriculum (optional modules according to Section 26 of the Examination Regulations). These are not among the obligatory parts of the Degree Course Regulations and are not considered when calculating the student's workload. For the voluntary participation in such teaching units no examination-related work is planned; however, this work can be undertaken voluntarily by the student and upon application may be additionally recorded on the transcript. This work will not count towards the aggregation of the overall grade.

(7) Foreign students take the modules determined by the faculty prior to the start of the respective semester as listed in Annex no 8) and 9) to the Examination Regulations.

### **Section 7 Module guide**

(1) The modules of the Bachelor's degree course in automation and mechatronics are part of these Regulations as Annex 2) and can be retrieved from the module catalogue of Hochschule Zittau/Görlitz University of Applied Sciences under <https://web.hszzg.de/Modulkatalog/> The module catalogue contains all the modules offered, including each of their descriptions. In particular, the description contains information on:

1. The content and intended learning outcomes.
2. The types of teaching.
3. The prerequisites for participation.
4. The applicability of the module.
5. The requirements for awarding ECTS credits.
6. The ECTS credits and grades.
7. How frequently the module is offered.
8. The workload required; and
9. The duration of the module.

(2) The Dean of Studies of the respective faculty shall be responsible for the modules of the Bachelor's degree course in automation and mechatronics and their descriptions.

### **Division 3: Implementation of the degree course**

#### **Section 8 Responsibilities**

(1) The Faculty of Electrical Engineering and Computer Sciences has the overall responsibility for the Bachelor's degree course in automation and mechatronics and guarantees the courses offered. Modules, which do not fall into the area of expertise of this faculty are offered by the faculty specializing in this subject. The Faculties of Mechanical Engineering, Natural and Environmental Sciences, and Business Administration and Engineering, and the Centre for Communication and Information provide services in the form of assuming responsibility for modules pursuant to the University's services principles.

The Faculty Council of the Faculty of Electrical Engineering and Computer Science appoints an academic planning committee in electrical engineering (automation and mechatronics). This is composed of an equal number of independent teaching staff and students of the faculty. Teaching staff of other faculties can also be appointed. The task of the academic planning committee is the coordination of the degree course and the organization of its content, and the development of binding recommendations for the further development of the Bachelor's degree course for the Faculty Council of the Faculty of Electrical Engineering and Computer Science.

(3) The examination committee of the Faculty of Electrical Engineering and Computer Science is responsible for adherence to the examination regulations of the Bachelor's degree course in automation and mechatronics.

## **Section 9 Types of learning units**

(1) The following are used for teaching and learning in the Bachelor's degree course in automation and mechatronics:

1. Lectures (subsection (2)).
2. Seminars (subsection (3)).
3. Problems classes (subsection (4)); and
4. lab work (subsection (5)).

(2) Lecture series are lectures with the aim of providing a coherent presentation of degree course content. This involves teaching facts and methods.

(3) In a seminar, in-depth and specialist knowledge is taught in individual modules involving student presentations/seminar papers, research papers, short presentations and by analysis of these and their discussion under the supervision of a lecturer. Research-based and practically relevant case studies serve to extend specialist knowledge and to consolidate skills which are not subject-specific skills (eg the development of rhetorical skills and the student's personal appearance).

(4) Problems classes serve to work through course content more intensively, teach knowledge, rehearse specialist skills, train specialist methods and solve standard problems in conjunction with lecturers and students.

(5) Lab work serves to illustrate teaching contents through practical examples and applications, and to improve practical skills.

(6) In addition to the learning units (subsection (1) - subsection (5)), academic autodidactic study is an integral part and a central requirement of the course. During all the phases of the course, this is particularly important for the development and enhancement of discursive, methodical and creative thinking. Teachers are required to support students in questions and problems arising through autodidactic study by advising them. This includes the use of and experimenting with the opportunities of new media, especially the infrastructures of the internet.

## **Section 10 Student advisory services**

(1) Student advisory services are offered by a lecturer appointed by the faculty. Moreover, all full-time lecturers offer specialized course guidance for their teaching subject.

(2) Student advisory services are targeted at all prospective students and students. It provides guidance for prospective students concerning the choice of a degree course. At the beginning of the degree course, it provides assistance on content, structure and operation of the Bachelor's degree course in automation and mechatronics. During the degree course, it offers help with any unclear questions about organization and content.

(3) Student advice is mandatory for students who have not yet taken an examination by the beginning of the third semester.

## Division 4: Final provisions

### Section 11 Entry into force

These Degree Course Regulations shall enter into force on the day following the day of publication at the University and apply for all students enrolled in 2018 and later.

Issued based on the decision of the Faculty Council Electrical Engineering and Computer Science of 26/04/2017 and the approval by the Rector's Office of the Zittau/Görlitz University of Applied Sciences of 05/09/2018.

Zittau/Görlitz, 05/09/2018

The Rector

A handwritten signature in black ink, consisting of a stylized 'F' followed by a series of loops and a long horizontal stroke.

Prof. Dr. phil. Friedrich Albrecht



**Annex no. 1): Curriculum**

Stg.s-internal code	Modules	V S/Ü P W	SCH** per semester							SCH	ECTS credits*
			1	2	3	4	5	6	7		
	101720 Foundations of Computer Science	V	2							4	5
		S/Ü									
		P	2								
	195800 Basics of Electrical Engineering - Stationary Processes	V	4							6	5
		S/Ü	1.6								
		P	0.4								
	100640 Mathematics I	V	4							6	5
		S/Ü	2								
		P									
	101700 Physics I	V	2							4	5
		S/Ü	2								
		P									
	100900 Engineering Mechanics	V	2							4	5
		S/Ü	2								
		P									
	195650 Materials Technology	V	3.2							4	5
		S/Ü	0.6								
		P	0.2								
	100950 Business Studies	V		2						4	5
		S/Ü		2							
		P									
	239900 Digital Technology	V		2						4	5
		S/Ü			2						
		P									
	232400 Electronics	V			2					5	4
		S/Ü		2							
		P		1							
	191850 Foreign Languages I (receptive skills)	V								4	3
		S/Ü		2	2						
		P									
	195850 Foundations of Electrical Engineering - Processes based on time	V		4						6	5
		S/Ü		1.6							
		P		0.4							
	195100 Mathematics II	V		2						4	4
		S/Ü		2							
		P									
	196850 Metrology	V		1	2					5	5
		S/Ü		1							
		P			1						
	100180 Microcomputer Engineering	V		2						4	5
		S/Ü		1							
		P		1							
	101010 Object-Oriented Programming	V		2						4	5
		S/Ü									
		P		2							
	195900 Physics II	V		1	1					4	5
		S/Ü									
		P		1	1						

232300 Introduction to Science and Humanities (Duo)	V			2	1						
	S/Ü			1	1					5	5
	P										
195150 Mathematics III	V			2						4	4
	S/Ü			2							
	P										
236450 Signals and Systems	V			2						5	5
	S/Ü			2							
	P			1							
208000 Introduction to Thermodynamics	V				3					4	5
	S/Ü				1						
	P										
231050 Electrical Machines	V				2					4	5
	S/Ü				2						
	P										
195550 Communication Networks	V				2					5	5
	S/Ü				2						
	P				1						
231100 Automatic Control I	V				2					5	5
	S/Ü				2						
	P				1						
194700 Logic Control Theory I/Programmable Logic Control	V				2					4	5
	S/Ü				2						
	P										
208200 Soft Computing I (Foundations)	V					1				4	5
	S/Ü					2					
	P					1					
193900 Power Electronics/Electric Drives	V					2				5	5
	S/Ü					2					
	P					1					
206750 Project Engineering	V					2				4	5
	S/Ü					1					
	P					1					
142000 Work Placement	V							x		0	30
	S/Ü							x			
	P							x			
234650 Final Module	V								x	0	12
	S/Ü								x		
	P								x		
230650 Pattern Recognition and Machine Learning	V								2	4	5
	S/Ü								1		
	P								1		
202150 Project Management for Engineers	V								2	3	5
	S/Ü								0.7		
	P								0.3		
234300 Scientific Work Skills	V									2	8
	S/Ü										
	P										
	W								2		
Total SCH			28	33	23	24	13	0	9	130	-
Total ECTS credits			30	24	31	30	15	30	30	-	190



CDHAW Specialization programme												
5th Semester 30 ECTS credits												
CDHAW	193900 Power Electronics/Electric Drives	V					2					
		S/Ü					2				5	5
		P					1					
CDHAW	206850 Magnetic Bearing Technology	V					2					
		S/Ü					2				4	5
		P										
CDHAW	103240 Mechanism Engineering	V					2					
		S/Ü					1				3	5
		P										
CDHAW	206050 Model-Based Measuring and Control Methods	V					2					
		S/Ü					2				4	5
		P										
CDHAW	206800 Modelling and Simulation	V					2					
		S/Ü					2				4	5
		P										
CDHAW	230650 Pattern Recognition and Machine Learning	V					2					
		S/Ü					1				4	5
		P					1					
CDHAW	206750 Project Engineering	V					2					
		S/Ü					1				4	5
		P					1					
6th Semester 30 ECTS credits												
CDHAW	234650 Final Module	V						x				
		S/Ü							x		0	12
		P								x		
CDHAW	242700 CDHAW Work placement	V										
		S/Ü							4		8	10
		P								4		
CDHAW	234300 Scientific Work Skills	V										
		S/Ü										
		P										
		W							2			2
Total SCH							1	1			0	-
Total ECTS credits							30	30			-	60
Specialization programme in International Projects (Mexico-Tec)												
5th Semester 30 ECTS credits												
	213450 Advanced Communications	V					2					
		S/Ü					2				4	5
		P										
	214200 Advanced Control Theory	V					2					
		S/Ü					2				5	5
		P					1					
	214350 Artificial Neural Networks	V					2					
		S/Ü					1				4	5
		P					1					
	214950 Image Processing Bachelor	V					2					
		S/Ü					1				4	5
		P					1					

	214900 <i>Mechatronics Project Work</i>	V					2			4	10	
		S/Ü						2				
		P										
	216500 <i>Microcontrollers</i>	V					2			4	5	
		S/Ü						1				
		P						1				
	217100 <i>Signal Theory</i>	V					2			4	5	
		S/Ü						1				
		P						1				
	214250 <i>State Estimation</i>	V					2			4	5	
		S/Ü						1				
		P						1				
<b>6th Semester 30 ECTS credits</b>												
	234650 <i>Final Module</i>	V						x		0	12	
		S/Ü							x			
		P										x
	242750 <i>International Work placement</i>	V								8	10	
		S/Ü							4			
		P							4			
	234300 <i>Scientific Work Skills</i>	V								2	8	
		S/Ü										
		P										
		W							2			
<b>Total SCH</b>							1	1		0	-	
<b>Total ECTS credits</b>							30	30		-	60	

\* 1 ECTS credit corresponds to a workload of 30 hours

\*\* Semester Credit Hours (1 SCH corresponds to 45 minutes / week)

\*\*\* Optional module

Legend: SCH = Semester Credit Hours (contact hours per week of 45 minutes each)

V = Lecture

S/Ü = Seminar/Problems class

P = Lab/Practical class/Placement

W = Other

**Annex no. 2)** Module guide

<https://web.hszg.de/Modulkatalog/>