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**Study and Examination Regulations for the Master's Program in Analytical Instruments, Measurement and Sensor Technology at Coburg University of Applied Sciences (SPO M MS)**

from 02.12.2022

Based on Art. 9 sentence 1 and 2, Art. 80 paragraph 1, Art. 84 paragraph 2, Art. 89 paragraph 4, Art. 96 paragraph 1 and 3 of the Bavarian Higher Education Innovation Act (BayHIG) of August 5, 2022 (GVBI 2022, p. 414, BayRS 2210-1-3-WK), Coburg University of Applied Sciences and Arts enacts the following statutes:

**§ 1**

**Preamble**

The Master's degree program Analytical Instruments, Measurement and Sensor Technology (AIMS) is a degree program of Coburg University of Applied Sciences and Arts with the possibility for students to complete a mandatory semester at a partner university worldwide.

**§ 2**

**Purpose of the study and examination regulation**

1This study and examination regulation regulates the Master's degree program Analytical Instruments, Measurement and Sensor Technology at Coburg University of Applied Sciences. 2It serves to fulfill and supplement the Bavarian University Innovation Act (BayHIG) of August 5, 2022 (BayRS 2210-1-3-WK) as amended and the General Examination Regulations of Coburg University of Applied Sciences (APO) of May 06, 2022 (Official Gazette 2022) as amended.

**§ 3**

**Study Objective**

(1) 1The Master's degree program AIMS enables students to obtain a second degree on the basis of a first professional university degree. 2It shall qualify students in methods and technologies in the fields of instrumental analysis, measurement and sensor technology and familiarize them with applications in various fields of professional engineering practice. 3It takes into account existing experience of the students from their professional practice and contributes to their deepening. 4In particular, it is oriented towards the goal of enabling students to independently process specific development and application tasks from engineering practice in the working contexts of a globalized economy.

(2) 1The master's degree program is designed to prepare students for an international working environment. 2The courses and examinations of the study program are therefore conducted in English.

(3) 1The Master's program is oriented to German and international students who wish to further their professional education as well as to gain international experience. 2For this reason, language courses in German are compulsory and a voluntary further language - apart from the mother tongue - is provided.

(4) 1The graduates of the AIMS degree program have an overview of the technical, scientific and mathematical context within the subject areas covered and are able to apply relevant scientific methods and findings in order to independently recognize and successfully process relevant problems and tasks. 2They are aware of their special social and individual responsibility and act accordingly.

## **§ 4**

### **Requirements for admission to the course of study**

Only applicants are admitted to the program who have

1. obtained a first professional degree in engineering or natural sciences from a German university or an equivalent degree from a university abroad,
2. one year of relevant professional experience, acquired after the first professional university degree,
3. have knowledge of the English language with at least a level 2 qualification according to UNlcert or comparable English language skills, as evidenced by relevant test procedures or a first professional university degree in an English-language course of study,
4. technical knowledge in the field of electronics to an extent necessary for measurement and sensor technology
5. proven in an aptitude test procedure that they possess the technical and methodological prerequisites.

(2) 1At the HC, applicants may also be admitted to this study program who do not yet or only partially fulfill the prerequisite according to Para. 1 No. 2 at the beginning of the study program. 2Before completing their studies, they must provide proof of relevant professional practice of usually not less than one year, which corresponds to the requirements of an engineering job. 3This professional practice may also be acquired within one year during the course of study. 4In the application procedure, applicants shall submit concepts for the acquisition of professional practice.

(3) The entire implementation of the procedures associated with access to this degree program, including the decisions to be made in the process, shall be the responsibility of the examination board for this degree program.

(4) There shall be no entitlement to the Master's degree program being carried out in the case of fewer than 10 qualified applicants.

(5) The conversion of foreign degrees is generally carried out according to the Bavarian formula.

## **§ 5**

### **Procedure for determining aptitude**

(1) 1The aptitude test procedure with regard to admission to the HC is carried out after the application deadline. 2It is divided into a preliminary selection and a personal selection interview. 3The prerequisite for participation in the aptitude test procedure is an application in

due form and time, proof of a completed university degree that meets the requirements according to § 4 para. 1 no. 1, as well as proof of § 4 para. 1 nos. 2 and 3. 4The examination board shall decide on the equivalence according to § 4 para. 1 no.1.

(2) 1The selection interview shall take place as determined by the board of examiners. 2As a rule, it lasts 10 to 20 minutes. 3This selection interview consists of a recorded technical discussion by at least one HC professor teaching in this degree program. 4Allocation is made according to the random procedure. 5The result of the interview is marked with the grades "passed" or "failed"; the grade "passed" is proof of aptitude. 6A record shall be kept of the course of the interview, which must show the date and place of the interview, the name of the examiner involved and the result; the record shall be signed by the examiner.

(3) 1The board of examiners shall determine the result of the aptitude test at a meeting; para. 2 sentence 6 shall apply accordingly. 2If an applicant is rejected, written reasons shall be included in the minutes.

(4) 1The result of the aptitude test shall be communicated to the applicants by means of a notice on the fulfillment or non-fulfillment of the prerequisites for admission to this degree program. 2The decision on non-fulfillment of the requirements for admission shall be substantiated. 3The aptitude test can be repeated in the next procedure.

## **§ 6**

### **Standard period of study, structure of the program**

(1) 1The course of study comprises a standard period of four semesters of full-time study, including a practical and transfer phase which takes place in the third semester. 2The practical phase comprises 12 weeks.

(2) 1The course is divided into two study sections. 2The first study section comprises two theoretical study semesters, of which one study semester is conducted at Coburg University of Applied Sciences and one study semester at a partner university. 3The second study section comprises a practical and transfer phase and a final semester in which the Master's thesis is to be written.

(3) The Examination Commission may grant appropriate extensions if a relevant professional activity is pursued alongside the studies.

## **§ 7**

### **Modules and examinations overall examination grade**

(1) 1The compulsory modules, their number of hours, the type of course, the examinations, their weighting for the formation of the final and overall examination grade and the divisor as well as the credit points (ECTS) are specified in the appendix to this study and examination regulation. 2The regulation is supplemented for the elective modules by the study and examination plan.

(2) 1In the context of all courses, teaching units or the entire course can be conducted externally and / or through forms of distance learning. 2In the context of the study program, courses and examinations shall be conducted in English.

(3) In addition to the overall examination grade, a relative grade shall be calculated in accordance with the ECTS Users' Guide as amended.

(4) The grading of the examinations in the Annex to this Study and Examination Regulation shall be carried out according to the following grade differentiation: 1.0 - 1.3 - 1.7 - 2.0 - 2.3 - 2.7 - 3.0 - 3.3 - 3.7 - 4.0 - 5.0

(5) The head of the AIMS program of Coburg University of Applied Sciences determines the corresponding subjects of the partner universities in a learning agreement.

## **§ 8**

### **Practical and Transfer Phase**

(1) The practical and transfer phase comprises 12 weeks and must generally be completed in the Federal Republic of Germany. Students whose native language is German usually complete their practical and transfer phase in non-German-speaking countries.

(2) Only particularly qualified and professionally relevant practical work after a first university degree can be taken into credit for the practical study semester.

(3) The practical semester shall be deemed to have been successfully completed if

1. the completion of the practical semester is evidenced by a certificate issued by the training institution in accordance with the model provided by the university, and
2. a proper practical report has been submitted

## **§ 9**

### **Master's thesis**

(1) The course of study is completed by a Master's thesis.

(2) The master's thesis should demonstrate that the student is able to independently work on a task from the subject area of this degree program.

(3) 1The master's thesis should usually be registered at the end of the third semester, stating the topic, and usually takes place in companies. 2The examination board can assign a topic if no registration has been made by then. The execution of this is the responsibility of the examination board. 3The period from issue to submission of the thesis shall be a maximum of five months.

## **§ 10**

### **Master's examination certificate, academic degree**

1A Master's examination certificate and a certificate with the acquired academic degree shall be issued upon successful completion of the course of study in accordance with the respective model in the appendix to the APO. 2On the basis of the successful completion of the Master's examination, the academic degree "Master of Engineering", abbreviation: "M.Eng.", is awarded.

## **§ 11**

Entry into force; expiry; transitional provisions

(1) This study and examination regulation shall enter into force on March 15, 2023.

(2) 1For students who commenced their studies before March 15, 2023, this study and examination regulation shall replace the previously valid study and examination regulation for the advanced master's program in Analytical Instruments, Measurement and Sensor Technology dated April 14, 2021 (Official Gazette 2021). 2Transitional regulations are not necessary, since in this respect there are no changes to the study content, the course of study and the study and examination regulations.

(3) For students who commenced their studies before the summer semester 2021, the study and examination regulations for the postgraduate master's program Analytical Instruments, Measurement and Sensor Technology dated August 25, 2016 (Official Gazette 2016) shall continue to apply; otherwise, these shall cease to apply.

(4) 1For students to whom the study and examination regulations mentioned in para. 3 apply.

1. courses beginning with the first semester of study for the last time in the winter semester 2020/2021 and ending with the fourth semester of study for the last time in the winter semester 2022/2023,
2. the option of taking credits beginning with the first semester of study for the last time in the winter semester 2021/2022 and ending with the third semester of study for the last time in the winter semester 2023/24.

2Students who are unable to complete their studies in accordance with sentence 1 may be transferred to the study and examination regulations in accordance with subsection 1.

(5) Insofar as it is necessary to avoid hardship in connection with the reorganization of the course of study, the Faculty Council may, in general or in individual cases, make special arrangements for the course of study, and the Examination Commission may make special arrangements for examinations.

Issued on the basis of the resolution of the Senate of the Coburg University of Applied Sciences of 25.11.2022 and the approval by the President of 02.12.2022.

Coburg, 02.12.2022

gez.

Prof. Dr. Gast President

These statutes were deposited at the Coburg University of Applied Sciences on 02.12.2022. The laying down was announced on 02.12.2022 by notice. The day of the announcement is 02.12.2022.

Enclosure:

**Overview of the modules and examinations of the postgraduate Master's program Analytical Instruments, Measurement and Sensor Technology at Coburg University of Applied Sciences and its partner universities. First stage of studies - theoretical study semesters 1 and 2**

1	2	3	4	5	6	7	8
Ifd. Nr.	Lectures			Exams			
	Module	SWS	Type of teaching <sup>1)</sup>	Type <sup>1)</sup>	Duration (in minutes, if applicable) <sup>1)</sup>	Weight of the final grade for the total exam	ECTS

**1.1 Mandatory modules of HC**

1	Mathematical Data Analysis	4	SU, Ü, Pr, Ex	Written exam	Each 90 - 150	6	6
2	Computer Based Measurement and Control	4	SU, Ü, Pr, Ex	Written exam	Each 90 - 150	6	6
3	Sensor Technology	4	SU, Ü, Pr, Ex	Written exam	Each 90 - 150	6	6
4	German/other language 1 <sup>3)</sup>	4	SU, Ü	Written and/or oral exam	According to WIKU	6	6

**1.2 Electives in Coburg**

5	Elective	2x2=4	SU, Ü, Pr, Ex	1)	6)	2x3=6	2x3=6
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**1.3 Compulsory and elective modules of the partner university**

6	To the extent of a total of 16 SWS and 24 ECTS according to an agreed learning agreement		SU, Ü, Pr	2)	2)	24	24
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**1.4 Language modules of the partner university**

7	German/other language 2 <sup>3)</sup>	4	SU, Ü, Pr, Ex	2)	2)	6	6
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Zwischensummen	40
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60	60
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## 2. Second stage of studies - study semesters 3 and 4

1	2	3	4	5	6	7	8
Ifd. Nr.	Lectures			Exams			
	Module	SWS	Type of teaching <sup>1)</sup>	Type <sup>1)</sup>	Duration (in minutes, if applicable) <sup>1)</sup>	Weight of the final grade for the overall examination grade	ECTS

### 2.1 Practice and transfer phase

8	Practical Internship <sup>4)</sup>						21
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### 1.5 Mandatory module

9	Practical Project on Novel Applications	4	S, ExL, SU, Ü, Pr	Portfolio	20-30 Seiten	6	6
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### 1.6 Module master seminar

10	Master Seminar	2	Oral presentation	Oral presentation	20-30 Minuten	3	3
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### 1.7 Master Thesis

11	Master Thesis		MT	MT		30	30
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Subtotals		8				42	60
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Total		48				102	120
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- 1) The details, including any admission requirements for examinations in particularly justified cases or for block courses, are determined by the examination committee in the study and examination plan at the latest at the beginning of the semester.
- 2) The modules are determined on the basis of agreements with the partner universities; however, the study and examination laws of the respective partner university are ultimately binding.
- 3) German for international students and another language besides English for German students. Voluntary courses in the respective national language of the partner university.
- 4) Predicate grades with/without success passed.

- 5) The module basically concludes with a written examination. The basically written examination can be supplemented by computer-based parts. The extent of the computer-based parts depends on the technical capacities.
- 6) The range of courses is determined by the Faculty Council in the study plan at the latest at the beginning of the semester.

Explanation of abbreviations:

ECTS = European Credit Transfer System

SU = seminar-based teaching.

MT = master thesis

SWS = semester hours per week

mdIP = oral examination

Ü = exercise

Pr = practical course

ExL = external course

schrP = written exam

Ex = excursion

S = seminar