Degree Program and Examination Regulations for Bachelor's and Master's Degree Program in Electromobility – ACES at the Faculty of Engineering of Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) – FPO ACES–

dated August 22, 2023

Based on Section 9 (1) in conjunction with Section 80 (1)(1), Section 84 (2)(1), Section 88 (9), Section 90 (1)(2) and Section 96 (3)(1) of the Bavarian Higher Education Innovation Act dated August 5, 2022 **(BayHIG)**, FAU enacts the following degree program and examination regulations:

Contents:

Part I: General Provisions

Section 39 Scope

The degree program and examination regulations for the Bachelor's and consecutive Master's degree programs in Electromobility – ACES complement the currently valid General Examination Regulations for Bachelor's and Master's Degree Programs and other studies pursuant to Section 77 (5) **BayHIG** at the Faculty of Engineering at FAU – **ABMPO/TechFak**.

Section 40 Bachelor's Degree Program, Start of Degree Program, Degree Programs in Equivalent Subjects

(1) During the Bachelor's degree program in Electromobility – ACES, students acquire skills in the core subjects of engineering, engineering mathematics and in a selection of the following areas:

1. AI and autonomous driving
2. Connectivity
3. E-powertrain
4. Sustainable mobility and production technology.

(2) The Bachelor's degree program shall cover the modules listed in **Appendix 1**.

(3) The degree program shall start in the winter semester.

(4) [1]Subject-related degrees within the meaning of Section 28 (1)(2)(2) **ABMPO/TechFak** are Bachelor's degree programs in

1. Mechanical Engineering (Maschinenbau)
2. Mechatronics (Mechatronik)
3. Industrial Engineering (Wirtschaftsingenieurwesen)
4. International Production Engineering and Management
5. Technical Vocational Education and Training (Berufspädagogik Technik).

[2]In justified cases, the Degree Program Committee may grant exceptions to sentence 1.

Section 41 Master's Degree Program, Part-time Degree Program, Start of Degree Program, Degree Programs in Equivalent Subjects, Teaching and Examination Language

(1) [1]The Master's degree program builds on the content of the Bachelor's degree program. [2]Section 40 (1) shall apply analogously with the proviso that existing skills are extended and built upon accordingly.

(2) The Master's degree program shall comprise the modules in **Appendix 2a** (full-time degree program) or **2b** (part-time degree program).

(3) [1]Students may commence the degree program in either the winter semester or the summer semester. [2]Any exceptions are decided by the admissions committee.

(4) The provisions in Section 34 (3)(2) **ABMPO/TechFak** do not apply to degree programs in equivalent subjects.

(5) [1]The teaching and examination language shall be governed by Section 4 (4) **ABMPO/TechFak**. [2]In addition to the modules offered in German, a sufficient number of

modules will be offered in English in each of the specializations on offer in order to allow students to study entirely in English if they so wish. [3]If the degree program is studied entirely in English; the project report and Master's thesis must also be written in English; any exceptions require the approval of the Degree Program Committee. [4]It is strongly recommended that only those students who provide evidence of English language proficiency in their application for admission to the degree program in accordance with Section 49 take modules in English; the same shall apply accordingly to modules in German.

Part II: Special Provisions

1. Bachelor's examination

Section 42 Scope of the Grundlagen- und Orientierungsprüfung

The Grundlagen- und Orientierungsprüfung (GOP) comprises the modules marked "GOP" in **Appendix 1**.

Section 43 Scope and Structure of the Bachelor's Examination

[1]The Bachelor's examination comprises the modules in **Appendix 1** amounting to 180 ECTS credits. [2]The type and scope of the examinations are also specified in the relevant **Appendix**, unless stipulated otherwise in the following paragraphs.

Section 44 Specialization Modules

(1) [1]Bachelor's students shall choose two specializations in order to establish a subject-specific profile. [2]The skills listed in **Appendix 3** shall be acquired. [3]The specialization modules offered within the two chosen specializations are set out in the catalog of specialization modules approved by the Degree Program Committee, and are announced in the module handbook before the start of the lecture period in accordance with local practice.

(2) [1]The learning outcome for these modules is to enable students to increase their vocational qualifications by building on the compulsory modules. [2]Practical skills are taught in these modules. [3]The element of choice gives students the opportunity to tailor their profile in view of their future career or to prepare for a subsequent Master's degree. [4]The type and scope of examinations depend on the skills taught in the relevant modules (generally worth 5 ECTS credits) pursuant to sentences 1 to 3 and **Appendix 3** and are detailed in the module handbook.

(3) [1]Examinations in the modules shall take one of the following forms: written examination (60, 90, 120 min), oral examination (20-30 min), seminar achievement pursuant to Section 6(3) **ABMPO/TechFak** or a written assignment. [3] Section 6 (2)(3) **ABMPO/TechFak** stipulates that in justified exceptional circumstances, combinations of the individual achievements stated in sentence 2 may also be possible.

(4) [1]The specialization modules are generally worth 5 ECTS credits (typically a combination of lectures and tutorials). [2]Any exceptions to the size of the module and combinations of teaching units are detailed in the module handbook.

(5) The Degree Program Committee may approve other specializations and modules pursuant to (1) upon request.

Section 45 Elective Modules, Practical Internship

(1) [1]The elective modules worth the minimum number of ECTS credits pursuant to **Appendix 1** should tie in with the specialization modules pursuant to Section 44 (1) and shall be chosen from the catalog recommended by the Degree Program Committee. [2]The learning outcome of elective modules shall be to enable students to broaden their technical skills and to gain interdisciplinary skills. [3]A choice of modules not listed in the catalog must be approved by the Degree Program Committee. [4]Section 44 (3) shall apply accordingly.

(2) [1]The completion of an internship enables students to gain insights into the organization and social structure of an industrial company and provides them with an introduction to the profession of engineering. [2]The industrial internship must meet the internship regulation for the Bachelor's and Master's degree programs in Electromobility – ACES and be recognized by the Internship Office for Electromobility – ACES.

Section 46 Prerequisite for Admission to Bachelor's Thesis

[1]The sixth semester is recommended for writing the Bachelor's thesis. [2]Admission to the Bachelor's thesis shall be governed by Section 31 (3)(2) **ABMPO/TechFak**.

Section 47 Bachelor's Thesis

(1) [1]The Bachelor's thesis is intended to train and prove the student's ability to work independently on tasks relating to electromobility – ACES. [2]The requirements for the thesis shall be such that it can be completed within approximately 300 hours.

(2) [1]The Bachelor's thesis shall deal with an academic topic from one of the chosen areas of specialization. [2]The thesis shall be supervised by a lecturer from the Faculty of Engineering who is involved in this area of specialization who is also a module coordinator and who is employed as a lecturer as their main occupation pursuant to Section 53 (4) **BayHIG** and, if applicable, by research associates appointed by this lecturer; Sections 9(1) and 27 (2)(2) **ABMPO/TechFak** shall remain unaffected.

(3) [1]The results of the Bachelor's thesis shall be presented in a presentation of approximately 20 minutes followed by a discussion within the context of an advanced seminar. [2]The date of the presentation shall be determined by the supervisor either during the final phase of work on the Bachelor's thesis or after the thesis has been submitted with at least one week's notice.

Section 48 Evaluation of Achievements for the Bachelor's Degree Program

(1) The Bachelor's degree program is considered to have been completed successfully when all the modules stipulated in **Appendix 1** have been successfully completed.

(2) [1]The grades for the specialization areas and the elective modules shall be based on the average of the grades for the module examinations. [2]In the event that the sum of the ECTS credits achieved in one of these areas exceeds the number of ECTS credits stipulated in **Appendix 1**, an interim grade shall be calculated according to the ECTS weighting of the individual modules and this shall be counted towards the final grade with the number of ECTS credits stipulated for the area in question. [3]Sentence 1 shall apply accordingly to modules with several partial achievements.

2. Master's Examination

Section 49 Qualification for a Master's Degree, Certificates, Admission Requirements

(1) [1]A subject-specific degree within the meaning of Section 29 (1)(1) **ABMPO/TechFak** is a Bachelor's degree in accordance with these degree program and examination regulations or an equivalent degree from Germany or another country which leads to a learning outcome equivalent to the Bachelor's degree in Electromobility – ACES completed in accordance with these degree program and examination regulations. [2]Admission of graduates of other degree programs will be considered on a case-by-case basis. [3]When applying, students must state whether they intend completing the Master's degree program in German or English.

(2) [1]As stipulated in (2)(6)(3) of the **Appendix ABMPO/TechFak**,

a) and notwithstanding Section 5 (5)(14)(1b) Friedrich-Alexander-Universität Erlangen-Nürnberg's agreement on enrollment, re-registration, leave and de-registration (**ImmaS**), students must additionally provide proof of language proficiency for the Master's degree program at the following level:
   - If studying the Master's degree program in German, at least DSH-2 with at least 74% of the possible points attainable in both the written and oral parts of the examination
   - Alternatively TestDAF with at least 4 points in each area and at least 5 points in one area or

b) If studying the Master's degree program in English, proof of proficiency in English at a level equivalent to at least C1 of the Common European Framework of Reference (CEFR) for languages; documents accepted as proof of proficiency are listed in the table of equivalence published by the Language Center at FAU.

[2]The admissions committee shall check any other proof of language proficiency differing from sentence 1 to determine if it can be accepted as equivalent on a case-by-case basis.

(3) Candidates shall be deemed to qualify for the Master's degree program as defined in (5)(2)(2) of the **Appendix to ABMPO/TechFak** if a total of at least 20 ECTS credits are obtained with an average grade of 3.0 or better in a selection of modules from the catalog for the Bachelor's degree program according to these degree program and examination regulations marked with a "K" in **Appendix 1** or comparable modules from another degree program.

(4) In the oral examination according to (5)(3) et seq. of **Appendix 1 ABMPO/TechFak**, applicants shall be evaluated according to the following criteria and weighting:

1. Quality of the basic knowledge in "foundations of engineering with respect to electromobility" (in particular electronics, mechanical engineering and computer science), "engineering applications in electromobility" (in particular electronics, mechanical engineering and computer science) and "foundations of science" (e.g. physics) and "mathematics" (25 percent).
2. Quality of the basic knowledge acquired during the Bachelor's degree program which forms the basis for specialization according to the options available in the Master's degree program; the applicant may choose to focus on one of the specialization areas for the oral admission examination (see **Appendix 3**) (25 percent)

3. Description of a successfully completed engineering project (e.g. Bachelor's thesis), familiarity with the relevant literature (30 percent)
4. A positive prognosis demonstrated by the applicant's academic progress in engineering modules to date; discussion based on graduation documents relating to the applicant's previous degree (in particular the transcript of records) (20%).

(5) Section 29 (2) **ABMPO/TechFak** shall apply with the proviso that the admissions committee may stipulate that certain language courses must be completed before the applicant is granted admission to the Master's degree program if they do not yet meet all requirements but the commission is confident that these deficits can be compensated.

Section 50 Scope and Structure of the Master's Degree Program

(1) Pursuant to Section 41 (2), the Master's degree program comprises the modules listed in **Appendix 2a** (full-time) or **2b** (part-time).

(2) [1]Master's students shall choose two specializations from **Appendix 3** in order to establish a subject-specific profile. [2]The learning outcome of these modules is to provide students with research qualifications at a high academic standard. [2]During this process, students learn subject-specific methods of research and gain deeper competencies according to the qualification principle of T-shaped skills, where on the one hand they explore the subject in more depth during their Master's degree by further expanding their existing knowledge from the specialization modules they chose during their Bachelor's degree, and on the other hand, they broaden their skills by selecting specialization modules from other subjects. [3] Section 44 (1)(3) and paragraphs 3 to 5 shall apply accordingly.

(3) For the elective modules, Section 45 (1) and Section 50 (2)(2) shall apply accordingly. [2]Section 45 (2) shall apply accordingly for the internship.

[1]The key qualifications and the academic laboratory course shall be taken from the catalog recommended by the Degree Program Committee, which also stipulates the form of the relevant examinations. [2]The type and scope of the examination depend on the specific manner in which the respective module is taught and are regulated by the applicable **degree program and examination regulations** and/or the relevant module handbook. [2]Section 45 (1) sentences 2 and 3 and Section 50 (2) sentence 2 shall apply accordingly.

Section 51 Master's Degree Examinations

Students must have chosen their specializations pursuant to Section 50 (2) by the time when they are admitted to the first examination of a specialization module at the latest.

Section 52 Project Thesis

(1) [1]The aim of the project thesis is to enable students to learn to solve problems in the field of electromobility ACES independently at a Master's level. [2]The project thesis shall have a workload of approximately 360 hours to be completed within five months, or eight months in the case of part-time study. [3]The work period may not exceed six months in the case of full-time study, or nine months in the case of part-time study.

(2) [1]Section 47 (2) and (3) shall apply accordingly. [2]The provisions stipulated in Section 32 (2)(2), Section 32 (3)(3) and Section 32 (5) to (10) **ABMPO/TechFak** shall apply accordingly to the project thesis.

Section 53 Requirements for Admission to the Master's Thesis

[1]It is recommended that students only start work on the Master's thesis after they have successfully completed all other modules in the Master's degree program. [2]The requirements for admission to the Master's thesis shall be as follows:

1. Students shall have successfully completed modules worth at least 80 ECTS credits during their Master's degree program.
2. Submission of the relevant documents if the student was admitted to the Master's degree program subject to the conditions pursuant to Section 49 (5) or if modules were determined pursuant to **Appendix 2a** or **2b** footnote 2.

Section 54 Master's Thesis

(1) [1]The Master's thesis is intended to train and prove the student's ability to work independently on tasks relating to electromobility ACES at the Master's level. [2]The requirements for the thesis shall be such that it can be completed within approximately 900 hours.

(2) Section 47 (2) and (3) shall apply accordingly.

Section 55 Evaluation of Achievements for the Master's Degree Program

(1) The Master's degree program shall be deemed to have been successfully completed once all modules stipulated in **Appendix 2a** (full-time) or **Appendix 2b** (part-time) have been passed.

(2) Section 48 (2) shall apply accordingly with respect to grading.

Part III. Final Provisions

Section 56 Legal Validity

(1) [1]These degree program and examination regulations shall come into effect on October 1, 2023. [2]They shall apply to all students who start the Bachelor's or Master's degree program in Electromobility – ACES in winter semester 2023/2024 or later. [3]They shall also apply to all students who are already studying in accordance with the degree program and examination regulations for the Bachelor's and Master's degree program in Electromobility – ACES at the Faculty of Engineering at Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) – **FPO ACES** – dated April 6, 2022.

(2) At the same time, the degree program and examination regulations for the Bachelor's and Master's degree program in Electromobility – ACES at the Faculty of Engineering at Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) – **FPO ACES** – dated April 6, 2022 shall become invalid.

Appendix 1:
Study Plan for the Bachelor's Degree Program in Electromobility – ACES (commencing in the winter semester)

S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14		S15	S16
No.	**Module name**	**Teaching unit**	**SWS (semester hours)**				**Total ECTS credits**	**Distribution of workload per semester in ECTS credits**						**Exam type***	**Type and scope of the examination**	**GOP/ K**
			L	**T**	**P**	**AS**		**1.**	**2.**	**3.**	**4.**	**5.**	**6.**			
								WS	**SS**	**WS**	**SS**	**WS**	**SS**			
												Mobility window				
1. Compulsory modules																
B 1	Mathematics for electromobility ACES 1 [1)]		4	2			**7.5**	7.5						EA + CA	Written examination 90 min + tutorial achievement [2)]	GOP
B 2	Mathematics for electromobility ACES 2 [1)]		4	2			**7.5**		7.5					EA + CA	Written examination 90 min + tutorial achievement [2)]	
B 3	Mathematics for electromobility ACES 3[1)]		4	2			**7.5**			7.5				EA	Written examination 90 min	
B 4	Foundations of electrical engineering I		4	2			**7.5**	7.5						EA	Written examination 120 min	GOP
B 5	Foundations of electrical engineering II		2	2			**5**		5					EA	Written examination 90 min	K
B 6	Laboratory: Electrical Engineering for ACES				3		**2.5**			2.5				CA	Practical achievement	
B 7	Signals and systems I		2	2			**5**			5				EA	Written examination 90 min	K
B 8	Statics and mechanics of materials		3	2	2		**7.5**		7.5					EA	Written examination 90 min	GOP/K
B 9	Dynamics of rigid bodies		3	2	2		**7.5**			7.5				EA	Written examination 90 min	K
B 10	Foundations of computer science		3	3			**7.5**	7.5						See FPO INF		GOP
B 11	Machine-oriented programming in C		2	2			**5**		5					See FPO INF		
B 12	Materials science		3	1			**5**	5						EA	Written examination 90/120 min [2)]	
B 13	Foundations of metrology and applied statistics		3	3			**7.5**				2.5	5		EA	Written examination 60/90/120 min [3)]	K
B 14	Engineering drawing I and II	Engineering drawing I			4		**5**	2.5						CA	Practical achievement (exercises on paper) and	K

S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14		S15	S16
No.	**Module name**	**Teaching unit**	**SWS (semester hours)**				**Total ECTS credits**	**Distribution of workload per semester in ECTS credits**						**Exam type***	**Type and scope of the examination**	**GOP/ K**
			L	**T**	**P**	**AS**		**1.**	**2.**	**3.**	**4.**	**5.**	**6.**			
								WS	**SS**	**WS**	**SS**	**WS**	**SS**			
		Engineering drawing II			2				2.5					CA	Practical achievement (computer exercises)	
	Automotive product design															
B 15	Production engineering I and II		4		4		**5**				5			EA	Written examination 60/90/120 min [2]	K
B 16	Machine elements I		4	2			**5**			5				EA	Written examination 60/90/120 min [2]	K
B 17	Automotive Engineering [4]		2	2			**5**			2.5	2.5			EA	Written examination 90/120 min [3] [4]	K
B 18	Business administration for engineers I		1	1			**2.5**	2.5						EA	Written examination 60/90/120 min [2]	
	Total compulsory modules						**105**									
2. Specialization modules																
B 19	Specialization modules ACES 1 pursuant to Section 40		6	6		4	**20**				10	10		EA	see Section 40 (3)	
B 20	Specialization modules ACES 2 pursuant to Section 40		6	6		4	**20**				5	15		EA	see Section 40 (3)	
	Total specialization modules						**40**									
3. Interdisciplinary modules																
B 21	Practical project ACES				8	2	**5**				5			CA	Practical achievement	
B 22	Elective modules		1	1		2	**5**						5	EA	[2] [5]	
B 23	Internship					2	**12.5**						12.5	CA	Practical achievement	
B 24	Bachelor's thesis with advanced seminar	Bachelor's thesis					**12.5**						10	EA	Bachelor's thesis	
		Advanced seminar				2							2.5	EA	+ seminar achievement	
	Total interdisciplinary modules						**35**									
		Total	**60**	**42**	**25**	**14**	**180**	**32.5**	**27.5**	**30.0**	**30.0**	**30.0**	**30.0**			
		GOP modules					30									

S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14		S15	S16
No.	**Module name**	**Teaching unit**	**SWS (semester hours)**				**Total ECTS credits**	**Distribution of workload per semester in ECTS credits**						**Exam type***	**Type and scope of the examination**	**GOP/ K**
			L	**T**	**P**	**AS**		**1.**	**2.**	**3.**	**4.**	**5.**	**6.**			
								WS	**SS**	**WS**	**SS**	**WS**	**SS**			
		K modules (subject-specific modules for admission to Master's degree program)					52.5									

Key:

* EA: examination achievement; CA: course achievement

1) The equivalence of the mathematics modules in the degree programs of the Faculty of Engineering shall be announced according to local practice.

2) The type and scope of the examination depend on the specific manner in which the respective module is taught and are regulated by the applicable **degree program and examination regulations** and/or the relevant module handbook.

3) The Degree Program Committee may also agree to the examination being offered additionally in two separate parts. Further details are stipulated in the module handbook.

4) The Degree Program Committee may also agree to the examination being offered in English and additionally in two separate parts if so chosen by students.

5) See module handbook; pursuant to Section 28 **ABMPO/TechFak**, failed attempts are not counted and these modules do not have to be repeated if failed.

Appendix 2a: Full-time Master's degree program

S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14
No.	**Module name [1) 2)]**	**Teaching unit**	**SWS (semester hours)**				**ECTS credits**	**Distribution of workload per semester in ECTS credits**				**Exam type***	**Type and scope of the examination**
			L	**T**	**P**	**AS**		**1.**	**2.**	**3.**	**4.**		
M 1	Major/Specialization modules ACES 1	see Section 50 (3) in conjunction with Section 44	8	8		4	**25**	10	10	5		EA	see Section 50 (2) in conjunction with Section 44
M 2	Major/Specialization modules ACES 2	see Section 50 (2) in conjunction with Section 44	8	8		4	**25**	10	10	5		EA	see Section 50 (2) in conjunction with Section 44
M 3	Elective modules	see Section 50 (3) in conjunction with Section 45	3	3		2	**10**		5	5		EA	3) 4)
M 4	Key qualifications in accordance with Section 50 (4)					2	**2.5**		2.5			CA	3)
M 5	Laboratory training in accordance with Section 50 (4)				2		**2.5**		2.5			CA	Laboratory achievement 3)
M 6	Internship					2	**10**	10				CA	Practical achievement
M 7	Project thesis with advanced seminar	Project thesis					**15**			12		EA	Study/project thesis + seminar achievement
		Advanced seminar				2				3		EA	
M 8	Master's thesis with advanced seminar	Master's thesis					**30**				27	EA	Master's thesis + seminar achievement
		Advanced seminar				2					3	EA	
Total SWS and ECTS credits			**19**	**19**	**2**	**18**	**120**	**30.0**	**30.0**	**30.0**	**30.0**		
			58										

Key:

* EA: examination achievement; CA: course achievement

1) Due to the specific subject skills that must be acquired as part of the learning outcome of the Master's degree program, students are expected to prove on the basis of the module description that they will acquire additional skills compared to those acquired in their previous Bachelor's degree and to provide proof of meeting any requirements stipulated during the qualification assessment process. This is detailed in the relevant module description in the context of the learning outcomes of the Master's degree program.

2) see Section 49 (5) The admissions committee may stipulate certain modules from the Bachelor's degree program (**Appendix 1**) and suitable language courses that applicants have not already completed during their previous studies to compensate for skills they are lacking.

3) see Section 50 (3) or (4) The type and scope of the examination depend on the specific manner in which the respective module is taught and are regulated by the applicable **degree program and examination regulations** and/or the relevant module handbook.

[4)] see module handbook; footnote 2 notwithstanding, the following applies: pursuant to Section 32 **ABMPO/TechFak**, failed attempts are not counted and these modules do not have to be repeated if failed.

Appendix 2b: Master's Degree Program Part-Time

S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18
No.	**Module name [1) 2)]**	**Teaching unit**	**SWS (semester hours)**				**ECTS credits**	**Distribution of workload per semester in ECTS credits**								**Exam type***	**Type and scope of the examination**
			L	**T**	**P**	**AS**		**1.**	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**		
M 1	Major/Specialization modules ACES 1	see Section 50 (2) in conjunction with Section 44	8	8		4	**25**	10	5	5	5					EA	see Section 50 (2) in conjunction with Section 44
M 2	Major/Specialization modules ACES 2	see Section 50 (2) in conjunction with Section 44	8	8		4	**25**	5	5	5	10					EA	see Section 50 (2) in conjunction with Section 44
M 3	Elective modules	see Section 50 (3) in conjunction with Section 45	3	3		2	**10**		5	5						EA	[3) 4)]
M 4	Key qualifications in accordance with Section 50 (4)					2	**2.5**					2.5				CA	[3)]
M 5	Laboratory training in accordance with Section 50 (4)				2		**2.5**					2.5				CA	Laboratory achievement [3)]
M 6	Internship					2	**10**					5	5			CA	Practical achievement
M 7	Project thesis with advanced seminar	Project thesis					**15**					5	7			EA	Study/project thesis
		Advanced seminar				2							3			EA	+ seminar achievement
M 8	Master's thesis with advanced seminar	Master's thesis					**30**							15	12	EA	Master's thesis
		Advanced seminar				2									3	EA	+ seminar achievement
Total SWS and ECTS credits			**19**	**19**	**2**	**18**	**120**	**15**	**15.0**	**15.0**	**15.0**	**15.0**	**15.0**	**15.0**	**15.0**		
			58														

Key:

* EA: examination achievement; CA: course achievement

1) Due to the specific subject skills that must be acquired as part of the learning outcome of the Master's degree program, students are expected to prove on the basis of the module description that they will acquire additional skills compared to those acquired in their previous Bachelor's degree and to provide proof of meeting any requirements stipulated during the qualification assessment process. This is detailed in the relevant module description in the context of the learning outcomes of the Master's degree program.

2) see Section 49 (5) The admissions committee may stipulate certain modules from the Bachelor's degree program (**Appendix 1**) and suitable language courses that applicants have not already completed during their previous studies to compensate for skills they are lacking.

3) see Section 50 (3) or (4) The type and scope of the examination depend on the specific manner in which the respective module is taught and are regulated by the applicable **degree program and examination regulations** and/or the relevant module handbook.

[4)] see module handbook; footnote 2 notwithstanding, the following applies: pursuant to Section 28 **ABMPO/TechFak**, failed attempts are not counted and these modules do not have to be repeated if failed.

Appendix 3: Specialization modules

No.	Elective modules	Acquiring skills in a selection of the following areas of application(non-exhaustive)
1.	AI and autonomous driving	Machine learning, automatic control, image processing
2.	Connectivity	Digital transmission, communication systems, computer communications, smart grids
3.	E-powertrain	Power engineering, electrical drives, automotive engineering, fuel cells
4.	Sustainable mobility and production technology	Resource-efficient production, electrical energy storage, lightweight materials