These examination regulations have been worded carefully to be up to date; however, errors cannot be completely excluded. The official German text available at the Office of Legal Affairs and Academic Quality Management is the version that is legally binding.

Note: Students who started their studies before the latest amendment came into effect are requested to also comply with previous amendments and the respective transitory provisions.

Degree Programme and Examination Regulations for the Bachelor's Degree Programme in Information and Communication Technology and the Master's Degree Programme in Information and Communication Technology at the Faculty of Engineering at Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) – FPOIuK/ICT –

Dated 21 September 2007

amended by statutes of
25 July 2008
6 May 2010
27 April 2011
15 August 2011
3 February 2012
30 July 2012
31 July 2012
7 October 2013
20 February 2015
1 December 2015
19 January 2018
6 March 2019

Based on Section 13 (1)(2), Section 43 (4) and (5), Section 58 (1) and Section 61 (2)(1) of the Bavarian Higher Education Act (Bayerisches Hochschulgesetz, BayHSchG), FAU enacts the following examination regulations:

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Part I: General Provisions

Section 35 Scope

The degree programme and examination regulations for the consecutive Bachelor's degree programme in Information and Communication Technology (IuK) and the Master's degree programme in Information and Communication Technology (ICT) complement the currently valid General Examination Regulations for Bachelor's and Master's degree programmes at the Faculty of Engineering at FAU – **ABMPO/TechFak** – as amended from time to time.

Section 36 Bachelor's Degree Programme, Standard Duration of Studies, Teaching and Examination Language

(1) The Bachelor's degree programme in Information and Communication Technology is made up of modules worth a total of 180 ECTS credits pursuant to **Appendix 1**.

(2) The standard duration of studies shall be six semesters.

(3) [1]Pursuant to Section 3 (6) sentences 3 and 4 **ABMPO/TechFak**, the language of written examinations shall correspond to the teaching language. [2]The provision in sentence 1 may be waived for oral examinations in consultation with the examinee. [3]This shall not affect Section 3 (6) **ABMPO/TechFak**.

Section 37 Master's Degree Programme, Part-time Study, Standard Duration of Studies, Start of Degree Programme, Teaching and Examination Language

(1) [1]The Master's degree programme in Information and Communication Technology builds on the contents of the Bachelor's degree programme in Information and Communication Technology. [2]It shall consist of modules worth 120 ECTS credits in total

pursuant to **Appendix 2** or **3** and shall include a Master's thesis with a six-month period for thesis work, including a presentation.

(2) [1]The Master's degree programme in Information and Communication Technology can be completed as a full-time or as a part-time degree programme. [2]The Master's degree programme in Information and Communication Technology can be started in either the summer or the winter semester.

(3) [1]Notwithstanding Section 4 (5)(1) **ABMPO/TechFak**, the teaching and examination language in the Master's degree programme in Information and Communication Technology is English. [2]Individual courses and examinations may be conducted in German. [3]The Master's thesis shall be written in English; the Examinations Committee shall decide on any exceptions at the student's request. [4]The degree certificate and final academic record shall be issued in German and English.

Part II: Special Provisions

1. Bachelor's examination

Section 38 Structure of the Bachelor's Degree Programme

(1) [1]The Bachelor's degree programme consists of mandatory, mandatory elective and elective modules. [2]The distribution across the semesters, the type and duration of the examinations and the required number of ECTS credits are stipulated in **Appendix 1**.

(2) Modules no. 1 to 21 in **Appendix 1** are mandatory.

(3) [1]Modules nos. 22, 25 and 26 in **Appendix 1** (mandatory elective modules, seminar and lab course) are modules which must be chosen from catalogues drawn up by the IuK Degree Programme Committee and published on the IuK website. [2]Upon request, the chairperson of the Degree Programme Committee can allow other modules. [3]Further provisions are stipulated in Sections 38a and 38b.

(4) [1]Module no. 23 in **Appendix 1** is a module worth 5 ECTS credits which must be chosen from the modules offered by the Department of Electrical, Electronic and Communication Engineering and the Department of Computer Science. [2]Students may also choose two modules worth 2.5 ECTS credits each. [3]The type and scope of the lectures and seminars and the examination are dependent on the competencies for the chosen module according to the relevant **degree programme and examination regulations** and the module handbook.

(5) Elective modules pursuant to no. 24 in **Appendix 1** are modules worth a total of 10 ECTS credits which must be chosen from the modules offered at FAU outside the Faculty of Engineering. [2]The type and scope of the lectures and seminars and the examination are dependent on the competencies for the chosen module according to the relevant **degree programme and examination regulations** and the module handbook.

(6) In addition, the Bachelor's degree programme includes
- the Bachelor's thesis module including the Bachelor's thesis itself and a presentation pursuant to no. 27 **Appendix 1**,

- and an industrial internship lasting at least eight weeks pursuant to no. 28 **Appendix 1**. Further provisions, regarding in particular the requirements for the internship, are stipulated in the Guidelines for Internships for Students of Information and Communication Technology at FAU (internship guidelines) in the currently valid version.

(7) Notwithstanding Section 28 (2)(2) **ABMPO/TechFak**, failed attempts in elective modules shall not be counted when changing to alternative modules.

Section 38a Mandatory Elective Modules

(1) [1]The learning outcome for the mandatory elective modules from the module catalogue for the degree programme in Information and Communication Technology (no. 22 **Appendix 1**) worth a total of 10 ECTS credits is to allow students to specialise in certain selected skills. [2]The second learning outcome has a research focus, with students learning subject-related methods of research and exploring their subject in more depth. [3]Thirdly, the element of choice allows students to tailor their profile in view of their career plans.

(2) [1]The type and scope of the examination are dependent on the skills for the relevant module according to (1) and the module handbook. [2]Possible examination achievements for each module are: written examination (60, 90 or 120 mins) or oral examination (30 mins). [3]The module handbook is published before the beginning of the seminar in accordance with local practice.

(3) [1]Mandatory elective modules amounting to 5 ECTS credits usually consist of a lecture (2 SWS) and a supplement (2 SWS) or a lecture (3 SWS) and a supplement (1 SWS). [2]Any exceptions are detailed in the module handbook.

Section 38b Seminar Module and Lab Course Module

(1) [1]The learning outcome of the seminar module and the lab course module (nos. 25 and 26 in **Appendix 1**) is to allow students to gather, analyse and interpret information relevant to their subject. [2]A second learning outcome is aimed at promoting personal and social skills through preparing, reporting on and presenting a topic relating to the subject for a specialist audience at a Bachelor's level and in a manner tailored to suit the target group, as well as working under supervision in a group to develop and test subject-related applications and possibilities for implementation with respect to the chosen subject. [3]Thirdly, the element of choice allows students to tailor their profile in view of their career plans.

(2) [1]The available modules are listed in the relevant catalogue (see Section 38(3)). [2]Further information about the type and scope of lectures and seminars and the examination is available in **Appendix 1** and the module handbook.

Section 39 Credits in Bachelor's Degree Programmes

[revoked]

Section 40 Grundlagen- und Orientierungsprüfung (GOP)

(1) The GOP includes modules marked as GOP in the last column in **Appendix 1**.

(2) [1]The GOP is deemed to be passed when the examinations in modules nos.1 and 2 are passed pursuant to **Appendix 1** and a total of at least 12.5 ECTS credits has

been achieved from modules nos. 5, 6, 7, 13 and 15 pursuant to **Appendix 1**. [2]A module pursuant to sentence 1 shall be deemed to have been chosen as part of the Grundlagen- und Orientierungsprüfung at the latest once the student has passed the first resit examination.

Section 41 Requirements for Assignation of Bachelor's Thesis

Admission to the Bachelor's thesis shall be governed by Section 27 (3)(2) **ABMPO/ TechFak**.

Section 42 Bachelor's Thesis

(1) [1]The Bachelor's thesis enables students to learn to solve problems independently in the field of information and communications technology. [2]All university lecturers employed at the Department of Electrical, Electronic and Communication Engineering and at the Department of Computer Science as their main occupation shall be entitled to assign Bachelor's theses [3]Requirements for the Bachelor's thesis shall be such that it can be completed with a workload of 300 hours.

(2) 10 ECTS credits are awarded for the Bachelor's thesis with an additional 2.5 ECTS credits awarded for an ungraded presentation in the same module.

Section 43 Evaluation of Achievements for the Bachelor's Degree Programme

(1) The Bachelor's degree programme shall have been completed successfully if proof of passing all modules stipulated in **Appendix 1** has been submitted.

(2) [1]The final grade shall be calculated using all graded modules set forth in the **Appendix 1** including the Bachelor's thesis, weighted with a factor corresponding to the ECTS credits awarded for the graded parts of the module. [2]An interim grade shall be given for each module area in accordance with the ECTS weighting of the individual modules.

2. Master's examination

Section 44 Qualification for a Master's Degree, Certificates and Admission Requirements

(1) [1]A subject-specific degree within the meaning of Section 29 (1)(1) **ABMPO/TechFak** is a Bachelor's degree or a Diploma degree in the subject information and communication technology. [2]Bachelor's degrees in electrical engineering, electronics and information technology in particular shall be recognised as subject-related degrees within the meaning of Section 29 (1)(1) **ABMPO/TechFak**.

(2) [1]Within the meaning of subsection (2)(4)(3) of the **Appendix** to **ABMPO/TechFak**, additional proof of English language skills equivalent to at least Level B2 of the Common European Framework of Reference (CEFR) shall be provided by submitting either relevant school reports or certificates issued by a language school or university. [2]Proof of language skills can in particular be provided by submitting a school leaving certificate or a certificate issued by the school providing evidence that English lessons up to a level equivalent to B2 CEFR have been taken at school or evidence of having successfully completed the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) at level B2 or above (please refer to the table of equivalence published by the FAU Language Centre). [3]Proof of language

proficiency does not need to be submitted if the applicant acquired their university entrance qualification or relevant undergraduate degree in English.

(3) Candidates shall be deemed to qualify for the Master's degree programme in Information and Communication Technology within the meaning of (5)(2)(2) **Appendix ABMPO/TechFak** if the grade for at least two of the following mandatory subject-related or degree programme-specific modules in the Bachelor's degree programme in Information and Communication Technology or equivalent modules at another university were passed with a grade of 2.7 or above:
- module 'Stochastic processes'
- module 'Algorithms for continuous systems'
- module 'Computer communications'
- module 'Foundations of software engineering'
- module 'Signals and systems'
- module 'Signals and systems II'
- module 'Digital signal processing'
- module 'Communication systems'.

(4) In the oral examination according to paragraph (5)(3) et seq. **Appendix ABMPO/ TechFak**, applicants shall be evaluated according to the following criteria:
1. Solid knowledge of signal processing, systems theory, circuit technology, telecommunications, computer architecture, programming and familiarity with mathematical discourse (weighting 50 %)
2. Good knowledge of a field of specialisation corresponding to an eligible specialisation in the Master's degree programme; the applicant shall choose the specialisation to be discussed during the interview (weighting 35 %)
3. A positive prognosis demonstrated by the applicant's academic progress; discussion of results from the applicant's previous degree (based in particular on the transcript of records) (weighting 15 %).

Section 45 Scope and Structure of the Master's Degree Programme

(1) [1]The degree programme consists of mandatory, mandatory elective and elective modules. [2]Students are generally also required to complete a research project worth 5 ECTS credits at an ICT Chair or a company which has a cooperation agreement with an ICT Chair. [3]Instead of a research project within the meaning of sentence 2, the chairperson of the Degree Programme Committee may also approve other ungraded elective modules from the course catalogue of the Faculty of Engineering worth 5 ECTS credits. [4]The distribution of the modules pursuant to sentences 1 and 3 across the semesters, the type and duration of the examinations and the required number of ECTS credits are set forth in **Appendix 2** and **3**.

(2) [1]Each student chooses their own specialisation in order to establish a subject-specific profile. [2]The specialisations available are
- Embedded systems,
- Networks and digital communication,
- Media processing systems.

[3]For each specialisation there is a catalogue of mandatory modules and mandatory elective modules pursuant to **Appendix 2** and **3** and Section 45a, which is drawn up by the Examinations Committee and published on the ICT website. [4]Students choose their specialisation when registering for the first examination.

(3) [1]The modules in module group 1 in **Appendix 2** and **3** are mandatory modules which are described in the catalogue of specialisations pursuant to (2)(3). [2]In the event that a module from the catalogue of mandatory modules has already been successfully completed as part of the Bachelor's degree programme, an alternative module shall be chosen from the catalogue of mandatory elective modules pursuant to Sections 45a and 45b in order to ensure that the student will acquire more advanced knowledge and skills in the subject as stated in the module description with reference to the qualification goals of the Master's degree programme.

(4) [1]The modules in module group 2 in **Appendix 2** and **3** are mandatory elective modules worth a total of 20 ECTS credits described in Section 45a and 45b and in the catalogue of specialisations pursuant to (2)(3). [2]Modules worth at least 10 ECTS credits have to be chosen from the modules offered by the Department of Electrical, Electronic and Communication Engineering and the Department of Computer Science.

(5) The modules in module group 3 in **Appendix 2** or **3** are elective modules worth 25 ECTS credits which must be chosen from the modules offered by the Department of Electrical, Electronic and Communication Engineering and the Department of Computer Science.

(6) [1]In module group 4 in **Appendix 2** or **3**, one elective module has to be chosen from the modules offered by the Faculty of Engineering or the Faculty of Sciences worth 5 ECTS credits. [2]Students may also choose two modules worth 2.5 ECTS credits each.

(7) Modules in module group 5 in **Appendix 2** or **3** are elective modules worth 10 ECTS, which must be chosen from all the modules offered by FAU.

(8) The type and scope of the lectures and seminars and the examinations for the modules to be completed pursuant to (5) to (7) are dependent on the skills for the chosen module according to the relevant **degree programme and examination regulations** and the module handbook.

Section 45a Learning outcomes of specialisations

(1) [1]The overriding learning outcome of the specialisations which can be chosen pursuant to Section 45 (2) (module group 1) is to allow students to gain a more advanced knowledge of selected specialist areas. [2]This should allow them to acquire skills of relevance to research.

(2) In the specialisation 'Embedded systems', students acquire skills in the areas of application designing embedded systems and associated design methodology.

(3) In the specialisation 'Networks and digital communications', students acquire skills in the areas of application wired and wireless digital data transmission as well as architectures and communication network protocols located on higher layers.

(4) In the specialisation 'Media processing systems', students acquire skills in the area of application designing media processing systems.

Section 45b Mandatory Elective Modules

(1) [1]The first learning outcome of the mandatory elective module area according to the specialisation from the catalogue (module group 2) worth a total of 20 ECTS credits is

to allow students to gain a more in-depth knowledge of their specialisation pursuant to Section 45a. [2]The second learning outcome has a research focus, with students learning subject-related methods of research and exploring their subject in more depth. [3]Thirdly, the element of choice allows students to tailor their profile in view of their career plans. [4]Students can choose from a selection of modules worth 2.5 ECTS credits, 5 ECTS credits and 7.5 ECTS credits respectively.

(2) [1]The type and scope of the examination are dependent on the skills for the relevant module according to (1) and the module handbook. [2]Possible examination achievements for each module are: written examination (60, 90 or 120 mins) or oral examination (30 mins). [3]The module handbook is published before the beginning of the seminar in accordance with local practice.

(3) [1]Mandatory elective modules amounting to 5 ECTS credits usually consist of a lecture (2 SWS) and a supplement (2 SWS) or a lecture (3 SWS) and a supplement (1 SWS). [2]Any exceptions are detailed in the module handbook.

Section 45c Lab Course Module and Seminar Module

Section 38b shall apply accordingly.

Section 45d Research Project

[1]The learning outcome of the research project module is to allow students to learn how to put academic work to practical use in research. [2]The research work can be either experimental, theoretical or constructive in nature. [3]Several areas of specialisation can be combined.

Section 46 Credits in Master's Degree Programme

(1) [1]Students must have chosen their specialisation pursuant to Section 45 (2) in conjunction with Section 45a at the latest when they are admitted to the first examination. [2]Unless stipulated otherwise in Sections 45a to 45d, the type and duration of examinations in the Master's degree programme are stated in **Appendix 2** or **3**.

(2) Notwithstanding Section 28 (2)(2) **ABMPO/TechFak**, failed attempts in elective modules shall not be counted when changing to alternative modules.

Section 47 Requirements for Assignment of Master's Thesis

[1]Students must be able to prove that they have passed modules pursuant to Section 45 (1) worth a minimum of 80 ECTS credits to qualify for admission to the Master's thesis. [2]It is recommended that students begin work on the Master's thesis no earlier than at the beginning of the fourth semester.

Section 48 Master's Thesis

(1) [1]The Master's thesis enables students to prove that they can solve problems independently in the field of information and communications technology. [2]All university lecturers employed at the Department of Electrical, Electronic and Communication Engineering and at the Department of Computer Science as their main occupation shall be entitled to assign Master's thesis.

(2) 30 ECTS credits shall be awarded for the Master's thesis including presentation.

Section 49 Evaluation of Achievements for the Master's Degree Programme

(1) The Master's degree programme shall have been completed successfully if proof of passing all modules stipulated in **Appendix 2** or **3** has been submitted.

(2) [1]The final grade shall be calculated using all graded modules set forth in **Appendix 2** or **3** including the Master's thesis, weighted with a factor corresponding to the ECTS credits awarded for the graded parts of the module. [2]An interim grade shall be given for each module area in accordance with the ECTS weighting of the individual modules.

Part III. Concluding Provisions

Section 50 Legal Validity

(1) [1]These degree programme and examination regulations shall come into effect on 1 October 2007. [2]They shall be applied to students who start the Bachelor's degree programme from the winter semester 2007/2008 onwards or the Master's degree programme in Information and Communication Technology from the winter semester 2010/2011 onwards.

(2) [1]The eleventh amendment statute shall come into effect on the day after its publication. [2]It shall apply to all students starting a degree programme from the summer semester 2018 onwards.

(3) [1]The twelfth amendment statute shall come into effect on the day after its publication. [2]It shall apply to all students starting a degree programme from the summer semester 2019 onwards.

Appendix 1: Structure of the Bachelor's Degree Programme

No.	Modules	SWS (semester hours)				Total ECTS credits	Distribution of workload per semester in ECTS credits						Type and scope of the course and examination achievement	GOP
		L	S	Lab	C		1. sem.	2. sem.	3. sem.	4. sem.	5. sem.	6. sem.		
1	Mathematics for ICT 1 [1)]	4	2			7.5	7.5						EA (WE90) + CA (TA)	●
2	Mathematics for ICT 2 [1)]	5	3			10		10					EA (WE120) + CA (TA)	●
3	Mathematics for ICT 3 [1)]	2	2			5			5				EA (WE60) + CA (TA)	
4	Stochastic processes	2	2			5				5			EA (WE 90)	
5	Introduction to information and communication technology	4	2			7.5	7.5						EA (WE120)	●
6	Algorithms and data structures	4	2	2		10	10						EA (WE120) + CA (TA)	●
7	Foundations of computer architecture and computer organisation	2	2			5		5					EA (WE 90)	●
8	System programming	4	2	2		10		5	5				EA (WE120)	
9	Discrete event systems	2	2			5			5				EA (WE 90)	
10	Algorithms for continuous systems	4	2			7.5				7.5			EA (WE90) + CA (TA)	
11	Computer communications	2	2			5				5			EA (WE90) + CA (TA)	
12	Foundations of software engineering	4	2			7.5				7.5			(see FPO INF)	
13	Digital technology	2	2			5	5						EA (WE 90)	●
14	Laboratory: Software for mathematics			2		2.5		2.5					CA: (LA)	
15	Electronics and circuit technology	4	2			7.5		7.5					EA (WE120)	●
16	Laboratory: Circuit technology			3		2.5			2.5				CA: (LA)	
17	Signals and systems I	2	2			5			5				EA (WE 90)	
18	Signals and systems II	2	2			5				5			EA (WE 90)	
19	Digital signal processing	2	2			5					5		EA (WE 90)	
20	Communication systems	4	2			7.5					7.5		EA (WE120)	
21	Digital transmission	3	1			5						5	EA (WE 90)	
22	Mandatory elective modules from the catalogue for ICT pursuant to Section 38a [2)]	see Section 38a (3)				10					10		see Section 38a (2) [3)]	
23	Elective modules EEI and INF	see Section 38 (4)				5						5	see Section 38 (4) [3) 4)]	
24	Elective modules (not Faculty of Engineering)	see Section 38 (5)				10					5	5	see Section 38 (5) [3) 4)]	
25	Seminar pursuant to Section 38b				2	2.5						2.5	EA (SA)	
26	Lab course pursuant to Section 38b				2	2.5					2.5		CA: (LA)	
27	Bachelor's thesis					12.5						12.5	Bachelor's thesis with presentation	
28	Internship (8 weeks) pursuant to internship guidelines					7.5			7.5				CA: (LA)	
		58	38	9	4		30	30	30	30	30	30		
Total semester hours (at least) and ECTS		109				180								

1) The equivalence of the mathematics modules in the degree programmes of the Faculty of Engineering shall be announced according to local practice.
2) The catalogue of branches of study will be published on the ICT website according to local practice before the start of the semester.
3) The type and scope of the examination depend on the specific manner in which the chosen module is taught in the respective semester and are stipulated in the module handbook.

[4)] See module handbook; notwithstanding Section 28 (2)(2) **ABMPO/TechFak** failed attempts will not be counted and in the event of a failure to pass there is no obligation to repeat the failed examination within the legally stipulated period pursuant to Section 28 (1)(5) **ABMPO/TechFak**.

Key:
L = lecture.
S = supplement.
Lab = lab course.
SWS = semester hours.
ECTS = credits from European Credit Transfer System.
CA = course achievement.
EA = examination achievement.
WE = written examination.
LA = laboratory achievement pursuant to Section 6 (3) **AMBPO/TechFak**.
SA = seminar achievement pursuant to Section 6 (3) **ABMPO/TechFak**.
TA = tutorial achievement pursuant to Section 6 (3) **ABMPO/TechFak**.
BA = Bachelor's thesis.

Appendix 2: Structure of the Full-time Master's Degree Programme
Appendix 2a: Specialisation Embedded systems

No.	Modules	SWS (semester hours)				Total ECTS credits	Workload per semester in ECTS credits [1]				Type and scope of the course and examination achievement
							1.	2.	3.	4.	
1	**Mandatory modules [2]**					20					
1a	Embedded systems	see FPO INF				5	5				EA (see FPO INF)
1b	Hardware-Software Co-Design	2	2			5		5			EA (see FPO INF)
1c	Communication electronics	see FPO EEI				5		5			EA (see FPO EEI)
1d	Design of integrated circuits I	see FPO EEI				5	5				EA (see FPO EEI)
2	**Mandatory elective modules from the catalogue according to specialisation pursuant to Section 45b [2] [3]**	see Section 45b (3)				20	5	5	10		EA: see Section 45b (2) [4]
3	**Elective modules from EEI and Computer Science pursuant to Section 45 (5) [2]**	see Section 45 (5)				25	5	10	10		EA: see Section 45 (5) [4] [5]
4	**Elective modules from Faculty of Engineering or Faculty of Sciences pursuant to Section 45 (6) [2]**	see Section 45 (6)				5			5		EA: see Section 45 (6) [4] [5]
5	**Elective modules from the university module catalogue pursuant to Section 45 (7) [2]**	see Section 45 (7)				10	5	5			EA: see Section 45 (7) [4] [5]
6	**Lab course pursuant to Section 45c**			3		2.5			2.5		EA (SA)
7	**Seminar pursuant to Section 45c**				2	2.5			2.5		CA: (LA)
8	**Master's thesis**					30				30	Master's thesis with presentation
9	**Research project pursuant to Section 45d**			4		5	5				CA (LA) [4]
		2	2	7	2		30	30	30	30	
	Total semester hours (at least) and ECTS credits	13				120					

[1] The distribution of the workload refers to students starting in the winter semester. For students starting in the summer semester, the mandatory modules are offered in the other semester respectively.

[2] Due to the specific subject knowledge that must be acquired as part of the qualification goals of the Master's degree programme, as detailed in the module descriptions, modules that have been completed in a previous Bachelor's degree programme may not generally be accredited for the Master's examination. The same shall also apply to another previously completed elective (mandatory) module in this degree programme. Section 45 (3)(2) shall apply in this case.

[3] The specialisation catalogue is published according to local practice on the ICT website before the semester starts.

[4] The type and scope of the examination depend on the specific manner in which the respective module is taught; see module handbook for details.

[5] See module handbook; notwithstanding Section 28 (2)(2) **ABMPO/TechFak** failed attempts will not be counted and in the event of a failure to pass there is no obligation to repeat the failed examination within the legally stipulated period pursuant to Section 28 (1)(5) **ABMPO/TechFak**.

Key:
CA = course achievement.
EA = examination achievement.
LA = laboratory achievement pursuant to Section 6 (3) **AMBPO/TechFak**.
SA = seminar achievement pursuant to Section 6 (3) **ABMPO/TechFak**.
WE = written examination.
MA = Master's thesis.

Appendix 2b: Specialisation Networks and Digital Communication

No.	Modules	SWS (semester hours)				Total ECTS credits	Distribution of workload per semester in ECTS credits [1]				Type and scope of the course and examination achievement
							1	2.	3.	4.	
1	**Mandatory modules [2]**					20					
1a	Communication systems	2	2			5	5				EA (WE 90) or (o30) [4]
1b	Quality of service of communication systems	2	2			5		5			EA (WE 90) or (o30) [4]
1c	Information theory and coding	see FPO EEI				5		5			EA (see FPO EEI)
1d	Mobile communications	3	1			5		5			EA (WE 90)
2	**Mandatory elective modules from the catalogue according to specialisation pursuant to Section 45b [2] [3]**	see Section 45b (3)				20	5	5	10		EA: see Section 45b (2) [4]
3	**Elective modules from EEI and Computer Science pursuant to Section 45 (5) [2]**	see Section 45 (5)				25	5	5	15		EA: see Section 45 (5) [4] [5]
4	**Elective modules from the Faculty of Engineering or Faculty of Sciences pursuant to Section 45 (6) [2]**	see Section 45 (6)				5	5				EA: see Section 45 (6) [4] [5]
5	**Elective modules from the university module catalogue pursuant to Section 45 (7) [2]**	see Section 45 (7)				10	5	5			EA: see Section 45 (7) [4] [5]
6	**Lab course pursuant to Section 45c**			3		2.5			2.5		EA (SA)
7	**Seminar pursuant to Section 45c**				2	2.5			2.5		CA: (LA)
8	**Master's thesis**					30	5			30	Master's thesis with presentation
9	**Research project pursuant to Section 45d**			4		5					CA (LA) [4]
		7	5	7	2		30	30	30	30	
	Total semester hours (at least) and ECTS credits	21				120					

[1] The distribution of the workload refers to students starting in the winter semester. For students starting in the summer semester, the mandatory modules areoffered in the other semester respectively.
[2] Due to the specific subject knowledge that must be acquired as part of the qualification goals of the Master's degree programme, as detailed in the module descriptions, modules that have been completed in a previous Bachelor's degree programme may not generally be accredited for the Master's examination. The same shall also apply to another previously completed elective (mandatory) module in this degree programme. Section 45 (3)(2) shall apply in this case.
[3] The specialisation catalogue is published according to local practice on the ICT website before the semester starts.
[4] The type and scope of the examination depend on the specific manner in which the respective module is taught; see module handbook for details.
[5] See module handbook; notwithstanding Section 28 (2)(2) **ABMPO/TechFak** failed attempts will not be counted and in the event of a failure to pass there is no obligation to repeat the failed examination within the legally stipulated period pursuant to Section 28 (1)(5) **ABMPO/TechFak**.

Key:
CA = course achievement.
EA = examination achievement.
LA = laboratory achievement pursuant to Section 6 (3) **AMBPO/TechFak**.
SA = seminar achievement pursuant to Section 6 (3) **ABMPO/TechFak**.
WE = written examination.
o = oral.
MA = Master's thesis.

Appendix 2c: Specialisation Media Processing Systems

No.	Modules	SWS (semester hours)				Total ECTS credits	Distribution of workload per semester in ECTS credits [1]				Type and scope of the course and examination achievement
							1	2.	3.	4.	
1	**Mandatory modules [2]**					20					
1a	Image and video compression	see FPO CME				5		5			EA (see FPO CME)
1b	Statistical signal processing	see FPO CME				5	5				EA (see FPO CME)
1c	Communication systems	2	2			5	5				EA (WE 90) or (o30) [4]
1d	Pattern recognition	3	1			5	5				EA (WE 90) or (o30) [4]
2	**Mandatory elective modules from the catalogue according to specialisation pursuant to Section 45b [2] [3]**	see Section 45b (3)				20	5	5	10		EA: see Section 45b (2) [4]
3	**Elective modules from EEI and Computer Science pursuant to Section 45 (5) [2]**	see Section 45 (5)				25		10	15		EA: see Section 45 (5) [4] [5]
4	**Elective modules from the Faculty of Engineering or Faculty of Sciences pursuant to Section 45 (6) [2]**	see Section 45 (6)				5		5			EA: see Section 45 (6) [4] [5]
5	**Elective modules from the university module catalogue pursuant to Section 45 (7) [2]**	see Section 45 (7)				10	5	5			EA: see Section 45 (7) [4] [5]
6	**Lab course pursuant to Section 45c**			3		2.5			2.5		EA (SA)
7	**Seminar pursuant to Section 45c**				2	2.5			2.5		CA: (LA)
8	**Master's thesis**					30				30	Master's thesis with presentation
9	**Research project pursuant to Section 45d**			4		5	5				CA (LA) [4]
		5	3	7	2		30	30	30	30	
	Total semester hours (at least) and ECTS credits	17				120					

[1] The distribution of the workload refers to students starting in the winter semester. For students starting in the summer semester, the mandatory modules are offered in the other semester respectively.

[2] Due to the specific subject knowledge that must be acquired as part of the qualification goals of the Master's degree programme, as detailed in the module descriptions, modules that have been completed in a previous Bachelor's degree programme may not generally be accredited for the Master's examination. The same shall also apply to another previously completed elective (mandatory) module in this degree programme. Section 45 (3)(2) shall apply in this case.

[3] The specialisation catalogue is published according to local practice on the ICT website before the semester starts.

[4] The type and scope of the examination depend on the specific manner in which the respective module is taught; see module handbook for details.

[5] See module handbook; notwithstanding Section 28 (2)(2) **ABMPO/TechFak** failed attempts will not be counted and in the event of a failure to pass there is no obligation to repeat the failed examination within the legally stipulated period pursuant to Section 28 (1)(5) **ABMPO/TechFak**.

Key:
CA = course achievement.
EA = examination achievement.
LA = laboratory achievement pursuant to Section 6 (3) **AMBPO/TechFak**.
SA = seminar achievement pursuant to Section 6 (3) **ABMPO/TechFak**.
WE = written examination.
o = oral.
MA = Master's thesis.

Appendix 3: Structure of the Part-time Master's Degree Programme
Appendix 3a: Specialisation Embedded Systems

No.	Modules	SWS (semester hours)				Total ECTS credits	Distribution of workload per semester in ECTS credits [1]								Type and scope of the course and examination achievement
		L	S	Lab	C		1	2.	3.	4.	5.	6.	7.	8.	
1	**Mandatory modules [2]**					20									
1a	Embedded systems	see FPO INF				5	5								EA (see FPO INF)
1b	Hardware-Software Co-Design	2	2			5		5							EA (see FPO INF)
1c	Communication electronics	see FPO EEI				5				5					EA (see FPO EEI)
1d	Design of integrated circuits I	see FPO EEI				5			5						EA (see FPO EEI)
2	**Mandatory elective modules from the catalogue according to specialisation pursuant to Section 45b [2] [3]**	see Section 45b (3)				20	5	5		5	5				EA: see Section 45b (2) [4]
3	**Elective modules from EEI and Computer Science pursuant to Section 45 (5) [2]**	see Section 45 (5)				25	5	5		5	5	5			EA: see Section 45 (5) [4] [5]
4	**Elective modules from the Faculty of Engineering or Faculty of Sciences pursuant to Section 45 (6) [2]**	see Section 45 (6)				5			5						EA: see Section 45 (6) [4] [5]
5	**Elective modules from the university module catalogue pursuant to Section 45 (7) [2]**	see Section 45 (7)				10			5		5				EA: see Section 45 (7) [4] [5]
6	**Lab course pursuant to Section 45c**			3		2.5						2.5			EA (SA)
7	**Seminar pursuant to Section 45c**				2	2.5						2.5			CA: (LA)
8	**Master's thesis**					30							15	15	Master's thesis with presentation
9	**Research project pursuant to Section 45d**			4		5						5			CA (LA) [4]
		2	2	7	2		15	15	15	15	15	15	15	15	
	Total semester hours (at least) and ECTS credits	13				120									

[1] The distribution of the workload refers to students starting in the winter semester. For students starting in the summer semester, the mandatory modules are offered in the other semester respectively.

[2] Due to the specific subject knowledge that must be acquired as part of the qualification goals of the Master's degree programme, as detailed in the module descriptions, modules that have been completed in a previous Bachelor's degree programme may not generally be accredited for the Master's examination. The same shall also apply to another previously completed elective (mandatory) module in this degree programme. Section 45 (3)(2) shall apply in this case.

[3] The specialisation catalogue is published according to local practice on the ICT website before the semester starts.

[4] The type and scope of the examination depend on the specific manner in which the respective module is taught; see module handbook for details.

[5] See module handbook; notwithstanding Section 28 (2)(2) **ABMPO/TechFak** failed attempts will not be counted and in the event of a failure to pass there is no obligation to repeat the failed examination within the legally stipulated period pursuant to Section 28 (1)(5) **ABMPO/TechFak**.

Key:
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EA = examination achievement.
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WE = written examination.
MA = Master's thesis.

Appendix 3b: Specialisation Networks and Digital Communication

No.	Modules	SWS (semester hours)				Total ECTS credits	Distribution of workload per semester in ECTS credits [1]								Type and scope of the course and examination achievement
		L	S	Lab	C		1.	2.	3.	4.	5.	6.	7.	8.	
1	**Mandatory modules [2]**					20									
1a	Communication Systems	2	2			5	5								EA (WE 90) or (o30) [4]
1b	Quality of service of communication systems	2	2			5		5							EA (WE 90) or (o30) [4]
1c	Information theory and coding	see FPO EEI				5				5					PL (see FPO EEI)
1d	Mobile Communications	3	1			5		5							EA (WE 90)
2	**Mandatory elective modules from the catalogue according to specialisation pursuant to Section 45b [2] [3]**	see Section 45b (3)				20	5		5	5	5				EA: see Section 45b (2) [4]
3	**Elective modules from EEI and Computer Science pursuant to Section 45 (5) [2]**	see Section 45 (5)				25	5	5		5	5	5			EA: see Section 45 (5) [4] [5]
4	**Elective modules from the Faculty of Engineering or Faculty of Sciences pursuant to Section 45 (6) [2]**	see Section 45 (6)				5			5						EA: see Section 45 (6) [4] [5]
5	**Elective modules from the university module catalogue pursuant to Section 45 (7) [2]**	see Section 45 (7)				10			5		5				EA: see Section 45 (7) [4] [5]
6	**Lab course pursuant to Section 45c**			3		2,5						2,5			EA (SA)
7	**Seminar pursuant to Section 45c**				2	2.5						2.5			CA: (LA)
8	**Master's thesis**					30							15	15	Master's thesis with presentation
9	**Research project pursuant to Section 45d**			4		5						5			CA (LA) [4]
		7	5	7	2		15	15	15	15	15	15	15	15	
	Total semester hours (at least) and ECTS credits	21				120									

[1] The distribution of the workload refers to students starting in the winter semester. For students starting in the summer semester, the mandatory modules are offered in the other semester respectively.

[2] Due to the specific subject knowledge that must be acquired as part of the qualification goals of the Master's degree programme, as detailed in the module descriptions, modules that have been completed in a previous Bachelor's degree programme may not generally be accredited for the Master's examination. The same shall also apply to another previously completed elective or mandatory elective module in this degree programme. Section 45 (3)(2) shall apply in this case.

[3] The specialisation catalogue is published according to local practice on the ICT website before the semester starts.

[4] The type and scope of the examination depend on the specific manner in which the respective module is taught; see module handbook for details.

[5] See module handbook; notwithstanding Section 28 (2)(2) **ABMPO/TechFak** failed attempts will not be counted and in the event of a failure to pass there is no obligation to repeat the failed examination within the legally stipulated period pursuant to Section 28 (1)(5) **ABMPO/TechFak**.

Key:
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WE = written examination.
o = oral.
MA = Master's thesis.

Appendix 3c: Specialisation Media Processing Systems

No.	Modules	SWS (semester hours)				Total ECTS credits	Distribution of workload per semester in ECTS credits [1]								Type and scope of the course and examination achievement
		L	S	Lab	C		1.	2.	3.	4.	5.	6.	7.	8.	
1	**Mandatory modules [2]**					20									
1a	Image and video compression	see FPO CME				5				5					EA (see FPO CME)
1b	Statistical signal processing	see FPO CME				5	5								EA (see FPO CME)
1c	Communication Systems	2	2			5	5								EA (WE 90) or (o30) [4]
1d	Pattern Recognition	3	1			5			5						EA (WE 90) or (o30) [4]
2	**Mandatory elective modules from the catalogue according to specialisation pursuant to Section 45b [2] [3]**	see Section 45b (3)				20	5	5		5	5				EA: see Section 45b (2) [4]
3	**Elective modules from EEI and Computer Science pursuant to Section 45 (5) [2]**	see Section 45 (5)				25		5	5	5	5	5			EA: see Section 45 (5) [4] [5]
4	**Elective modules offered by the Faculty of Engineering or the Faculty of Sciences pursuant to Section 45 (6) [2]**	see Section 45 (6)				5					5				EA: see Section 45 (6) [4] [5]
5	**Elective modules from the university module catalogue pursuant to Section 45 (7) [2]**	see Section 45 (7)				10		5	5						EA: see Section 45 (7) [4] [5]
6	**Lab course pursuant to Section 45c**			3		2.5						2.5			EA (SA)
7	**Seminar pursuant to Section 45c**				2	2.5						2.5			CA: (LA)
8	**Master's thesis**					30							15	15	Master's thesis with presentation
9	**Research project pursuant to Section 45d**			4		5						5			CA (LA) [4]
		5	3	7	2		15	15	15	15	15	15	15	15	
	Total semester hours (at least) and ECTS credits	17				120									

[1] The distribution of the workload refers to students starting in the winter semester. For students starting in the summer semester, the mandatory modules are offered in the other semester respectively.

[2] Due to the specific subject knowledge that must be acquired as part of the qualification goals of the Master's degree programme, as detailed in the module descriptions, modules that have been completed in a previous Bachelor's degree programme may not generally be accredited for the Master's examination. The same shall also apply to another previously completed elective or mandatory elective module in this degree programme. Section 45 (3)(2) shall apply in this case.

[3] The specialisation catalogue is published according to local practice on the ICT website before the semester starts.

[4] The type and scope of the examination depend on the specific manner in which the respective module is taught; see module handbook for details.

[5] See module handbook; notwithstanding Section 28 (2)(2) **ABMPO/TechFak** failed attempts will not be counted and in the event of a failure to pass there is no obligation to repeat the failed examination within the legally stipulated period pursuant to Section 28 (1)(5) **ABMPO/TechFak**.

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o = oral.