

These degree programme and examination regulations have been worded carefully to be up to date; however, errors cannot be completely excluded. The official German text available at the Examinations Office 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 Master’s Degree Programme Communications and Multimedia Engineering at the Faculty of Engineering at Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) – FPOCME –

Dated 05 August 2011

amended by statutes of
14 October 2013
11 August 2015
03 September 2018

Based on Section 13 (1)(2), Section 43 (5)(2), 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 34 Scope

The degree programme and examination regulations for the Master's degree programme Communications and Multimedia Engineering complement the currently valid General Examination Regulations for the Bachelor's and Master's Degree Programmes at the Faculty of Engineering of Friedrich-Alexander-Universität Erlangen-Nürnberg – **ABMPO/TechFak**.

Section 35 Master's Degree Programme, Part-time Degree Programme, Standard Duration of Studies, Start of Degree Programme

(1) ¹The Master's degree programme in Communications and Multimedia Engineering is based on Bachelor's and Diplom degree programmes with a focus on information and communication technology. ²It shall consist of modules worth 120 ECTS credits in total and shall include a Master's thesis with a six-month period for thesis work.

2) ¹The Master's degree programme in Communications and Multimedia Engineering can be studied as a full-time or part-time degree programme. ²The standard duration of study in the full-time degree programme is four semesters and eight semesters in the part-time degree programme.

(3) The distribution of the modules over the standard duration of the degree programme shall be set out in **Appendix 1** and **Appendix 2**.

(4) The Master's degree programme Communications and Multimedia Engineering shall start in the winter semester.

Section 36 International Orientation, Teaching and Examination Language

¹Notwithstanding Section 4 (5)(1) **ABMPO/TechFak**, the teaching and examination language in the Master's degree programme in Communications and Multimedia Engineering is English. ²This does not apply to modules aimed at teaching German language skills. ³Individual teaching units and examinations in (compulsory) elective modules may also be taught in German in cases other than those stipulated in sentence 2. However, a maximum of 20 ECTS credits obtained in modules such as these may be counted towards the Master's examination. ⁴The Master's thesis shall be written in English. ⁵The degree certificate and final academic record shall be issued in German and English.

Part II: Special Provisions

Section 37 Qualification for a Master's Degree Programme, Certificates and Admission Requirements

(1) ¹A subject-specific degree as defined by Section 29 (1)(1) **ABMPO/TechFak** shall be a Bachelor's degree in information and communication technology; computational engineering; or electrical engineering, electronics, and information technology. ²In accordance with (5)(4) of the **Appendix to the ABMPO/TechFak**, applicants with a subject-related degree or an equivalent degree as defined in Section 29 (1)(1) **ABMPO/TechFak** (in particular information technology, telecommunications engineering or automation) shall only be admitted to the Master's degree programme after passing an oral admission examination according to (3).

(2) The following documents shall be submitted as certificates according to paragraph (2)(4) of the Appendix to **ABMPO/TechFak**:

1. ¹Proof of English language skills equivalent to at least Level B2 of the Common European Framework of Reference (CEFR) on the basis of relevant school reports or certificates issued by a language school or university. ²Proof 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). ³Proof of language proficiency does not need to be submitted if the applicant acquired their university entrance qualification or relevant undergraduate degree in English.
2. An application form completed in English (available on the website or from the Admissions Committee).

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

1. A good knowledge of the foundations of the subject, in particular engineering mathematics (60%)
2. Description of a relevant subject-related project, knowledge of the relevant literature (20%)
3. A positive prognosis demonstrated by the applicant's academic progress in their studies to date (of at least 10%); discussion of results from the applicant's previous degree (in particular from the transcript of records) (20%).

Section 38 Scope, Structure, and Examinations of the Master's Degree Programme

(1) The Master's degree programme in Communications and Multimedia Engineering consists of modules amounting to 120 ECTS credits, distributed as follows:

1. Compulsory modules amounting to a total of 35 ECTS credits.
2. Compulsory elective and practical modules amounting to a total of 25 ECTS credits (7.5 ECTS credits for laboratory courses/practicals, 10 ECTS credits for the research internship, 2.5 ECTS credits for the seminar and 5 ECTS credits for teaching units on technical topics).
3. Compulsory elective modules in subjects other than engineering (key qualifications) amounting to a total of 15 ECTS credits (students who do not already have German language skills equivalent to at least level B2 of the CEFR shall take all 15 ECTS credits in German language courses; otherwise, at least 2.5 ECTS credits shall be obtained from language courses in technical English).
4. Elective modules from engineering subjects amounting to a total of 15 ECTS credits
5. Master's thesis amounting to 30 ECTS credits pursuant to **Appendix 1** or **2**.

(2) Type and scope of the course and examination achievements are set out in **Appendix 1**, **Appendix 2** and the module handbook.

Section 38a Compulsory Elective Modules

(1) ¹The learning outcome of the compulsory elective modules M8 to M12 is firstly to allow students to gain a more in-depth knowledge of selected skills. ²Secondly, they are aimed at helping students gain research skills. Students learn subject-related research methods and gain greater knowledge of their subject in technical courses, seminars, laboratory courses and the research internship. ³Thirdly, students who are not sufficiently proficient in German must take language courses in German, as stipulated in Section 38 (1). ⁴The element of choice also allows students to tailor their profile in view of their career plans.

(2) ¹The type and scope of the examination depend on the skills taught in the respective module accounting for 5, 7.5 or 10 ECTS credits, or, if so chosen by the student, 2.5 ECTS credits, pursuant to paragraph 1 and the module handbook. ²Possible examination achievements for each module are: written examination (60, 90 or 120 min), oral examination (30 min) and a laboratory course or seminar achievement. ³The module handbook is published before the beginning of the semester in accordance with local practice.

(3) ¹Compulsory elective modules worth 5 ECTS credits usually consist of a lecture amounting to 2 SWS and a supplementary course amounting to 2 SWS or a lecture amounting to 3 SWS and a supplementary course amounting to 1 SWS. ²Any exceptions are detailed in the module handbook.

Section 38b Elective Engineering Modules

(1) ¹Elective modules from engineering subjects worth a total of 15 ECTS credits are selected from a module catalogue or the catalogue of compulsory elective modules which is published before the beginning of the semester on the department's website. ²Other modules may be permitted upon request.

(2) ¹The learning outcome of the elective modules from engineering subjects is firstly to allow students to develop skills in an area of particular interest to them. ²The second learning outcome has a research focus, with students learning subject-related methods of research and exploring their subject in more depth. ³Thirdly, the element of choice gives students the opportunity to create their own particular profile in view of their future career.

(3) ¹ The type and scope of the lectures and seminars and the examination are dependent on the skills for the chosen module according to (2) and are stipulated in the relevant **degree programme and examination regulations** and the module handbook. ²Possible examination achievements for each module are: written examination (60, 90 or 120 min) or oral examination (30 min). ³The module handbook is published before the beginning of the semester in accordance with local practice.

(4) ¹Elective modules worth 7.5 ECTS credits usually consist of a lecture amounting to 2 SWS, a supplementary course amounting to 2 SWS and an extended supplementary course amounting to 2 SWS. ²The elective modules worth 5 ECTS credits usually consist of a lecture amounting to 2 SWS and a supplementary course amounting to 2 SWS or a lecture amounting to 3 SWS and a supplementary course amounting to 1 SWS. ³Elective modules amounting to 2.5 ECTS credits usually consist of a lecture amounting to 2 SWS. ⁴Any exceptions are detailed in the module handbook.

(5) ¹In the cases stipulated in (1)(2), the type and scope of teaching units and examinations may differ from the provisions stipulated in (3) and (4). ²Further details are stipulated in the respective **degree programme and examination regulations** and/or module handbook.

Section 39 Requirements for Admission to the Master's Thesis

(1) In order to gain admission to the Master's thesis, students must have passed the compulsory modules specified in **Appendix 1** or **Appendix 2** and have obtained a minimum of 80 ECTS credits.

(2) In justified, exceptional cases, the Examinations Committee shall be entitled to grant admission to the Master's thesis early, notwithstanding (1).

Section 40 Master's Thesis

(1) ¹The Master's thesis is intended to demonstrate students' ability to solve scientific problems in the field of communication and multimedia engineering independently. ²All full-time university lecturers teaching at the Department of Electrical Engineering are entitled to supervise Master's theses.

(2) The Master's thesis module shall be worth 30 ECTS credits.

Section 41 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 1** or **Appendix 2** has been submitted.

(2) ¹The final grade shall be calculated using all graded modules set forth in **Appendix 1** or **Appendix 2** including the module for the Master's thesis, weighted by a factor corresponding to their ECTS credits. ²To do so, a grade shall be calculated for each module category and weighted by a factor corresponding to their ECTS credits in the calculation of the final grade.

Part III: Final Provisions

Section 42 Legal Validity

(1) ¹These degree programme and examination regulations shall come into effect on the day after their publication. ²They shall apply to all students who start the Master's degree programme in Communications and Multimedia Engineering in the winter semester 2011/2012 or later.

(2) ¹The third amendment statute shall come into effect on the day after its publication. ²It shall apply to all students starting a degree programme from the winter semester 2018/2019 onwards. ³Notwithstanding sentence 2, the amendments in Section 37 shall apply to all students starting a degree programme from the winter semester 2019/2020 onwards.

Appendix 1: Study plan for the full-time degree programme

No.	Module category Module name	SWS (semester hours)				ECTS credits	1st sem. ECTS credits	2nd sem. ECTS credits	3rd sem. ECTS credits	4th sem. ECTS credits	Type and scope of the examination and course achievements	
		L	T	P	S							
	Compulsory modules ³⁾											
M1	Digital communications	3	1			5	5			EA: written examination 90 min		
M2	Information theory and coding	3	1			5	5			EA: written examination 90 min		
M3	Digital signal processing	3	1			5	5			EA: written examination 90 min		
M4	Mobile communications	3	1			5		5		EA: written examination 90 min		
M5	Statistical signal processing	3	1			5	5			EA: written examination 90 min		
M6	Image and video compression	3	1			5		5		EA: written examination 90 min		
M7	Speech and audio signal processing	3	1			5		5		EA: written examination 90 min		
	Compulsory elective modules pursuant to Section 38 a ^{1) 3)}	see Section 38a (3)									see Section 38a (2)	
M8	Lab courses (practicals)			9		7,5	2,5	2,5	2,5		CA: LA	
M9	Research internship					10			10		CA: LA ⁴⁾	
M10	Advanced seminar				2	2.5			2.5		EA: SA	
M11	Technical courses					5			5		EA ⁴⁾	
	Compulsory elective modules from non-engineering subjects pursuant to Section 38 a ^{1) 3)}	see Section 38a (3)									see Section 38a (2)	
M12	Languages / soft skills		1			15	5	5	5		EA ⁴⁾	
	Elective modules pursuant to Section 38 b ^{2) 3)}	see Section 38b (4)									see Section 38b (3)	
M13	Technical electives					15	2.5	7.5	5		EA ^{4) 5)}	
M14	Master's thesis					30				30	Master's thesis (EA) + presentation (CA)	
		21	1	9	2							
	Total semester hours (at least) and ECTS credits	51				120	30	30	30	30		

Key: EA = examination achievement; LA = laboratory course/internship achievement; SA = seminar achievement; CA = course achievement.

¹⁾ Compulsory elective modules (M8 to M12) pursuant to Section 38 a shall be chosen from a catalogue that is announced according to local practice at the beginning of every semester.

- 2) Elective modules from engineering subjects pursuant to Section 38b shall be chosen from a different catalogue or from the catalogue of compulsory elective modules that is announced on the CME website at the beginning of every semester. The Degree Programme Committee may grant permission for students to take other modules that are not listed in the catalogue of elective modules upon request.
- 3) see Section 38 (1) As a general rule, there is one examination per module. Due to the specific subject competencies that must be acquired as part of the learning outcome of the Master's degree programme, students are expected to prove on the basis of the module description that they will acquire additional skills in the Master's degree programme in Communications and Multimedia Engineering compared to the skills acquired in their previous Bachelor's degree. In the event that they have already successfully completed compulsory modules, students shall choose alternative modules approved by the Degree Programme Committee.
- 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 programme and examination regulations** and/or the relevant module handbook.
- 5) 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**.

Appendix 2: Study plan for the part-time degree programme

No.	Module category Module name	SWS (semester hours)				ECTS credits	1st sem. ECTS credits	2nd sem. ECTS credits	3rd sem. ECTS credits	4th sem. ECTS credits	5th sem. ECTS credits	6th sem. ECTS credits	7th sem. ECTS credits	8th sem. ECTS credits	Type and scope of the examination and course achievement
		L	T	P	S										
	Compulsory modules ³⁾														
M1	Digital communications	3	1			5		5						EA: written examination 90 min	
M2	Information theory and coding	3	1			5	5							EA: written examination 90 min	
M3	Digital signal processing	3	1			5	5							EA: written examination 90 min	
M4	Mobile communications	3	1			5			5					EA: written examination 90 min	
M5	Statistical signal processing	3	1			5		5						EA: written examination 90 min	
M6	Image and video compression	3	1			5		5						EA: written examination 90 min	
M7	Speech and audio signal processing	3	1			5		5						EA: written examination 90 min	
	Compulsory elective modules pursuant to Section 38 a^{1) 3)}	see Section 38a (3)												see Section 38a (2)	
M8	Lab courses (practicals)			9		7.5			2.5	2.5	2.5			CA: LA	
M9	Research internship					10					10			SA:LA ⁴⁾	
M10	Advanced seminar				2	2.5					2.5			EA: SA	
M11	Technical courses					5				5				EA ⁴⁾	
	Compulsory elective modules from non-engineering subjects pursuant to Section 38 a^{1) 3)}	see Section 38a (3)												see Section 38 a (2)	
M12	Languages / soft skills		12			15	5	5	5					EA ⁴⁾	
	Elective modules pursuant to Section 38 b^{2) 3)}	see Section 38b (4)												see Section 38b (3)	
M13	Technical electives					15			7.5	7.5				EA ^{4) 5)}	
M14	Master's thesis					30						15	15	Master's thesis (EA) + presentation (CA)	
	Total semester hours (at least) and ECTS credits	21	19	9	2										
		51				120	15	15	15	15	15	15	15	15	

Key: EA = examination achievement; LA = laboratory course/internship achievement; SA = seminar achievement; CA = course achievement.

¹⁾ Compulsory elective modules (M8 to M12) pursuant to Section 38 a shall be chosen from a catalogue that is announced according to local practice at the beginning of every semester.

- 2) Elective modules from engineering subjects pursuant to Section 38b shall be chosen from a different catalogue or from the catalogue of compulsory elective modules that is announced on the CME website at the beginning of every semester. The Degree Programme Committee may grant permission for students to take other modules that are not listed in the catalogue of elective modules upon request.
- 3) see Section 38 (1) As a general rule, there is one examination per module. Due to the specific subject competencies that must be acquired as part of the learning outcome of the Master's degree programme, students are expected to prove on the basis of the module description that they will acquire additional skills in the Master's degree programme in Communications and Multimedia Engineering compared to the skills acquired in their previous Bachelor's degree. In the event that they have already successfully completed compulsory modules, students shall choose alternative modules approved by the Degree Programme Committee.
- 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 programme and examination regulations** and/or the relevant module handbook.
- 5) 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**.