

## **A. Specific Regulations**

### **§ 28 Abbreviations**

(1) Abbreviations used for course types:

V	=	Vorlesung [lecture]
Ü	=	Übung [tutorial]
L	=	Labor/Studio [lab]
S	=	Seminar
P	=	Praxis [practice]
WA	=	Wissenschaftliche Arbeit [academic-scientific work]
EX	=	Exkursion [excursion]

(2) Abbreviations used for examination types:

AA	=	Abschlussarbeit [Master's thesis]
BE	=	Bericht [report]
E	=	Konstruktiver Entwurf [constructive design]
HA	=	Hausarbeit [term paper]
Kxx	=	Klausurarbeit [graded written exam], time allowed xx minutes
KO	=	Kolloquium
KWA	=	Künstlerisch-wissenschaftliche Arbeit [artistic-scientific work]
LA	=	Laborarbeit [lab work]
M	=	Mündliche Prüfungsleistung (benotet) [graded oral exam]
ST	=	Studienarbeit (sonstige schriftliche Arbeit) [study paper (other written work)]
PA	=	Praktische Arbeit [practical work]
PR	=	Projektarbeit [project work]
RE	=	Referat [presentation]

(3) Accreditation units:

SWS	=	Semesterwochenstunden [45-minute contact units per week during lecture periods]
C	=	ECTS credits

## § 36 Program of Communication and Media Engineering

### Objectives

- (1) The objective of the program is to provide advanced academic-scientific training at the intersections of communications engineering and digital media technology. For both didactic and time considerations, selected core competences and systematic scientific approaches are taught, in addition to social and management skills. Graduates are prepared for academic positions in modern communications engineering and for careers in business.
- (2) The program is geared towards German and foreign students with a good command of English. Courses are generally taught in English.
- (3) The study course is made up of four semesters, CM1, CM2, CM3 and CM4. CM1 and CM3 courses are held in winter semesters, CM2 and CM4 courses in summer semesters.
- (4) The time allowed for completing the Master's thesis is 6 months.
- (5) A total of 120 credits must be obtained to complete the program.

### Courses and Modules

- (6) The CME curriculum comprises the modules listed in the tables of paragraphs 9 through 12. A module includes one or several courses. The examinations designated "e" in the curriculum are passed if each partial exam is passed or graded a minimum of 'ausreichend' (4,0). All other examinations are passed if the module as a whole is graded a minimum of 'ausreichend' (4,0).
- (7) The tables in paragraphs 10 through 13 list the course types, contact units per week, exam types, grade weights, and the credits of the respective modules.
- (8) If the sum of all course weights within a module is greater than 1, students can make a selection from courses within the module.
- (9) For the Internship, two months, or a minimum of 35 days of attendance, must be completed in a company or other institution for professional practice. Admission to the internship is granted after the examination period of the second semester at the earliest, and requires submitting a position for approval which corresponds to the regulations.
- (10) Communication and Information Engineering Specialization

Modules			Courses						
No.	Module	C	No.	Title	Type	C	SWS	Exam Type	Weight
CME-01	Computer Science	8	E+I400	Object Oriented Software Development	V	3	2	K60	e 1/2
			E+I401	OO Software Development Lab	L	2	2	LA	-
			E+I402	Objected Oriented Modeling (UML)	V	3	2	K60	e 1/2
CME-02	Signal and System Theory	6	E+I403	Digital Signals and Systems	V	3	2	K120	1
			E+I405	Information Theory and Coding	V	3	2		

Modules			Courses						
No.	Module	C	No.	Title	Type	C	SWS	Exam Type	Weight
CME-03	Communication Networks	6	E+I408	Telecommunication Networks	V	3	2	K60	e 1/2
			E+I407	Computer Networks	V	3	2	K60	e 1/2
CME-04	Digital Communications	6	E+I404	Digital Communications with Lab	V	3	3	K60	e 1/2
			E+I406	Advanced Channel Coding	V	3	2	K60	e 1/2
CME-05	VLSI Circuit Design	6	E+I409	VLSI Circuit Design	V	4	4	M	1
			E+I410	VLSI Lab	L	2	1	LA	-
CME-06	Guided Waves	9	E+I411	Guided Wave Theory	V	5	4	K90	1
			E+I412	Microwave Lab	L	2	1	LA	-
			E+I 413	Guided Wave Simulation Lab	L	2	1	LA	-
CME-07	Advanced Digital Signal Processing	6	E+I414	Advanced Digit. Signal Processing	V	4	4	K90	1
			E+I415	DSP Lab	L	2	1	LA	-
CME-08	Digital Image Processing	4	E+I416	Digital Image Processing	V	3	3	K60	1
			E+I417	DIP Lab	L	1	1	LA	-
CME-09	Online Databases	6	M+I420	Online Databases and Web Applications	V	3	2	K06	1
			M+I421	Online Databases Lab	L	3	2	LA	-
CME-10	Wireless Communication	5	E+I2224	Wireless Communication	V	5	4	M(1/2)+ RE(1/2)	1
CME-11	Mobile Communications	5	E+I418	Mobile Communications Systems	S	3	2	RE	3/5
			E+I419	Internet of Things	V	2	2	RE	2/5
CME-12	Embedded & Industrial Networks	5	E+I2205	Embedded and Industrial Networks	V	2	2	K60	1
			E+I2206	Embedded and Industrial Networks Lab	L	3	2	LA	-

(11) Media and Information Specialization

Modules			Courses						
No.	Module	C	No.	Title	Type	C	SWS	Exam Type	Weight
CME-20	Interactive Distributed Applications	5	M+I400	Interactive Distributed Applications	V	5	4	K90	1
CME-21	Internet and Media Technologies	7	M+I401	Database Systems	V	3	2	K60	e 1/2
			M+I411	Database Systems Lab	L	1	1	LA	-
			M+I402	Interactive Media	V	3	2	K60	e 1/2
CME-22	Media Design	6	M+I403	Intercultural Media Design	S	3	2	PA(3/4)+ RE(1/4)	1
			M+I404	IMD Lab	L	3	2	LA	-
CME-23	Ubiquitous Applications	5	M+I412	Ubiquitous Applications	V	5	2	K60(1/2)+ PA(1/2)	1
CME-24	Multimedia Web Technologies	7	M+I413	Network Security in Multimedia Systems	V	3	2	K120	1
			M+I408	Next Generation Internet	V	2	2		
			M+I405	Multimedia Databases	V	2	2		
CME-25	Optical Networks	4	M+I414	Optical Networks	V	2	2	K60	1
			M+I415	Optical Networks Lab	L	2	1	LA	-
CME-26	Media Integration	4	M+I409	Media Integration	S	2	2	RE	1/2
			M+I410	Media Integration Lab	L	2	2	LA (b)	1/2
CME-27	Quantifying the Effects of Media	5	M+I416	Quantifying the Effects of Media	S	3	2	HA(3/4)+ RE(1/4)	1
			M+I417	Quantifying the Effects of Media Lab	L	2	2		

(12) Non-technical modules

Modules			Courses						
No.	Module	C	No.	Title	Type	C	SWS	Exam Type	Weight
CME-40	Language	4	SZ104	German as a Foreign Language1	S	2	6	K90	-
			SZ105	German as a Foreign Language2	S	2	6	K90	1
		4 <sup>i</sup>	SZ106	Conversation and Presentation in English	S	4	4	HA	1
CME-41	Management Skills <sup>ii</sup>	6	M+I418	Strategic Management	V	3	2	HA	1/2
			M+I419	Marketing	V	3	2	HA	1/2
			M+I508	Media Business Opportunities	V	3	2	HA	1/2
			M+V3032	Managing Complexity	V	3	2	RE	1/2
CME-42	Project Management	4	E+I430	Intercultural Communication and Competence	V	1	2	K60	1/4
			E+I431	Project Management	V	1	2	RE(70%)+M(30%)	1/4
			E+I432	Intellectual Property	S	2	2	K60	1/2

(13) Non-specific modules

Modules			Courses						
No.	Module	C	No.	Title	Type	C	SWS	Exam Type	Weight
CME-50	Project Work <sup>iii</sup>	8	E+I433	Internship <sup>iv</sup>	P	8		PA+BE	-
			E+I434	Team Project <sup>v</sup>	WA	8		PA+RE	1
CME-51	Master Thesis	30	E+I440	Thesis	WA	28	-	AA	1
			E+I441	Presentation and Defense	S	2	2	RE	-

**Curriculum**

(14) The modules are divided into Required Courses, Electives 1, and Electives 2.

Module-No.	Module Title	C	Module-Groups		Semester				
			Required	Elective		1	2	3	4
				1	2				
CME-01	Computer Science	8	x						
	<i>Object Oriented Software Development</i>					x			
	<i>OO Software Development Lab</i>					x			
	<i>Objected Oriented Modeling (UML)</i>						x		
CME-02	Signal and System Theory	6	x			x			
CME-03	Communication Networks	6		x					
	<i>Computer Networks</i>					x			
	<i>Telecommunication Networks</i>						x		

Module- No.	Module Title	C	Module Groups		Semester				
			Required	Elective		1	2	3	4
				1	2				
CME-04	Digital Communications	6	x						
	<i>Digital Communications with Lab</i>					x			
	<i>Advanced Channel Coding</i>						x		
CME-05	VLSI Circuit Design	6		x			x		
CME-06	Guided Waves	9		x					
	<i>Guided Wave Theory</i>						x		
	<i>Microwave Lab</i>							x	
CME-07	<i>Guided Wave Simulation Lab</i>							x	
	Advanced Digital Signal Processing	6		x					
	<i>Advanced Digital Signal Processing</i>						x		
	<i>DSP Lab</i>							x	
CME-08	Digital Image Processing	4		x				x	
CME-09	Online Databases	6			x		x		
CME-10	Wireless Communication	5			x			x	
CME-11	Mobile Communications	5		x				x	
CME-12	Embedded & Industrial Networks	5		x			x		
CME-20	Interactive Distributed Applications	5	x					x	
CME-21	Internet and Media Technologies	7	x			x			
CME-22	Media Design	6		x		x			
CME-23	Ubiquitous Applications	5			x		x		
CME-24	Multimedia Web Technologies	7		x				x	
CME-25	Optical Networks	4		x				x	
CME-26	Media Integration	4			x		x		
CME-27	Quantifying the Effects of Media	5		x			x		
CME-40	Language	4	x			x	x		
CME-41	Management Skills	6	x				x	x	
CME-42	Project Management	4	x				x	x	
CME-50	Project Work	8	x				x	x	
CME-51	Master-Thesis	30	x						x

The minimum number of credits to be obtained in the respective module groups is as follows:

Modul-Group		Credits
Required		84
Elective	1	$20 + n$
	2	$16 - n$
Total		120

$n$  is a non-negative integer.

Students are free to choose the modules they prefer as long as the credit minimums per module group are observed. If more than the needed 20 credits are obtained in Electives 1, the surplus ('n') is credited to Electives 2.

- (15) In addition to the courses listed in para. 10 to 13, students can on request attend subject-related courses of other Master's degree programs or main courses of Bachelor's programs and receive the credit for module group Electives 2. The permission lies with the examination board.

#### **Calculation of the final grade**

- (16) The final grade is calculated as the average of all grades achieved in required and elective modules, weighted by the respective credit points.
- (17) If the total number of credits obtained in required and elective modules is greater than 120, only the module reaching the threshold is included in the calculation of the final grade. All further completed elective modules are considered additional modules and are not included in the calculation of the final grade.

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- i For native speakers of German
  - ii In the Management Skills module, two courses must be completed.
  - iii In the Project Work module, either the Internship or the Team Project must be completed.
  - iv For the recognition of the internship, an approval by the internship office (*Praktikantenamt*) must be applied for prior to starting the internship and a report must be submitted afterwards. Further details are regulated by an ordinance
  - v In "Team Project," a team of at least three members work on a project topic from the field of communication or media engineering, observing the methods of project management and holding regular personal meetings with the project supervisor. A final presentation is to be delivered.

[Translator's note: The amendments to the 7 August 2013 version, passed 21 June 2017, were translated and incorporated into this document, as of 1 September 2017. The original German documents remain the only legally binding ones.]