

## § 41 Masterstudiengang Electrical Engineering and Embedded Systems

### (1) Consecutive study

The consecutive Master program of Electrical Engineering and Embedded Systems comprises three semesters and has been designed especially for graduates of electrical engineering and computer science programs having at least a Bachelor or a Diplom degree.

The curriculum for the Master program Electrical Engineering and Embedded Systems is shown in tables 1 and 2.

One elective course has been scheduled for the second semester (EMM2). At the beginning of the lecture period (no later than three weeks after lecture start), the examination committee will publish the permissible elective subjects with a notice on the bulletin board.

There are two course specialization possible: Autonomous Driving and IoT (Internet of Things). The students have to choose one of both.

Students are required to complete a scientific project work (engineering project) in one of the university's laboratories. The project must be finished by the end of the second semester (EMM2) and must be performed alongside the lectures or in the lecture-free period. The project shall comprise a part from the field of engineering science, i.e. the student shall work on an issue related to electrical engineering. In an introductory part, aspects of project management shall be presented and tested. The engineering projects shall close with a report summarizing the results achieved. The results shall be presented in a talk open to all members of the university.

The third semester (EMM3) shall be dedicated primarily to the completion of the Master's thesis.

#### ECTS

Courses as well as related course achievements and accredited examinations corresponding to at least 90 ECTS are required for successful graduation from the consecutive study program. ECTS are earned according to tables 1 and 2.

### (2) Language of instruction

Courses are offered in the English language.

### (3) Accredited examinations

The accredited examinations provided for semesters EMM1, EMM2 and EMM3 are specified in tables 1 and 2. The type of examination and coursework required for the courses accompanying the studies as well as their scope is determined as follows:

Type of course	Type of exam	Scope of exam
<b>V</b> Lecture	<b>MT</b> Master thesis	<b>SWS</b> Semester hours
<b>PR</b> Project	<b>R</b> Seminar Paper and presentation	<b>ECTS</b> ECTS points in compliance with the European Credit Transfer System
<b>S</b> Seminar	<b>PF</b> Portfolio	<b>E</b> Medium of instruction is English
<b>P</b> Practical, exercises	<b>K(xx)</b> Written examination duration of xx minutes	<b>D</b> Medium of instruction is German
<b>L</b> Laboratory/practical course	<b>M</b> Oral examination	
	<b>PA</b> Practical work (lab, term or seminar paper or project work)	
	<b>RPA</b> Practical work documented by a seminar paper and presentation (PF: 50% PA graded and 50% R graded)	

For tutorials held by the student, the corresponding ECTS earned may not exceed a total of 5 ECTS. In case of doubt the responsible examination committee will decide upon the number of ECTS to be granted.

#### (4) Master's thesis

The Master's thesis can only be commenced if all courses and related coursework required for semesters EMM1 and EMM2 have been completed, corresponding to at least 50 ECTS points.

The Master's thesis shall have a duration of 6 months. It will be assessed and graded by two professors one of whom shall be lecturing at the Hochschule Ravensburg-Weingarten - University of Applied Sciences. After completion of the Master's thesis the results shall be presented at the Hochschule Ravensburg-Weingarten - University of Applied Sciences in an event open to all members of the university.

#### (5) Master certificate

The Master certificate will be issued in the English language. The certificate will show all module examinations passed as per tables 1 and 2, as well as the Master's thesis. Upon application, additional modules can be included in the Master certificate, however without being taken into account for the calculation of the overall grade.

#### (6) Overall grade

The module examinations passed as well as the Master's thesis will be entered into the calculation of the average grade, weighted according to the ECTS points earned.

**Table 1: Master Program Electrical Engineering and Embedded Systems**

Module	Course	Typ/SWS	Curricular semester assigned			Accredited examination
			1 (WiSe)	2 (SoSe)	3 (WiSe)	
			ECTS	ECTS	ECTS	
Mathematics	Advanced Mathematics for Engineers	V/4	10			PF
	Advanced Mathematics for Engineers - Lab	L/4				
Communication 1	Wireless Communication	V/4		5		K90
Communication 2	Nearfield Communication	V+P/4		5		K90
Circuit & Systems 1	System-on-Chip	V+P/4	5			PF
Profile 1	Profile 1	s. Modules	5			s. Modules
Signalprocessing 1	Signalprocessing 1	V/2	5			K90
	Signalprocessing 1 Lab.	L/2				
Profile 2	Profile 2	s. Modules		5		s. Modules
Advanced Control Systems	Digital Control	V/2		5		K60
	Digital Control Lab.	L/2				
Embedded Control	Embedded Control Seminar	S/2			5	RPA
	Embedded Control Lab.	L/2				
Embedded Computing	Embedded Computing	V/4	5	5		PF
	Embedded Computing Lab	L/2				
	Embedded Project	P/3				
Optional Module	Elective	s. Modules		5		s. Modules
Master's thesis	Master's thesis incl. Colloquium, (15% of grade)				25	MT+R
<b>Totals ECTS</b>			<b>30</b>	<b>30</b>	<b>30</b>	

**Table 2: Profile - Autonomous Driving**

Module	Course	Typ/SWS	Summer or Winter semester		Accredited examination
			SuSe	WiSe	
			ECTS	ECTS	
Computer Vision	Computer Vision	V+P/4	5		PF
Lidar and Radar Systems	Lidar and Radar Systems	V+P/4		5	PF
<b>Totals ECTS</b>			<b>5</b>	<b>5</b>	

**Table 3: Profile - IoT**

Module	Course	Typ/SWS	Summer or Winter semester		Accredited examination
			SuSe	WiSe	
			ECTS	ECTS	
SW-HW-Design	SW-HW-Design	V+P/4		5	PF
Computer Architecture	Computer Architecture	V+P/4	5		K90
<b>Totals ECTS</b>			<b>5</b>	<b>5</b>	