



# Catalog of compulsory elective modules for master's courses

Faculty of Applied Natural and Cultural Sciences  
Faculty of Electrical Engineering and Information Technology

**Catalog of compulsory elective modules for the master's course *Electrical and Microsystems Engineering***  
(valid for SPO 2023)

Status: 16.09.2024

**Compulsory elective modules offered for the master's course *Electrical and Microsystems Engineering***

In total, four subject-related elective modules totaling 16 SWS and 20 ECTS credits must be taken.

**Elective modules of the Faculty of Applied Natural and Cultural Sciences**

Module designation	Credits	SWS	Type of course	oral, written, duration in min.	course-related certificate of achievement	Admission requirements	Supplementary Regulations	Note weight	Offer frequency	Lecturer
DRES Multiprocessor and Multicore Designs for Reliable Embedded Systems	5	4	Consolidation	written exam, 90			Language: English	1	summer semester	Prof. Vooi Voon Yap
FQM Advanced Methods of Quality Management	5	4	Consolidation	portfolio review			Language: English	1	winter semester	Dr. Martin Winkler
QTH1 Fundamentals of Quantum Mechanics (Fundamentals of Quantum Mechanics)	5	4	Consolidation	written exam, 90			Language: English	1	winter semester	Prof. Ioana Serban
QTH2 Quantum Theory and Information	5	4	Consolidation	written exam, 90			Language: English	1	summer semester	Prof. Ioana Serban
SE Surface Engineering of Semiconductor Materials	5	4	Consolidation	written exam, 90			Language: English	1	winter semester	Prof. Corinna Kaulen
AOS Advanced Optical Sensing	5	4	Consolidation	written exam, 90			Language: English	1	winter semester	Prof. Johannes Wild

**Elective modules of the Faculty of Electrical Engineering and Information Technology**

(taken from the "elective module catalog for master's courses" of the EI faculty)

Module designation	Credits	SWS	Type of course	oral, written, duration in min.	course-related certificate of achievement	Admission requirements	Supplementary Regulations	Note weight	Offer frequency	Lecturer
ADA Analog/Digital- and Digital/Analog-Converter	5	4	Consolidation	written exam, 90			Language: English	1	summer semester	Prof. Martin Schubert
BEP Physics of semiconductor components	5	4	Consolidation	written exam, 90				1	winter semester	Prof. Rainer Holmer
ELX Embedded Linux	5	2 2	Consolidation project	written exam, 90				1	winter semester	Prof. Michael Niemetz
EMV Electromagnetic compatibility	5	4	Consolidation	written exam, 90				1	summer semester	Prof. Thomas Stücker
EPE Electronic Product Engineering	5	4	Consolidation	written exam, 90			Language: English	1	summer semester	Prof. Rainer Holmer
ESS Electronic Circuits and Systems	5	4	Consolidation	written exam, 90			Language: English	1	winter semester	Prof. Martin Schubert
FOC Fiber Optic Communication	5	4	Consolidation	written exam, 90			Language: English	1	winter semester	Prof. Thomas Fuhrmann
HFS High-frequency Circuit Technology	5	4	Consolidation	written exam, 90				1	winter semester	Prof. Thomas Stücker
LAP LabVIEW Projects	5	4	Project work		portfolio review			1	summer semester	Prof. Heiko Unold
TET Theoretical Electrical Engineering	5	4	Consolidation	written exam, 90				1	summer semester/winter semester	Prof. Mikhail Chamonine
VMCM Advanced Microcontroller for Masters	5	4	Project work		presentation			1	summer semester/winter semester	Prof. Florian Aschauer

**Special advanced modules for dual students in cooperation with the practice partners**

(Dual students select at least two modules (a total of 10 ECTS credits) exclusively from the following range.  
If there are still places available, these modules are also open to non-dual students. If you are interested, please contact the lecturer directly.)

Module name	Credits	SWS	Type of course	oral, written, duration in min.	course-related certificate of achievement	Admission requirements	Supplementary Regulations	Note weight	Offer frequency	Lecturer
LED LED Technology	5	4	Consolidation	written exam, 90			Language: English	1	summer semester	Alexander Neumuller (LB)
AP Advanced Packaging	5	4	Consolidation	written exam, 90			Language: German or English	1	summer semester	Klaus Pressel (LB)
AST Advanced Semiconductor Technology	5	4	Consolidation	written exam, 90			Language: English	1	summer semester/winter semester	Prof. Corinna Kaulen

## Abbreviations

### Forms of examination

BA	bachelor thesis	KI	exam	Kol	colloquium
m.E.	Evaluation with/without success	m.P.	with presentation	MA	master thesis
mdILN	oral performance record	mdIP	oral exam	Pf	portfolio review
Prä	presentation	prLN	practical proof of performance	Prot	protocol
PStA	exam study work	Ref	presentation	schrP	written exam
StA	study work	TN	Proof of participation with success		

### Types of teaching

Ex	field trip	Pr	Internship seminar-based instruction, possibly with exercises	Pro	project work Seminar-based instruction for specialist elective modules
S	seminar	SU		SUW	
Ü	practice	V	lecture		

### Other

LN	certificate of achievement	LV	course	SWS	semester hours per week
UE	lessons				

## Explanations

- A student research project is a written elaboration of a previously issued technical topic according to the relevant rules of scientific work, which should be around 10 to 15 pages long.
- A presentation is a media representation of a previously issued technical topic, the duration of which should be 15-30 minutes.
- A presentation is an oral presentation in a fixed time window with a handout, which is based on a worked out text on a specific topic. The aim is to convey knowledge, information and connections.
- Portfolio examination (Pf) consists of a maximum of three assessments of the forms of written assessment, oral assessment, practical assessment and student research project. In the case of written proof of performance as an exam, the processing time must not exceed 60 minutes. The study plan contains information on which assessments the portfolio examination consists of, the scope of these assessments, the period in which these assessments are to be provided, how the partial assessments result in the overall assessment of the portfolio assessment, which examiner determines the overall result and which Conditions lead to failure of the portfolio test. The partial services are the same subject of the examination. The time and content of the entire portfolio examination should roughly correspond to that of an oral or written module examination.