

Module Handbook

TUK MODHB Homepage

Course of Study "European Master in Embedded Computing Systems (EMECS)" (M.Sc.)

[EIT-88.A20-SG#2021]

Department	[EIT] Elektrotechnik und Informationstechnik
Degree	[M.Sc.] Master (M.Sc.)
Course of Study	European Master in Embedded Computing Systems (EMECS)
Version	2021
Short Name	M.Sc. European Master in Embedded Computing Systems (EMECS)
State	[NORM] Active
Additional informations	Examination regulations [DE] Homepage of the Course of Study

Section *Core Subjects*

[Core Modules \(non specialised\)](#)

Embedded Systems Hardware Architectures

WP	EIT-EIS-571-M-4	Architecture of Digital Systems I	4.0 CP
WP	EIT-EMS-546-M-4	Embedded Processor Lab	3.0 CP
WP	EIT-EIS-573-M-4	Architecture of Digital Systems II	4.0 CP
WP	EIT-EIS-521-M-7	Embedded Systems Laboratory	5.0 CP

System Software

WP	EIT-RTS-545-M-4	Operating Systems	4.0 CP
WP	EIT-RTS-540-M-4	Real-Time Systems I	4.0 CP
WP	INF-75-50-M-5	Machine Learning I - Theoretical Foundations	8.0 CP

SoC-Design Methodology

WP	EIT-EMS-654-M-4	Microelectronic Circuit and System Design I	4.0 CP
WP	EIT-EMS-657-M-7	Synthesis and Optimization of Microelectronic Systems I	4.0 CP
WP	EIT-EIS-560-M-7	Verification of Digital Systems	5.0 CP
WP	EIT-EIS-562-M-7	Class Project Verification of Digital Systems	3.0 CP

Section *Elective Subjects*

Free Elective Area

Embedded Systems Hardware Architectures

W	EIT-RTS-541-M-7	Real-Time Systems II	4.0 CP
W	EIT-RTS-446-M-7	Real-Time Systems Laboratory I	3.0 CP
W	EIT-RTS-447-M-7	Real-Time Systems Laboratory II	3.0 CP
W	EIT-EIS-560-M-7	Verification of Digital Systems	5.0 CP
W	EIT-EIS-566-M-7	Robust Digital Systems	3.0 CP
W	INF-61-53-M-6	Biologically Motivated Robots	6.0 CP
W	INF-61-33-M-6	Autonomous Mobile Robots	8.0 CP
W	INF-61-81-M-7	Service Robots and Assistance Systems (Project)	8.0 CP
W	INF-31-31-M-5	Software Project and Process Management	4.0 CP
W	INF-31-53-M-6	Empirical Model Formation and Methods	4.0 CP
W	INF-62-54-M-5	Parallel Computing	4.0 CP
W	INF-62-36-M-6	Model-based Design of Embedded Systems	8.0 CP

W	INF-41-31-M-6	Protocol Engineering	4.0 CP
W	INF-41-53-M-6	Algorithms in Ad-hoc Networks	4.0 CP
W	INF-33-31-M-5	Safety and Reliability of Embedded Systems	4.0 CP
W	INF-65-51-M-6	Power-Aware Embedded Systems	4.0 CP
W	INF-64-52-M-5	Automotive Software and Systems Engineering	4.0 CP
W	EIT-EMS-659-M-7	SystemC and Virtual Prototyping	4.0 CP
W	EIT-EMS-653-M-6	Enterprise Data Science	3.0 CP

Communication and Signal Processing

W	EIT-FUN-405-M-4	Wireless and Multimedia Systems	3.0 CP
W	EIT-FUN-402-M-4	Wireless Communication	5.0 CP
W	EIT-NAT-305-M-4	Communications Engineering	5.0 CP
W	EIT-NAT-301-M-4	Introduction to Communication Networks	4.0 CP
W	EIT-DSV-531-M-4	Digital Signal Processing	4.0 CP
W	EIT-DSV-532-M-4	Digital Filters	3.0 CP
W	EIT-DSV-534-M-7	Digital Signal Processing: Algorithms and their Implementation	3.0 CP

Automation and Control

W	EIT-LRS-505-M-7	Nonlinear and Adaptive Control	5.0 CP
W	EIT-LRS-426-M-7	Robot and Motion Control	4.0 CP
W	EIT-LRS-509-M-7	Control in Power Electronics	3.0 CP
W	EIT-AUT-452-M-4	Process Automation	3.0 CP
W	EIT-AUT-457-M-4	Fundamentals of Automation	5.0 CP
W	EIT-AUT-453-M-7	Methods of Soft Control	3.0 CP
W	EIT-JEM-515-M-7	Model Predictive Control	4.0 CP
W	EIT-JEM-517-M-7	Electric and Hybrid Vehicles	3.0 CP

Microelectronics / Microsystems

W	EIT-ISE-110-M-7	Neurocomputing	4.0 CP
W	EIT-ISE-112-M-7	Sensor Signal Processing	5.0 CP
W	EIT-ISE-651-M-4	Technology and Design of Integrated Mixed-Signal Circuits and Systems (TESYS)	5.0 CP
W	EIT-ISE-650-M-7	Manufacturing and Design of Integrated Sensors Systems (HEIS)	5.0 CP
W	EIT-EMS-655-M-7	Microelectronic Circuit and System Design II	5.0 CP

W	EIT-EMS-657-M-7	Synthesis and Optimization of Microelectronic Systems I	4.0 CP
W	EIT-EIS-660-M-7	Synthesis and Optimization of Microelectronic Systems II	3.0 CP
W	EIT-EMS-732-M-7	FPGA-Based Hardware Accelerators and Hybrid Systems	4.0 CP

Artificial Intelligence

W	INF-75-50-M-5	Machine Learning I - Theoretical Foundations	8.0 CP
W	INF-75-51-M-6	Machine Learning II - Statistical ML	8.0 CP
W	INF-71-57-M-6	Very Deep Learning - Recent Methods and Technologies	4.0 CP
W	INF-71-56-M-6	Applications of Machine Learning and Data Science	4.0 CP
W	INF-74-51-M-6	Embedded Intelligence	4.0 CP

Section *Master's Thesis*

Thesis

P	EIT-DEK-009-M-7	Master's Thesis EMECS	30.0 CP
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