Faculty of Electrical Engineering and Media Technology

Applied Research in Engineering Sciences, M. Sc.
Selectable modules at
Deggendorf Institute of Technology

Compulsory Elective Modules FWPM 1 - 3

PO	No.	Module/ Subject	SWS	ECTS	From following degree prog	Sem
ET-B WS20/21	ET-34	Harmonisation Course ENS (Radio Frequency (RF) Electronics)	4	5	Bachelor's in Electrical Engineering	SS
	ET-37	Harmonisation Course ENS (Telecommunication 2)	4	5		SS
	ET-30	Harmonisation Course AET (Power Electronics)	4	5		SS
	ET-26	Harmonisation Course AET (Control Techniques 2)	4	5		SS
ET-M_WS20/21	MET-01	Advanced Programming Techniques	4	5	Master's in Electrical Engineering and Information Technology	SS
	MET-02	Numerical Methods	4	5		SS
	MET-05	Special Mathematical Methods	4	5		WS
	MET-08	Selected Topics in Optoelectronics and Laser Technology	4	5		SS
	MET-09	Selected Topics in Micro- and Nanoelectronics	4	5		WS
	MET-10	Modern RF and Radio Systems	4	5		WS
	MET-11	Special Devices and Circuits	4	5		WS
	MET-12	Signals and Systems in Communication Technology	4	5		WS
	MET-13	Advanced Modelling and Simulation (only if MEM-09 not chosen)	4	5		SS
	MET-14	Selected Topics in Control Engineering (only if MEM-07 not chosen)	4	5		WS
	MET-15	Selected topics in Contactless Sensor Technology	4	5		WS
	MET-16	Automotive and Industrial Drive Systems (only if MEM-01 not chosen)	4	5		WS
	MET-17	Advanced Automation	4	5		WS
ET-M_WS20/21	MET-04	Renewable Energies	4	5	Pool for Master's in Electrical Engineering and Information Technology	WS
	MET-04	Digital TV- and Audio-Broadcast	4	5		WS
	MET-04	Power Supply Circuits	4	5		WS
	MET-04	Medical Applications of Electromagnetic Waves	4	5		SS
	MET-04	Optical Metrology and Optical Sensors	4	5		WS
	MET-04	Industrial Computed Tomography	4	5		SS/WS
AID-M_SS2021	AID-01	Artificial Intelligence and Software Development	4	5	Master's in Artificial Intelligence and Data Science	SS
	AID-02	Theoretical Fundamentals of Artificial Intelligence	6	8		SS
	AID-03	Advanced Machine Learning	4	5		SS
EM-M-SoSe-2023	MEM-01	Drive technology (only if MET-16 not chosen)	4	5	Master Elektromobilität	SS
	MEM-04	Modell-Based Requirement Management und Hardware Design	4	5		SS
	MEM-05	Fuel Cell Technologies incl. Practical Course	4	5		WS
	MEM-06	Batteries and Supercapacitors for advanced students	4	5		WS
	MEM-07	Modern Methods of Control Engineering (only if MET-14 not chosen)	4	5		WS

	MEM-08	Charging Stations and Charging Management	4	5		WS 24/25
	MEM-09	Model Building and Simulation of Mobile Systems (only if MET-13 not chosen)	4	5		SS
	MEM-10	Electromagnetic Simulation (FEM)	4	5		SS
	MEM-11	Model-Based Controller Design and Validation (CPU and FPGA) incl. Practical Course in Controller Design	4	5		WS
	MEM-13	Power Electronics in Electrical and Fuel Cell Vehicles	4	5		SS
	MEM-16	Thermal Management	4	5		WS
AI-M_WS20/21	MAI-01	Theoretical Computer Science	6	8	Master's in Applied Computer Science	SS
	MAI-02	Practical Computer Science	6	8		SS
	MAI-03	Selected Topics in Embedded Software Development 1	4	5		SS
	MAI-04	Selected Topics in Embedded Software Development 2 *	4	5		WS
	MAI-11	FPGA Programming	4	5		SS
	O-43	Principles of Driver Assistance Systems (Elective: Bachelor's in AI)	4	5		SS
	O-43	C in Automotive Software Development (Elective: Bachelor's in AI)	4	5		WS
LSI-M_WS21/22	LSI-01	Informatics and Biomedical Science (5 ECTS) LSI 1101 Informatics LSI 1102 Biomedical Science	 2 2	 3 2	Master's in Life Science Informatics	WS
	LSI-02	Life Science I	4	5		WS
	LSI-03	Informatics I	4	5		WS
	LSI-04	Biostatistics I	4	5		WS
	LSI-05	Sequencing Technologies	4	5		WS
	LSI-06	Biomedical Data Analysis	4	5		WS
	LSI-07	Life Science II	4	5		SS
	LSI-08	Informatics II	4	5		SS
	LSI-09	Biostatistics II	4	5		SS
	LSI-10	Data Mining and Machine Learning	4	5		SS
	LSI-11	Bioinformatics Algorithms and Data Structures	4	5		SS
	LSI-12	Data Visualisation	4	5		SS
MB-M_SS2018	DM-1	Advanced Mathematics *	5	7	Master's in Mechanical Engineering	SS
	DM-2	Technical Databases	4	5		WS
	DM-3	Fluid/Thermodynamics *	4	6		SS
	DM-4	Dynamic Systems	4	5		SS
	DM-5	FEM/MKS *	6	7		SS
	DM-6	Numerical Methods *	6	7		WS
	DM-7	Drive Systems	4	5		WS
	DM-8	CAD/CAM *	6	7		WS
	DM-9	Virtual Testing *	4	6		WS
	DM-10	Innovation Management	4	5		SS
TEM-M-WS 2021/22	TE-4	Corporate Engineering TE2101 Tools for Development (4 ECTS) TE2102 Quality and Controlling II (4 ECTS)	 4 4	 4 4	Master's in Technology Management	SS
	TE-5	Production Engineering TE2104 Selected Topics on Production (4 ECTS) / TE2105 Logistics (2 ECTS)	 3 2	 4 2		SS
	TE2106	TE-5 Production Engineering: TE2106 Case Study Production Engineering (PstA)	3	5		SS
	TE-8	Sustainability TE3101 Values and Strategic Development (2 ECTS) / TE3102 Process Control and Optimisation Methods (4 ECTS)	 2 4	 2 4		WS
	TE-7	FWP TE2108 Additive Fertigungstechnik (GERMAN)	4	4		SS

BU-M_WS22/23	MBU-17	Recycling and Waste Management	4	5	Master's in Construction/Environment	WS
	MBU-26W	Regenerative Energies 2	4	5		WS
MCS-M_SS22	MCS-1	Module: Cyber Physical Systems * MCS 1101 Structure and Functions of Cyber Physical Systems (4 ECTS) MCS1102 Business Models for CPS (2 ECTS)	4 2	6	Master's in Mechatronics and Cyber Physical Systems	WS
	MCS-2	Cooperative and Autonomous Systems MCS 1103 Advanced Robotics MCS 1104 Autonomous Systems	4 4	8		WS
	MCS-5	Case Study Mechatronic System Simulation	4	6		WS
	MCS-11	Module: Functional Safety MCS 3101 Principles of Functional Safety (4 ECTS) MCS 3102 Design of Safe Systems (2 ECTS)	4 2	6		WS
HPC/QC-Master WS21/22	HPC-02	Computer Architechtures for Computing / Quantum Computing	4	5	High Performance Computing / Quantum Computing - Mastewr	SS
	HPC-05	High Performance Computing / Quantum Computing Programming Lab	4	5		SS

Compulsory Elective Modules FWPM 4 (cross-university)

- see cross-university courses offered for the semester in question

Interdisciplinary Modules IWPM

PO	No.	Module / Subject	SWS	ECTS	From following degree programme	Semester
20/21	MET-[illegible]	Selected topics in Operational and Personnel Management	4	5	MET	SS
2018	DM-10	Innovation Management	4	5	MMB	WS
		Foreign Language Course Master's (from the Language Centre's language catalogue)	4	5	AWP	SS/WS
20/21	GM-03	Intercultural Competence	4	5	SIM	SS
	GM-12	Strategic Planning	4	5		WS
TEM-M-WS 2021/22 2. Satzungsänderung WS 24/25	TE-1107	Qualitätsmanagement (German)	2	2	Master's in Technology Management	WS
	TE1109	Projektmanagement (German)	2	2		WS
M-WI WS 23/24	WI-09	WI-2103 Cybersecurity (German)	4	5	Master Business Informatics	WS/SS

X Katalog FWP	AIX-11	**Quantum Chemistry (4SWS)** Prerequisites and/or recommended background knowledge in: - Linear algebra (matrices, scalar product,…) - Familiarity with Python or another scripting language - Basic knowledge of quantum mechanics is recommended, but not essential	4	5	AI -X - Fachspezifische Wahlpflichtfächer	Ab SS 24
	FWP-10	**Bildgebende Physik (4SWS)** **„Scientific Discoveries expressed as Images"** Prerequisites and/or recommended background knowledge in: - Differential Analysis/Mathematics - Basics Computer Science and C. Vision - Basics Solid State Physics	4	5		WS

Research Methods and Strategies FM&S (cross-university)

- see cross-university courses offered for the semester in question

Please note: Subjects marked with an * are only recorded in MAR as a compulsory elective with the maximum awardable 5 ECTS credits irrespective of the information provided in the original examination regulations. Any surplus ECTS credits are truncated and may not be entered as additional credits.

Abbreviations:

PstA	Project assignment
*	approved by lecturer