M.Sc. Microelectronics and Chip Design
Specialized Elective Modules

Here is the module list with recommendations based on the selected core module.
For example: if student choose Analog/Mixed-Signal Design as their core module, they are encouraged to choose modules within the specialization of Analog/Mixed-Signal Design to further enhance their skills in this area. Additionally, they may also opt for modules in Digital Design if desired.

Module Nr.	Module Name	Sem.	Credits	Recommendation for Analog/Mixed-Signal Design **(A) and/or** Digital Design **(D)**	Chair/ Professorship
EI71013	System Design for the Internet of Things	SoSe	5	D	ESI
EI7384	System-on-Chip Technologies	WiSe	5	D	LIS
EI71095	Multi-Criteria Optimization and Decision Analysis for Embedded Systems Design	WiSe	5	D	LIS
EI71059	Mixed Integer Programming and Graph Algorithms for Engineering Problems	WiSe	5	D	EDA
EI70520	Circuit Design for Security	SoSe	5	D	SEC
CIT4330012	Software for Quantum Computing	SoSe	5	D	CDA
EI71070	Advanced Cryptographic Implementations	SoSe	5	D	SEC
EI71104	Embedded System Design for Machine Learning	WiSe/ SoSe	6	D	EDA
EI7271	Chip Multicore Processors	SoSe	6	D	LIS
EI71073	Quantum Computers and Quantum Secure Communications	SoSe	5	D	SEC
EI71036	Software Architecture for Distributed Embedded Systems	WiSe	5	D	ESI
CIT433040	Embedded Systems and Security	WiSe	5	D	SEC
CIT4430001	System Design for High-Frequency and High-Data rate Applications	WiSe	5	A	MNT
CIT433023	*Circuit Reliability for AI in Advanced Technologies* **Not offered in SoSe2026*	*SoSe*	*6*	*A*	*AIPRO*
CIT443018	Phase Locked Loop / Clocked Circuits	WiSe/ SoSe	5	A	LSE
EI71108	CMOS Analog-to-Digital Converters	SoSe	5	A	LSE

Module Nr.	Module Name	Sem.	Credits	Recommendation for Analog/Mixed-Signal Design **(A) and/or** Digital Design **(D)**	Chair/ Professorship
EI7355	Nanosystems	WiSe	5	A	NAN
EI71029	Physical Unclonable Functions	WiSe	5	A/D	SEC
CIT433031	Machine Learning for Electronic Design Automation and Manufacturing	WiSe/ SoSe	5	A/D	CDA
CIT4330016	Innovative Computing for AI	SoSe	6	A/D	AIPRO
CIT443031	Power Management Integrated Circuits	WiSe	5	A	LSE
CIT443040	Packaging and production technologies for sensors and semiconductors	SoSe	3	A	LBE
EI70640	Synthesis of Digital Systems	WiSe/ SoSe	5	D	EDA
CIT4430002	Integrated Circuits for Radio Applications	WiSe	5	A	MNT
CIT433051	Design Space Exploration using Software Simulators *Note: offered both campuses: "Garching/Heilbronn" check which location applies to you beforehand*	WiSe/ SoSe	5	D	IN10/CAPS