

Micro and Nano Electronics (MINA)

	Study Profiles:				
	I. Design	II. Technology	III. Neuromorphic Hardware	IV. Optoelectronics	V. Quantum Technology
A) Catalogue CORE					
1. Compound Semiconductors and Optical Components	X	X	X	X	X
2. High Frequency Electronics	X	X	X	X	X
3. Solid-State Technology	X	X	X	X	X
4. VLSI-Design for Digital Signal Processing – Fundamentals	X	X	X	X	X
B) Catalogue ELECTIVE					
1. Chemical Sensors and Actuators in Silicon Technology		X			
2. Compound semiconductor: Electronic, Photonic and Application		X		X	
3. Compound semiconductor: Physics, Technology and Application				X	X
4. Computer Arithmetic – Advanced Topics	X				
5. Computer Arithmetic – Fundamentals	X				X
6. Electronic and Optical Measurement Technologies				X	
7. Electronic Noise in Devices and Circuits	X				X
8. Fabrication and Characterization of Nanoelectronic Devices and Circuits		X	X		X
9. Fundamentals of Organic Electronics and Optoelectronics - Technology and Applications				X	
10. GaN: Material, Technology and Devices		X		X	
11. Hardware Platforms for Quantum Technology					1)
12. Metrology – Analytical Methods for Semiconductor Characterization					X
13. Microwave Electronics	X				X
14. Nanoelectronics Devices					X
15. Novel Materials and Devices for Information Technology – Displays and Communication		X			
16. Novel Materials and Devices for Information Technology – Logic and Memories	X	X	X	X	
17. Numerical Device Simulation					X
18. Organic Electronics and Optoelectronics: Advanced Characterization, Physics, Devices				X	
19. Optical Telecommunications: Devices				X	
20. Optical Telecommunications: Systems			X	X	
21. Oxide Thin-Films for Information Technology – Growth- and analysis		X	X		
22. Oxide Thin-Films for Information Technology – Materials and properties		X	X		
23. Physical Sensors in Silicon Technology		X			
24. Power Management Integrated Circuits	X				X
25. Quantum Information					1)

26. Quantum Mechanics for Electrical Engineers					1)
27. Quantum Simulations of Carbon Nanotube and Graphene-Nano-ribbon Field-effect Transistors		X	X		
28. RF Systems					X
29. RF Techniques and Circuits	X				X
30. Semiconductor Characterization					X
31. VLSI-Design for Digital Signal Processing – Architectures	X		X		X

C) Catalogue LABORATORY

1. Analog and Mixed Signal Design	X				
2. CAD Lab Course: Simulation of Semiconductor Devices		X			
3. Conception and Modeling of Optoelectronic Devices					X
4. FPGA Design	X		X		
5. Quantum Technology					1)
6. VLSI Design	X		X		X

D) Catalogue PROJECT

1. Innovative Components	X	X	X	X	X
2. Integrated Digital Systems	X	X	X	X	X
3. Manufacturing Processes in Micro System Technology	X	X	X	X	X
4. Microelectronic Circuits in Medical Technology	X	X	X	X	X
5. Semiconductor Device Simulation	X	X	X	X	X
6. Sensor Technology in Practice	X	X	X	X	X

1) These modules should always be selected together.

Please note that some information may have changed. You can find up-to-date information on [RWTHOnline](https://www.rwth-aachen.de).