

Systems and Automation (SYAT)

	Study Profiles:			
	I. Automatisierung in der Industrie	II. Automatisierung in der Energietechnik	III. Automatisierung in der Kommunikation	IV. Automatisierung in Smart Living
A) Catalogue CORE				
1. Estimation and Detection Theory	X	X	X	X
2. Identification and Control of Mechatronic Systems	X	X	X	X
3. Modeling of Mechatronic Systems	X	X	X	X
4. Modern Control Systems	X	X	X	X
5. Optimization in Engineering	X	X	X	X
6. Robotics and Man-Machine-Interaction 1	X			X
B) Catalogue ELECTIVE				
1. Remaining modules of catalogue CORE	X	X	X	X
2. Acoustic Virtual Reality			X	X
3. Ad-Hoc Networks: Architectures and Protocols	X	X	X	X
4. Advanced Control Systems	X	X	X	X
5. Advanced Electrical Drives	X	X		
6. Advanced Topics in Signal Processing and Communication	X		X	
7. Aufbau und Netzbetrieb von Windenergieanlagen	X	X		
8. Automation of Complex Power Systems	X	X		
9. Battery Storage Systems		X		
10. Chemical Sensors and Actuators in Silicon Technology	X			X
11. Communication Protocols		X	X	X
12. Digital Image Processing 1	X			X
13. Digital Image Processing 2	X			X
14. DSP Design Methodologies and Tools			X	X
15. Dynamic of Electrical Machines	X	X		
16. Dynamik der Mehrkörpersysteme	X	X		
17. Eingebettete Systeme	X	X	X	X
18. Electroacoustics	X		X	X
19. Electronic and Optical Measurement Techniques	X			
20. Electric Rail, Linear Drives and Magnetic Levitation	X	X		
21. Fundamentals of Big Data Analytics	X	X	X	X
22. HF-System und Überwachungstechnik 2			X	
23. High Frequency Technology – Antennas and Wave Propagation			X	
24. High Frequency Technology – Passive RF Components			X	
25. Internet of Things and Sensor Networks			X	X
26. Künstliche Neuronale Netze	X	X	X	X
27. Machine Learning for Speech and Audio Processing	X		X	X
28. Measurement Techniques and Distributed Intelligence for Power Systems		X		
29. Medical Acoustics: Technologies for Hearing Systems and Ultrasound			X	X
30. Medical Acoustics: Audiology and Voice			X	X
31. Medical Systems - Medical Instrumentation and Signal Processing				X

32. Medical Systems – Quantitative Physiology and Life Supporting Systems	X			X
33. Mikrocontrollerprogrammierung und Fehlersuche	X	X	X	X
34. Mobile Radio Systems 1	X	X	X	X
35. Modeling and Simulation of Complex Power Systems		X		
36. Multimedia Content Analysis				X
37. Navigation for Safety-Critical Applications	X		X	
38. Optical Telecommunications 1: Devices			X	
39. Optical Telecommunications 2: Systems			X	
40. Physical Sensors in Silicon Technology	X			X
41. Power Electronics - Control, Synthesis and Applications	X	X		
42. Power Management Integrated Circuits	X		X	X
43. Power System Dynamics		X		
44. Principles and Design of Information Transmission Systems and Networks	X	X	X	X
45. Prozessleittechnik und Anlagenautomatisierung	X	X		
46. Psychoacoustics and Methods for Listening Experiments			X	X
47. Radar System Design and Applications	X		X	
48. Radar Systems	X			X
49. Rapid Control Prototyping	X			
50. RF-Systems			X	X
51. Robotics and Men-Machine-Interaction 2	X			X
52. Satellite Navigation	X		X	X

C) Catalogue LABORATORY

1. Advanced Network Programming – Switching and Routing	X	X	X	X
2. Analog and Mixed Signal Electronics	X	X	X	X
3. Automation of a distillation plant	X	X	X	X
4. Battery Storage Systems	X	X	X	X
5. FPGA Design Technology	X	X	X	X
6. High Frequency Technology Laboratory	X	X	X	X
7. MATLAB Advanced – Digital Signal Processing	X	X	X	X
8. Optimization Lab for Communication and Signal Processing Using MATLAB	X	X	X	X
9. Machine Learning	X	X	X	X
10. Radar Laboratory	X	X	X	X
11. Satellite Navigation	X	X	X	X

D) Catalogue PROJECT

1. Electromagnetic Noise in Power Electronics	X	X	X	X
2. Mechatronics	X	X	X	X
3. Medizintechnik und verwandte Gebiete	X	X	X	X
4. System software for the real-time simulation of technical processes	X	X	X	X

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