

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 Topics in Signal Processing and Communication | X | | X | |
| 6. Artificial Neural Networks | X | X | X | X |
| 7. Automation of Complex Power Systems | X | X | | |
| 8. Battery Storage Systems | | X | | |
| 9. Chemical Sensors and Actuators in Silicon Technology | X | | | X |
| 10. Communication Protocols | | X | X | X |
| 11. Design and Grid Operation of Wind Energy Systems | 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. Electrical Drives | X | X | | |
| 18. Electronic and Optical Measurement Techniques | X | | | |
| 19. Electric Rail, Linear Drives and Magnetic Levitation | X | X | | |
| 20. Fundamentals of Big Data Analytics | X | X | X | X |
| 21. Measurement Techniques and Distributed Intelligence for Power Systems | | X | | |
| 22. Medical Acoustics: Technologies for Hearing Systems and Ultrasound | | | X | X |
| 23. Medical Acoustics: Audiology and Voice | | | | |
| 24. Medical Instrumentation and Signal Processing | | | | X |
| 25. Mobile Radio Systems 1 | X | X | X | X |
| 26. Modeling and Simulation of Complex Power Systems | | X | | |
| 27. Modern Servomotors for Machine, Tools and Robots | X | | | |
| 28. Multimedia Content Analysis | | | | X |
| 29. Optical Telecommunications 1: Devices | | | X | |
| 30. Optical Telecommunications 2: Systems | | | X | |
| 31. Physical Sensors in Silicon Technology | X | | | X |
| 32. Power Electronics - Control, Synthesis and Applications | X | X | | |

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|--|---|---|---|---|
| 33. Power Management Integrated Circuits | X | | X | X |
| 34. Power System Dynamics | | X | | |
| 35. Principles and Design of Information Transmission Systems and Networks | X | X | X | X |
| 36. Prozessleittechnik und Anlagenautomatisierung | X | X | | |
| 37. Psychoacoustics and Methods for Listening Experiments | | | X | X |
| 38. Radar Systems | X | | | X |
| 39. Rapid Control Prototyping | X | | | |
| 40. RF-Systems | | | X | X |
| 41. RF Techniques and Circuits | | | X | |
| 42. Robotics and Men-Machine-Interaction 2 | X | | | X |
| 43. Satellite Navigation | X | | X | X |

C) Catalogue LABORATORY

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|--|---|---|---|---|
| 1. Advanced Network Programming – Switching and Routing | X | X | X | X |
| 2. Analog and Mixed Signal Electronics | X | X | X | X |
| 3. Analysis and Evaluation of Queues and Networks by Modern Evaluation Tools | X | X | X | X |
| 4. Automation of a distillation plant | X | X | X | X |
| 5. Battery Storage Systems | X | X | X | X |
| 6. Digital Image Processing | X | X | X | X |
| 7. FPGA Design Technology | X | X | X | X |
| 8. High Frequency Technology Laboratory | X | X | X | X |
| 9. MATLAB Advanced – Digital Signal Processing | X | X | X | X |
| 10. Optimization Lab for Communication and Signal Processing Using MATLAB | X | X | X | X |
| 11. Radar Laboratory | X | X | X | X |

D) Catalogue PROJECT

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| 1. System software for the real-time simulation of technical processes | X | X | X | X |
| 2. Mechatronics | X | X | X | X |
| 3. Medical Electronics | X | X | X | X |