

Course Description – Winter 2024/25

Title	Sensor Systems
Faculty	Electrical Engineering
Professor	Prof. Dr.-Ing. Roy Knechtel
ECTS	5 Credit Points
Level	Master study
Requirements	Master student in electrical engineering or mechatronics engineering
Add. Information	Lectures and Exercises with in class experiments
Content	<ol style="list-style-type: none"> 1. Introduction: the role of sensors systems for technical solutions in mobile devices, cars and traffic, industry, medical applications and more 2. Sensors Systems: Function, Realization, Application: <ol style="list-style-type: none"> 2.1 Integrated Pressure Sensor 2.2 Inertial Sensor Units 2.3 MEMS Microphones 2.4 Infrared Sensors (radiation-based temperature measurement) 2.5 Time of Flight sensors and LIDAR 3. Sensor data processing <ol style="list-style-type: none"> 3.1 Artificial Intelligence for Sensor Systems 3.2 Signal processing at the Sensor System Examples 4. Detailed exercises (analysis and application) related to 2 examples of sensor systems