

Course Description – Winter 2024/25

Title	Microelectronic Technologies
Faculty	Electrical Engineering
Professor	Prof. Dr.-Ing. Roy Knechtel
ECTS	5 Credit Points
Level	Bachelor study
Requirements	Bachelor student in electrical engineering
Add. Information	Lectures
Content	<ol style="list-style-type: none"> 1. Introduction: the role of semiconductor, microelectronic and MEMS processes, general development trends, Moors law, micro sensors 2. Clean rooms and modern semiconductor fabs 3. Raw wafer manufacturing 4. Semiconductor Process Steps <ol style="list-style-type: none"> 4.1 Lithography 4.2 Deposition of dielectric layers 4.3 Deposition of metal layers 4.4 Doping and ion Implantation 4.5 Etching and cleaning processes 5. Full microelectronic and MEMS Technologies as combination of the in 4. introduced process steps (technological realization of transistors, resistors, capacitors diodes, sensors and other primitive devices as well as their combination to high density integrated electronic circuits)