

Module Name	Memory Technology
Module Number	Eul-ET-E-MemTe, Eul-NES-E-MemTe, Eul-IST-E-MemTe
Responsible Lecturer	Prof. Dr.-Ing. Thomas Mikolajick thomas.mikolajick@tu-dresden.de
Qualification Objectives	After completing the module, students possess the competence to optimize and further develop concepts as well as to develop new memory concepts based on physical effects. Furthermore, they are able to assess the application areas and limitations of the memory concepts covered.
Contents	The module covers memory concepts that are established in the market as well as those under research and development, including: - Magnetic memories - Optical memories - Semiconductor memories such as SRAM, DRAM, non-volatile memories (EPROM, EEPROM, Flash) - Innovative semiconductor memories, e.g., ferroelectric, magnetoresistive, resistive, organic, and single-molecule memories
Teaching and Learning Forms	4 hours per week of lectures, 2 hours per week of seminars, and self-study. The language of instruction for lectures and seminars is English.
Prerequisites for Participation	In the Master's program Nanoelectronic Systems, basic knowledge of electronic devices at the Bachelor's level is required. In the diploma programs Electrical Engineering and Information Systems Engineering, the competencies to be acquired in the module "Microelectronic Technologies and Components" are required.
Usability	The module is an elective module according to § 6 paragraph 2 SO and § 33 paragraph 3 PO of the specialization Nanoelectronics in the Master's program Nanoelectronic Systems. Furthermore, it is an elective module in the elective area "Competence Deepening" according to § 6 paragraph 3 SO and § 33 paragraph 4 PO of the main study program in the specialization Microelectronics in the diploma program Electrical Engineering. Additionally, it is an elective module in the elective area "Competence Deepening" according to § 6 paragraph 3 SO and § 33 paragraph 3 PO of the main study program in the field of Microelectronics, Electronic Circuits, and Systems in the diploma program Information Systems Engineering. It creates the prerequisites for the modules that list this module in the field "Prerequisites for Participation."
Prerequisites for the Award of Credit Points	Credit points are awarded when the module examination is passed. The module examination consists of a written exam lasting 90 minutes. For up to 20 registered students, the written exam is replaced by a non-public oral examination as an individual exam lasting 15 minutes. If applicable, this will be announced to the registered students at the end of the registration period in the usual manner.
Credit Points and Grades	7 credit points can be earned through the module. The module grade corresponds to the grade of the examination performance.
Frequency of the Module	The module is offered every academic year, starting in the summer semester.
Workload	The total workload is 210 hours.
Duration of the Module	The module lasts two semesters.