

Module Name	Electromechanical Design
Module Number	Eul-ET-E-GerKo, Eul-MT-E-GerKo
Responsible Lecturer	Prof. Dr.-Ing. habil. Jens Lienig jens.lienig@tu-dresden.de
Qualification Objectives	After completing the module, students possess the skills and abilities to design and develop precision engineering devices while adhering to universally valid design principles and guidelines. Furthermore, they have acquired knowledge of accuracy parameters for drive systems and constructive methods to meet these requirements. By applying the theoretically acquired skills and abilities, students gain practical experience in the design process and are capable of independently and systematically developing a concept from a given task, transferring it into an overall design, and presenting the results in a product documentation.
Contents	The module covers development methods for device technology with a focus on: - Development methodology - Design rules and principles from technology and nature - Constructive design guidelines for device technology - Fundamentals of precision drives - Accuracy parameters for drive systems Additionally, the module includes assembly development with a focus on: - Translating a practical task into a requirements list - Conceptualizing solution variants - Objective decision-making towards a principal solution - Designing, dimensioning, and shaping the principal solution - Creating product documentation - Manufacturing, assembly, commissioning, and functional verification of the assembly
Teaching and Learning Forms	2 hours per week of lectures, 4 hours per week of practical lab courses, and self-study.
Prerequisites for Participation	The competencies to be acquired in the modules "Electronic Systems Design" and "Product and Precision Device Engineering" are required.
Usability	The module 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 "Device, Micro, and Medical Technology" in the diploma program Electrical Engineering. Furthermore, it is an elective module in the elective area "Methods and Applications" according to § 6 paragraph 3 SO and § 33 paragraph 3 PO of the main study program in the diploma program Mechatronics. 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 and a portfolio with a workload of 50 hours. Both examination components are relevant for passing.
Credit Points and Grades	7 credit points can be earned through the module. The module grade is determined by the unweighted average of the grades of the examination components.
Frequency of the Module	The module is offered every winter semester.
Workload	The total workload is 210 hours.
Duration of the Module	The module lasts one semester.