Module Name	Motion Controlled Machine Systems Advanced
Module Number	EuI-MT-E-A07V
Responsible Lecturer	Prof. Dr.-Ing. Steffen Ihlenfeldt werkzeugmaschinen@tu-dresden.de
Qualification Objectives	Students acquire in-depth knowledge, methodological skills, and practical abilities regarding the interrelations, measurement methods, model descriptions, calculations, evaluations, and targeted influence on the behavior of machine tools.
Contents	The module covers methods and solution approaches for behavior analysis of machine tools based on practical application scenarios. It includes the essential mechanisms and influencing factors on the geometric-kinematic, static, dynamic, and thermal accuracy behavior of machine tools, as well as the fundamentals of acoustic and energetic machine behavior. Additionally, it addresses measurement methods, measuring devices, and their arrangement for determining machine behavior characteristics. The module also includes experimental approaches, model-based descriptions of machine tool behavior, evaluation of measurement and simulation results, and derivation of measures to improve system behavior.
Teaching and Learning Forms	2 hours per week of lectures, 2 hours per week of exercises, and self-study.
Prerequisites for Participation	The competencies acquired in the module Motion Controlled Machine Systems Basics are required.
Usability	The module is an elective module from 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 120 minutes.
Credit Points and Grades	5 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 winter semester.
Workload	The total workload is 150 hours.
Duration of the Module	The module lasts one semester.