

Module Name	Mobile Machinery – Simulation and Experimental Analysis in Machine Development
Module Number	Eul-MT-E-A06V
Responsible Lecturer	Prof. Dr.-Ing. Frank Will frank.will@tu-dresden.de
Qualification Objectives	Students are able to develop modeling approaches to describe various technical problems. They are familiar with different simulation methods and associated tools and possess the ability to program a simple simulation, perform simulation calculations, and prepare and interpret results. They have practical knowledge, experience, and skills in the use and operation of measurement systems for specific, application-related measurement tasks. Based on this, students can model mobile working machines with their functions, simulate working movements, and evaluate calculated and measured loads and stresses on the machines.
Contents	The module covers methods of modeling and the application of simulation tools for technical systems in the field of mobile working machines. Contents include modeling methods for components, assemblies, and work processes, as well as the use of selected simulation tools based on concrete and practical examples. Another component of the module is the measurement of physical quantities and technical parameters on components and assemblies of mobile working machines and their evaluation with regard to machine design and dimensioning. A key focus is the integration of simulation and experimentation using selected application examples.
Teaching and Learning Forms	2 hours per week of lectures, 1 hour per week of exercises, 1 hour per week of practical lab courses, and self-study.
Prerequisites for Participation	The competencies to be acquired in the modules Materials, Technical Mechanics, Measurement Technology, and Mobile Machinery 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 90 minutes. A bonus achievement for the written exam is a short report with a workload of 10 hours.
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.