

Module Name	Electrified Mobility
Module Number	Eul-MT-E-A14V
Responsible Lecturer	Prof. Dr.-Ing. Bernard Bäker LV_EM@tu-dresden.de
Qualification Objectives	Students are able to describe mobile and stationary energy systems as well as their operating strategies. The focus is on the ability to analyze, evaluate, and optimize the aforementioned systems. Students possess knowledge of the structure and functionality of networked mechatronic systems. Furthermore, they can apply design methods for such systems across a wide range of applications.
Contents	The module covers the analysis and evaluation of energy systems, energy storage, and charging infrastructure for electrified drivetrains, as well as operating strategies for motor vehicles and methods for their description and optimization. Additionally, the module includes the structure and functionality of networked mechatronic systems using vehicles as an example, structured elicitation and formulation of requirements for the design of mechatronic systems, current methods for describing, modeling, and simulating mechatronic systems, as well as established and forward-looking design methods.
Teaching and Learning Forms	4 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 and Technical Mechanics, Numerical Methods, System Dynamics of Mechanical Structures, Measurement Technology, and Basics of Electrical Engineering are required.
Usability	The module is an elective module within 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 and an ungraded portfolio with a workload of 20 hours.
Credit Points and Grades	7 credit points can be earned through the module. The module grade is determined in accordance with § 15 paragraph 1 sentences 5 and 6 of the examination regulations, based on the unweighted average of the grades of the individual 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.