

Module Name	Electrical and Fluid Power Drive Systems
Module Number	Eul-MT-C-EFA
Responsible Lecturer	Prof. Dr.-Ing. Matthias Centner matthias.centner@tu-dresden.de
Qualification Objectives	After successfully completing the module, students are able to comprehend the essential operating principles and the steady-state behavior of electrical machines and fluid power drive systems as fundamental elements for motion control. They can describe their properties using appropriate calculations and apply design principles.
Contents	The module covers the fundamentals of electrical machines, including their structure, operating principles, and behavior: energy conversion, transformers, three-phase machines, direct current machines, small machines, secondary functions, testing, and the fundamentals of fluid power drive systems. This includes the physical principles, functional principles, and performance parameters of hydraulic and pneumatic components, as well as the integration of components into fluid-mechatronic drive systems in stationary and mobile machines.
Teaching and Learning Forms	4 hours per week of lectures, 2 hours per week of exercises, 1 hour per week of practical training, and self-study.
Prerequisites for Participation	The knowledge and skills imparted in the modules Multidimensional Differential and Integral Calculus, Physics, Basics of Electrical Engineering, and Electrical Power Engineering are required.
Usability	The module is a compulsory module 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 180 minutes.
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 winter semester.
Workload	The total workload is 210 hours.
Duration of the Module	The module lasts one semester.