

Module Name	Electrical Machines
Module Number	Eul-ET-C-EM, Eul-RES-C-EM
Responsible Lecturer	Prof. Dr.-Ing. Matthias Centner matthias.centner@tu-dresden.de
Qualification Objectives	After completing the module, students are able to understand the steady-state operating behavior of electrical machines and evaluate their properties using appropriate calculations, measurements, and tests.
Contents	The module covers the fundamentals of electrical machines, including their structure, operating principles, operating behavior, speed and power control, and efficiency. Key topics include the basics of electromagnetic energy conversion, transformers, direct current machines, synchronous machines, induction machines, small machines, linear motors, and testing of electrical machines.
Teaching and Learning Forms	3 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 Fundamentals of Electrical Engineering, Physics, and Electrical Power Engineering are required.
Usability	The module is a compulsory module of the main study program in the field of Electrical Power Engineering in the diploma program Electrical Engineering and a compulsory module of the main study program in the diploma program Renewable Energy Systems. 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 non-public oral examination as an individual examination lasting 45 minutes and a complex assignment with a workload of 30 hours. Both examination components are mandatory for passing.
Credit Points and Grades	5 credit points can be earned through the module. The module grade is determined by the weighted average of the grades of the examination components. The oral examination is weighted sevenfold, and the complex assignment is weighted threefold.
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.