

Module Name	Power Electronics
Module Number	Eul-ET-C-LE
Responsible Lecturer	Prof. Dr.-Ing. Steffen Bernet steffen.bernet@tu-dresden.de
Qualification Objectives	After completing the module, students are capable of selecting and roughly dimensioning suitable circuits as well as selecting and designing power semiconductor components for power electronic systems in typical applications. Students can verify the basic functionality of the considered power electronic subsystem using simulation tools.
Contents	The module covers the fundamental operating principles of power electronic actuators, the structure and functionality of actively switchable power semiconductor components and power diodes, the analysis of the operation of line-commutated and self-commutated circuits, the simplification of the considered systems for simulation purposes, the design of the core components of the power electronic subsystem, common modulation methods for controlling power electronic actuators, as well as common control and regulation methods.
Teaching and Learning Forms	3 hours per week of lectures, 2 hours per week of exercises, 1 hour per week of practical sessions, and self-study.
Prerequisites for Participation	The competencies to be acquired in the modules Basics of Electrical Engineering and Physics 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. 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 a complex assignment with a workload of 80 hours.
Credit Points and Grades	7 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 written exam is weighted twice, and the complex assignment is weighted once.
Frequency of the Module	The module is offered every academic year, starting in the winter semester.
Workload	The total workload is 210 hours.
Duration of the Module	The module spans two semesters.