

Module Name	Power Electronics Advanced
Module Number	Eul-ET-E-LEV
Responsible Lecturer	Prof. Dr.-Ing. Steffen Bernet steffen.bernet@tu-dresden.de
Qualification Objectives	After completing the module, students are capable of selecting and designing appropriate circuits as well as selecting and dimensioning power semiconductor components for power electronic systems across a wide range of applications. Students can verify the functionality of the considered system, including necessary control and/or regulation, using simulation tools.
Contents	The module covers: - Structure and functionality of actively switchable power semiconductor components, - Analysis of the functionality of self-commutated circuits, - Simplification of the considered systems for simulation purposes, - Dimensioning of the core components of the power electronic subsystem, - Common modulation methods for controlling power electronic actuators, - 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 lab courses, and self-study.
Prerequisites for Participation	The competencies to be acquired in the module "Power Electronics" are required.
Usability	The module is an elective module from the elective area "Competence Deepening" according to § 6 paragraph 3 SO and § 33 paragraph 4 PO 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 60 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 summer semester.
Workload	The total workload is 210 hours.
Duration of the Module	The module lasts one semester.