

Module Name	High Current Engineering Advanced
Module Number	Eul-ET-E-HSTV, Eul-RES-E-HSTV
Responsible Lecturer	Prof. Dr.-Ing. habil. Stephan Schlegel stephan.schlegel@tu-dresden.de
Qualification Objectives	Students are able to design, evaluate, and test components and systems with high current loads. Building on the technical fundamentals, they acquire advanced knowledge that enables them to systematically perform electrical-thermal-mechanical design of equipment with high current loads. They gain in-depth knowledge of engineering approaches to model heating processes, the behavior of current-carrying connections, and current-induced forces, and are capable of conducting scientific work and research in this field.
Contents	The module covers advanced topics on: - Methods and tools for calculating the heating of equipment in electrical power engineering, - Contact and long-term behavior of non-switching current-carrying contacts and connections, - Mechanical stress on components in electrical power engineering caused by current-induced forces.
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	In the diploma program Electrical Engineering, the competencies to be acquired in the module High Voltage and High Current Engineering are required. In the diploma program Renewable Energy Systems, the competencies to be acquired in the module High Voltage and High Current Engineering Basics are required.
Usability	The module is an elective module in the elective area "Competence Deepening" according to § 6 paragraph 3 SO and § 33 paragraph 4 PO of the main study program in the specialization Electrical Power Engineering in the diploma program Electrical Engineering. Furthermore, it is an elective module in the elective area "Competence Deepening" according to § 6 paragraph 3 SO and § 33 paragraph 3 PO 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 50 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 oral examination is weighted threefold, and the complex assignment is weighted twofold.
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.