

Module Name	Finite Element Method Simulation in Electrical Power Engineering
Module Number	Eul-ET-E-FEM
Responsible Lecturer	Prof. Dr.-Ing. habil. Jens Lienig jens.lienig@tu-dresden.de
Qualification Objectives	After completing the module, students master the fundamentals for a methodologically sound use of finite element method (FEM) systems. They understand the central importance of detailed FEM models in the context of holistic system simulation within design processes. They are capable of using simulation models in electrical power engineering to find robust, cost-effective compromise solutions while considering functional behavior and the omnipresent variation of parameters.
Contents	The module covers the finite element method (FEM) with a focus on: - Fundamentals of model creation for various physical domains of device engineering, using examples from structural mechanics, thermal analysis, and electromagnetic fields - Generalized process steps for creating sound FEM models and their validation
Teaching and Learning Forms	1 hour per week of lectures, 2 hours per week of exercises, and self-study.
Prerequisites for Participation	The competencies acquired in the module " Electronic Systems Design" are required.
Usability	The module is one of two elective modules in the field of Electrical Power Engineering within the diploma program in Electrical Engineering, of which one must be chosen. 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 portfolio with a workload of 60 hours.
Credit Points and Grades	5 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 summer semester.
Workload	The total workload is 150 hours.
Duration of the Module	The module lasts one semester.