

Module Name	Design Methodologies
Module Number	Eul-ET-C-KoGMM
Responsible Lecturer	Prof. Dr.-Ing. habil. Jens Lienig jens.lienig@tu-dresden.de
Qualification Objectives	After completing the module, students are able to design components and assemblies, calculate and dimension design elements, and apply them correctly. They are also capable of creating standard-compliant design documentation using modern CAD systems.
Contents	The module covers the fundamentals of design with a focus on: design engineering basics, standard numbers and dimensions, tolerances, fits, dimension and tolerance chains, strength calculations, material load capacity, mechanical connection elements such as material, form, and force closure, mechanical functional elements such as springs, bearings, guides, and shafts, mechanical functional groups and gear systems. Additionally, CAD design is addressed with a focus on: methodology for creating CAD models, modeling of assembly dependencies, parametric and adaptive design, as well as motion and tolerance simulation.
Teaching and Learning Forms	3 hours per week of lectures, 3 hours per week of exercises, and self-study.
Prerequisites for Participation	The competencies to be acquired in the module "Electronic Systems Design" are required.
Usability	The module is a compulsory module of the main study program in the field of Electronic Systems, Micro and Medical Technology 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 portfolio with a workload of 50 hours. Both examination components are relevant for passing.
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 portfolio is weighted once.
Frequency of the Module	The module is offered every winter semester.
Workload	The total workload is 210 hours.
Duration of the Module	The module lasts one semester.