

Only the german version of the module description as part of the study regulations is legally binding.

Module name	Mathematics Specialization - Optimization
Module number	INF-25-Ma-NSP-MAT-OPT
Responsible lecturer	Prof. Dr. Alexandra Schwartz alexandra.schwartz@tu-dresden.de
Qualification objectives	Students have in-depth knowledge of the methodology of the application area of mathematics and have specialized knowledge in the field of optimization and technical language and can confidently use important working techniques. They have comprehensive skills in mathematical abstraction.
Content	Contents of the module are application examples and models as well as theoretical foundations and basic methods of discrete and continuous optimization, including duality in linear optimization, dual simplex method, the branch and bound principle, optimality conditions, complexity and convergence statements as well as Newton and globalization techniques.
Teaching and learning methods	The module comprises lectures of 3 SWS, exercises of 1 SWS and the selfbststudium. The language of instruction for the lectures and exercises is German.
Prerequisites for participation	In the Diploma degree program in Computer Science, the competencies to be acquired in the module INF-25-Ma-NVE-MAT Mathematics specialization are a prerequisite.
Applicability	The module is a compulsory module of the Non-Computer Science Supplement Mathematics in the Diploma program in Computer Science. The module creates the prerequisites for the modules listed under prerequisites for participation.
Requirements for earning credit points	The credit points are earned if the module examination is passed. The module examination consists of a written examination lasting 90 minutes. The examination language is German.
Credit points and grades	6 credit points can be earned through the module. The module grade corresponds to the grade of the examination.
Module frequency	The module is offered every winter semester.
Workload	The total workload is 180 hours.
Module duration	The module comprises one semester.