

Module name	Discrete Structures
Module number	Ma-IST-C-DiStr
Lecturer in charge	Prof. Dr. Ulrike Baumann ulrike.baumann@tu-dresden.de
Objectives	After completing the module, students are familiar with basic mathematical concepts, notation, and forms of argumentation using the example of set and formula language and elements of discrete mathematics. They are familiar with the basic concepts of the aforementioned areas of theory and can confidently apply them in a mathematical context. In particular, they can formulate and prove facts from the aforementioned fields of knowledge mathematically correctly. Students are able to relate the theoretical elements they have studied to applied questions in a meaningful way and solve problems.
Contents	The module covers mathematics as a theoretical language and tool of computer science, as well as elements of discrete mathematics. Specifically, the content includes sets, relations (in particular equivalence and order relations), mappings, Boolean functions and propositional logic, natural numbers, proofs using complete induction and modular arithmetic, the fundamentals of graph theory, and the applications of these concepts in computer science.
Modes of teaching and learning	3 hours per week lectures, 2 hours per week exercises and self-study.
Prerequisites	The skills to be acquired in the modules Introduction to Analysis and Algebra are required.
Usability	The module is a compulsory module in the basic studies of the degree programme Information Systems Engineering. It creates the prerequisites for the modules that list that module in the "Prerequisites" field.
Requirements for the award of credit points	The credit points are awarded when the module assessment is passed. The module assessment consists of a written exam of 90 minutes.
Credit points and grades	6 credit points can be obtained by the module. The module grade is the grade of the examination.
Frequency	The module is offered every summer semester.
Workload	The total effort is 180 hours.
Duration	The module takes one semester.