

Submodule BIN-100-01 Mathematics 1

Subheading	(BIN-MAT1)
Person in Charge	Sprengel, Frauke, Prof. Dr.
Language of Instruction	German
Curriculum Allocation	BIN, MDI
Course Type, Contact Hours per Week	Lecture with exercise, 4 SWS
ECTS Credits	6
Contact Hours / Independent Study Hours	68 h / 112 h
Semester	1
Suggestions for Independent Study	see literature
Recommended Prerequisites	none
Examination	Examination (written or oral examination) and work on tasks as experimental work

Learning Outcomes

Formal skills: Knowledge of logics and familiarization with mathematical formalisms to describe facts

Algorithmic skills: Getting to know algorithms and their complexity

Mathematical skills: Selection and implementation of suitable solutions for elementary problems in mathematics and computer science

Interdisciplinary skills: Communicative skills (presentation and discussion of solution proposals)

Content

The basic principles taught in higher mathematics include topics in the following fields:

- Logics, Boolean algebra
- Set theory
- Number systems
- Functions and relations
- Graph theory
- Elementary number theory The corresponding standard software is used to illustrate terms and processes.

Requirements for Contact Hours

Active participation, individual task-solving, discussion

Requirements for Independent Study Hours

Preparation and postprocessing of the lectures, reading literature, individual task-solving, assessment of the solutions, individual discussion

Bibliography

Lecture notes

Teschl, G., Teschl, S.: Mathematik für Informatiker, Springer - Verlag

Hartmann, P.: Mathematik für Informatiker, Vieweg - Verlag