Technology Arts Sciences

TH Köln

Course Manual MA1

Mathematics 1

Version: 2 | Last Change: 10.12.2019 16:00 | Draft: 0 | Status: vom verantwortlichen Dozent freigegeben

— General information

Long name	Mathematics 1
Approving CModule	MA1_BaMT
Responsible	Prof. Dr. Stefan Grünvogel Professor Fakultät IME
Valid from	winter semester 2020/21
Level	Bachelor
Semester in the year	winter semester
Duration	Semester
Hours in self-study	174
ECTS	10
Professors	Prof. Dr. Stefan Grünvogel Professor Fakultät IME
Requirements	Knowledge of school mathematics to achieve university entrance as well as logical thinking.
Language	German
Separate final exam	Yes

Literature

L. Papula, Mathematik für Ingenieure und Naturwissenschaftler, Band 1 und 2, Vieweg+Teubner Verlag

Fetzer, Fränkel: Mathematik Lehrbuch für ingenieurwissenschaftliche Studiengänge, Teubner Verlag

Burg, Haf, Wille: Höhere Mathematik für Ingenieure, Teubner Verlag

Rurländer: Lineare Algebra für Naturwissenschaftler und Ingenieure, Pearson

Final exam

Details	Tasks from the area of the analysis of one variable are set, which shall be solved without tools (or if necessary with a given collection of formulas). On the one hand, the correctness of the approach, respectively the solution, is evaluated. It also assesses the extent to which symbolic and formal mathematical language is correctly.In order to take part in the summary examination at the end (written exam), students must first prove that they have satisfactorily completed the exercises, which are usually held on a weekly basis.
Minimum standard	Students - show that they understand simple mathematical statements and can comprehend simple given proofs - can explain and apply the most important concepts of AN - can solve simple tasks of known type from the field of AN without electronic aids. The written representation of the solution and the way to solve it is done in the formal language of mathematics and uses the correct mathematical symbols. Abbreviation: AN - Analysis of one variable
Exam Type	EN Klausur

Lecture / Exercises

Learning goals

Goal type	Description
Knowledge	Basics: logic, sets, natural numbers, real numbers, functions Elementary functions: Algebraic Functions, Transcendental Functions Convergence and divergence of sequences, Real functions in one variable: limits, continuity, differentiation, integration Series
Skills	Master mathematical notation and symbols.\nUnderstanding and evaluating given mathematical argumentations. Independent drawing of logical conclusions Differentiate between different mathematical statements Solving problems from the area of the knowledge conveyed in the lecture (mathemathical foundations, analysis of one variable, linear algebra) Understanding and communicating mathematical statements

Special requirements

Accompanying material	Script Exercise sheets Online references
Separate exam	Yes

Separate exam

Exam Type	EN Übungsaufgabe mit fachlich / methodisch eingeschränktem Fokus lösen
Details	Submission and evaluation of exercises (homework) and online exercises (e-learning)
Minimum standard	Regular work on exercises and online tasks

Expenditure classroom teaching

Type	Attendance (h/Wk.)
Lecture	5
Exercises (whole course)	2
Exercises (shared course)	0
Tutorial (voluntary)	2