Module title: Overview Discrete Mathematics and Number Theory

Abbreviation: 10-M-DIZT-Ü-152-m01

Module coordinator: Dean of Studies Mathematik (Mathematics)

Module offered by: Institute of Mathematics

ECTS: 12

Method of grading: numerical grade

Duration: 1 semester

Module level: undergraduate

Other prerequisites: --

Contents: Techniques from combinatorics, introduction to graph theory (including applications), cryptographic methods, error-correcting codes; elementary properties of divisibility, prime numbers and prime number factorisation, modular arithmetics, prime tests and methods for factorisation, structure of the residue class rings, theory of quadratic remainders, quadratic forms, diophantine approximation and diophantine equations.

Intended learning outcomes: The student is acquainted with fundamental concepts and methods in number theory and discrete mathematics. He/She is able to relate these concepts with one another, and realises the advantages of thinking across the borders of different branches in mathematics.

Courses: (type, number of weekly contact hours, language — if other than German)

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Method of assessment: (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

oral examination of one candidate each (20 to 40 minutes)
Assessment will have reference to two topics in pure mathematics as agreed upon with the examiner. Each topic may only be selected as the subject of one examination in the sub-fields Gesamtüberblick (Overview).
Language of assessment: German and/or English

Allocation of places: --

Additional information: --

Referred to in LPO I: (examination regulations for teaching-degree programmes)

Module appears in: Bachelor' degree (1 major) Mathematics (2015)
Bachelor' degree (1 major) Computational Mathematics (2015)