MINT Preparatory Course Mathematical Methods of Physics

Module coordinator: Managing Director of the Institute of Theoretical Physics and Astrophysics
Module offered by: Faculty of Physics and Astronomy

ECTS: 3
Method of grading: Only after succ. compl. of module(s)
Duration: 1 semester
Module level: undergraduate
Other prerequisites: --

Contents
Mathematical basics and elementary calculus refreshing and extending knowledge from school, especially as an introduction and preparation for the modules of experimental and theoretical physics.
1. Basic geometry and algebra, 2. differential calculus and series, 3. integral calculus, 4. vectors – directional quantities, 5. coordinate systems, 6. complex numbers

Intended learning outcomes
Students are in command of knowledge of basic mathematics and possess skills in elementary calculus as required for the successful start into the studies of experimental and theoretical physics.

Courses
V (1) + Ü (2)
Module taught in: German or English

Method of assessment
exercises (successful completion of approx. 50% of approx. 6 exercise sheets) or talk (approx. 15 minutes)
Assessment offered: Once a year, winter semester

Allocation of places
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Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)
§ 22 II Nr. 3 f)

Module appears in
Bachelor’ degree (1 major) Physics (2020)
Bachelor’ degree (1 major) Nanostructure Technology (2020)
Bachelor’ degree (1 major) Mathematical Physics (2020)
Bachelor’s degree (1 major, 1 minor) Physics (Minor, 2020)
First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2020)
First state examination for the teaching degree Grundschule Physics (2020)
First state examination for the teaching degree Gymnasium Physics (2020)
First state examination for the teaching degree Realschule Physics (2020)
First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2020)
First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020)
First state examination for the teaching degree Mittelschule Physics (2020)
Bachelor’ degree (1 major) Quantum Technology (2021)