Modern Physics in Nature and Technology

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

ECTS: 6
Method of grading: numerical grade
Duration: 2 semester

Contents
Basics of Solid-State Physics; Nuclear Physics, Elementary Particle Physics and Astrophysics; introduction of important concepts and applications of Physics; interconnections between the physical subdisciplines (and partly with other Natural Sciences); aspects of the history of ideas of important concepts and their controversies (e.g. atomism, determinism); Applied and Technical Physics: Physics and information/communication technology; rules and process technology, sensors; medical technology; climate and weather; Biophysics; ecology; energy; celestial mechanics, satellites, GPS; measuring devices; electrical light sources; displays

Intended learning outcomes
The students have structured knowledge of the aforementioned terms. Their understanding of important shared concepts enables them to connect different subdisciplines of Physics, they know the similarities and differences of different usage contexts and therefore have in-depth knowledge of these concepts; they understand complex systems of nature and engineering and are able to connect their own physical knowledge in a synergetic manner by analysing the solutions to selected, complex problems.

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

Method of assessment
a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 20 minutes)
Language of assessment: German and/or English

Allocation of places
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Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
§ 53 I Nr. 1 b)

Module appears in
First state examination for the teaching degree Realschule Physics (2015)
First state examination for the teaching degree Realschule Physics (2018)
First state examination for the teaching degree Realschule Physics (2020)