

Module title		Abbreviation
Mathematical Methods of Physics		11-P-MR-092-m01
Module coordinator		Module offered by
Managing Director of the Institute of Theoretical Physics and Astrophysics		Faculty of Physics and Astronomy
ECTS	Method of grading	Only after succ. compl. of module(s)
6	(not) successfully completed	--
Duration	Module level	Other prerequisites
2 semester	undergraduate	--
Contents		
Principles of mathematics and basic calculation methods beyond the school curriculum, especially for the introduction to and preparation of the modules of Theoretical Physics and Classical or Experimental Physics. Repetition of basic knowledge, functions of several real variables, differential equations, linear algebra, vector analysis, other (delta distribution, Fourier transform).		
Intended learning outcomes		
The students have knowledge of the principles of mathematics and elementary calculation methods which are required in Theoretical and Experimental Physics. They are able to apply these methods to simple problems, especially in the field of Physics.		
Courses (type, number of weekly contact hours, language — if other than German)		
Mathematische Rechenmethoden 1 (Mathematical Methods 1): V (2 weekly contact hours) + Ü (1 weekly contact hour), once a year (winter semester) Mathematische Rechenmethoden 2 (Mathematical Methods 2): V (2 weekly contact hours) + Ü (1 weekly contact hour), once a year (summer semester)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)		
<p>This module has the following assessment components</p> <ol style="list-style-type: none"> <li>Topics covered in lectures and exercises in part 1 (Mathematische Rechenmethoden 1 (Mathematical Methods 1)): exercises or talk (approx. 15 minutes, usually chosen) or written examination (approx. 60 minutes)</li> <li>Topics covered in lectures and exercises in part 2 (Mathematische Rechenmethoden 2 (Mathematical Methods 2)): exercises or talk (approx. 15 minutes, usually chosen) or written examination (approx. 60 minutes)</li> </ol> <p>Successful completion of approx. 50% of practice work each is a prerequisite for admission to assessment components 1 and 2. Students must register for assessment components 1 and 2 online (details to be announced). To pass this module, students must pass both assessment component 1 and assessment component 2.</p>		
Allocation of places		
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Additional information		
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Workload		
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Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
§ 53 (1) 1. a) Physik Mechanik, Wärmelehre, Elektrizitätslehre, Optik, der speziellen Relativitätstheorie § 77 (1) 1. a) Physik "Grundlagen der Experimentalphysik"		
Module appears in		

Bachelor's degree (1 major) Physics (2010)  
Bachelor's degree (1 major) Physics (2012)  
Bachelor's degree (1 major) Nanostructure Technology (2012)  
Bachelor's degree (1 major) Mathematical Physics (2012)  
Bachelor's degree (1 major, 1 minor) Physics (Minor, 2010)