

<b>Module title</b>		<b>Abbreviation</b>
Theoretical Physics 1 for Pre Service Teachers		11-L-T1-172-m01
<b>Module coordinator</b>		<b>Module offered by</b>
Managing Director of the Institute of Theoretical Physics and Astrophysics		Faculty of Physics and Astronomy
<b>ECTS</b>	<b>Method of grading</b>	<b>Only after succ. compl. of module(s)</b>
7	numerical grade	--
<b>Duration</b>	<b>Module level</b>	<b>Other prerequisites</b>
1 semester	unknown	--
<b>Contents</b>		
<p>Basic physical laws and elementary methods of theoretical physics.            Mechanics: Newton's laws Physical quantities and conservation laws, systems of mass points, reference systems, dimensional motion, Lagrange equations, applications, Hamiltonian dynamics.            Quantum Mechanics: Schrödinger equation, one-dimensional quantum mechanics, quantum mechanics Abstract (operator formalism), angular momentum, spin.            Electrodynamics: Maxwell equations, electrostatics, magnetostatics, dynamic electromagnetic fields, Special Theory of Relativity.            Thermodynamics: Heat, entropy, thermal equilibrium, measured variables, efficiency, Thermodynamic potentials, phase transitions.</p>		
<b>Intended learning outcomes</b>		
<p>Students have an understanding of the fundamental laws of the interrelationships and elementary methods of theoretical physics from the theoretical mechanics, quantum mechanics, thermodynamics, electrodynamics and statistical physics. They can use the acquired theoretical concepts and fit into larger physical context and discuss.</p>		
<b>Courses</b> (type, number of weekly contact hours, language – if other than German)		
V (4) + Ü (2) Module taught in: Ü: German or English		
<b>Method of assessment</b> (type, scope, language – if other than German, examination offered – if not every semester, information on whether module is creditable for bonus)		
written examination (approx. 120 minutes) Language of assessment: German and/or English creditable for bonus		
<b>Allocation of places</b>		
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<b>Additional information</b>		
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<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
§ 77 I Nr. 1 c)		
<b>Module appears in</b>		
First state examination for the teaching degree Gymnasium Physics (2018) First state examination for the teaching degree Gymnasium Physics (2020)		