

Module description: Physics 1					
Module Code	t.BA.XXP2.PHY1.19HS				
ECTS Credits	4				
Language of Instruction/Examination	German				
Organizational Unit	IAMP				
Module Coordinator	Christian Hilbes				
Legal Framework	The module description is part of the legal basis in addition to the general academic regulations. It is binding. During the first week of the semester a written and communicated supplement can specify the module description in more detail.				
Module Characteristic	Type 3a 2 lecture lessons per semester week and class+ 2 lab bi-weekly lessons per semester and half-class				
Module Description	Physics 1 covers the fundamentals of Newtonian mechanics for translational and rotational motions in the context of point masses and rigid bodies.				
Module Content	<p>Newton's laws for translational movements, momentum and force, momentum balancing, work and performance of a force, kinetic energy.</p> <p>Modelling of selected forces: gravity, friction, spring force, static and dynamic lift, drag.</p> <ul style="list-style-type: none"> Free, damped and excited harmonic oscillations and resonance. <p>Gravity, apparent forces and inertial field in an accelerated reference frame.</p> <p>Momentum balance in open Systems (rocket), Bernoulli's equation.</p> <ul style="list-style-type: none"> Newton's laws for rotational motion of rigid bodies, angular momentum and torque, moment of inertia, angular momentum balance, work and power of torque, kinetic rotational energy. Planar translational and rotational motion of a rigid body. Pivoting motion and imbalance. 				
Prerequisite Knowledge					
Learning Objectives (Competences)	Students...		Competencies	Taxonomies	
	The students know the basics of Newtonian mechanics (translation and rotation) and can apply them to solve general dynamic problems as well as problems from the fields of traffic engineering and aviation.		M, F	K1, K2, K3	
Performance Assessment	End-of-module exam	Assessment	Length (min.)	Weighting	Form
	written exam	Grade	120	100	acc. to module agreement
	Performance assessment during the semester		Assessment	Length (min.)	Weighting
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Classroom Attendance Requirement	None				
Learning material					
Comments					