

Module description: Mechanical Systems 3			
Module Code	t.BA.ST.MESY3.19HS		
ECTS Credits	4		
Language of Instruction/Examination	German		
Organizational Unit	IMS		
Module Coordinator	Ruprecht Altenburger		
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 2a 4 consecutive lecture lessons per semester week and class		
Module Description	MESY 3 deals with the dynamics of mechanical systems. In the first part these are essentially simplified as mass points or rigid bodies, in a second part the behavior of oscillating systems is learned. Typical applications are: drive trains, robot axes, machine tool axes, vehicles...		
Module Content	<ul style="list-style-type: none"> • Kinematics of linear movements • Kinematics of plane movements • Kinematics of free movement • guided movement • resistant forces • Momentum theorem, impact • Twist set, work set, energy set • Kinetics of the rigid body, fixed axis • Kinetics of planar movement • free harmonic oscillator • oscillations of elastic systems • oscillations with dry friction • low damped harmonic oscillators • forced oscillations with damping • 2-Mass systems • oscillations in drive systems 		
Prerequisite Knowledge	https://gmppublic.zhaw.ch/GPMDocProdDPublic/2_ Studium/2_02_Grundlagen_ Studium/T_C L_Modulauspraegungen_SM2025.pdf		
Learning Objectives (Competences)	Students...	Competencies	Taxonomies
	You apply the specialist knowledge and methodological skills acquired to case studies. You independently identify missing skills that are necessary to solve the problem and obtain the necessary information.	SE	K6
	Students know the kinematic description of movements, such as distance, speed and acceleration. They know Newton's basic laws and can apply them to technical problems with the help of suitable idealizations	F, M	K4
	You will learn the basic concepts of vibrations. You will apply these to the calculation of free one-dimensional vibrations of elastic systems without damping.	F, M	K1, K3
	You will learn about the moment of inertia and the laws that describe the movements of a rigid body with respect to an axis of rotation.	F, M	K4

Module description: Mechanical Systems 3

Performance Assessment	End-of-module exam	Assessment	Length (min.)	Weighting	Form	
	written exam	Grade	90	100	acc. to module agreement	
	Performance assessment during the semester		Assessment	Length (min.)	Weighting	Form
	-		-	-	-	-
Classroom Attendance Requirement	None					
Learning material						
Comments	non					