

Module description: Mechanical Systems 2	
Module Code	t.BA.ST.MESY2.19HS
ECTS Credits	4
Language of Instruction/Examination	German
Organizational Unit	IMS
Module Coordinator	Michael Wüthrich
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	Elastostatics deals with the deformation that results in a component due to loads. In the case of machine elements, students are familiarised with the dimensioning elements used in systems engineering. The design guidelines provide assistance in the correct design of components.
Module Content	<p>1. Elastostatics:</p> <p>Planar stress state</p> <p>state of distortion, law of elasticity</p> <p>moments of inertia of area</p> <p>Bending, normal stresses</p> <p>Bending line Single field beam</p> <p>Bending line, several fields</p> <p>Torsion, cylindrical shafts</p> <p>Torsion, thin-walled closed and open profiles</p> <p>2. Machine Elements / Design</p> <p>Bearings</p> <p>Gearbox</p> <p>Connection technology</p> <p>Design guidelines</p> <p>Tolerances</p> <p>Exercises:</p> <p>Exercises are distributed, which have to be solved independently and are then discussed in the lecture.</p>
Prerequisite Knowledge	The visit of MESY1 is required.

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Learning Objectives (Competences)	Students...		Competencies	Taxonomies	
	You know the most important machine elements such as bearings, connections and gears. You also know what to look for when selecting them.		F, M	K3	
	You know the basic equations of torsion and can apply them to case studies.		F, M	K3	
	You will learn the basic equations of beam theory and will be able to determine the deflection of beams and the resulting stresses.		F, M	K3, K4	
	They know the most important design guidelines and are able to create simple constructions professionally.		M, F	K3	
	You will learn how to analyze the stress and distortion state for plane problems and how to determine the stresses and distortions for different cutting directions.		M, F	K3	
	They are able to roughly dimension the most important machine elements.		F, M	K4	
	You will learn how to determine the stress from the distortion quantities. You will learn about the strength hypotheses that can be used to assess the stress of the material in a spatial stress state		M, F	K4	
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
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Classroom Attendance Requirement	None				
Learning material					
Comments	None				