Module description: Materials Technology

Module Code	t.BA.ST.MATTECH.19HS
ECTS Credits	4
Language of Instruction/Examination	German
Organizational Unit	IMPE
Module Coordinator	Arnd Jung
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 3b 2 lecture lessons per semester week and class+ 4 lab bi-weekly lessons per semester and half-class
Module Description	Basics of material science and materials testing. Properties, performance and application of metals and plastics.
Module Content	**Lectures:- Real and crystalline structures of metals in relation to strength properties** • - Definition of mechanical and electrical properties • - Material behaviour under static loading, fracture • - Alloys and phase diagrams • - Steels, Aluminium-, Titanium-, Magnesium- and Copper alloys • - Shape memory alloys • - Heat treatments of metals **2. Tensile and charpy testing** **4. Non-destructive testing 2: Eddy current and magentic particle testing, thermography** • 5. Coldforming and recrystallization of aluminium • 6. Hardening and tempering of steel • -- • -- • -- • --
Prerequisite Knowledge	

Learning Objectives (Competences)	Students...	Competencies	Taxonomies
	connect materials substructures properties with material types	M, F	K3
	evaluate materials properties required for dimensioning of mechanical parts	F, M	K4
	--	F, M	K3

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Performance Assessment	End-of-module exam	Assessment	Length (min.)	Weighting	Form
	written exam	Grade	90	80	acc. to module agreement

	Performance assessment during the semester	Assessment	Length (min.)	Weighting	Form
	written exam	Grade		20	acc. to module agreement

Classroom Attendance Requirement	None
Learning material	
Comments	