

Module description: Materials Technology for Aviation						
Module Code	t.BA.AV.MATTECH.19HS					
ECTS Credits	4					
Language of Instruction/Examination	German					
Organizational Unit	IMPE					
Module Coordinator	Oliver Döbrich					
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	Materials science and chemistry for aviation engineers focusing on aerospace materials like aluminium and composites, non-destructive testing and the basics of chemistry for aviation.					
Module Content	<p>Lecture:</p> <ul style="list-style-type: none"> - Definition of important mechanical properties, in particular strength, stiffness, ductility and hardness - Structural composition and strengthening mechanisms - Aluminium in aircraft construction - Carbon composites in aircraft construction - Non-destructive testing for materials inspection - The atom, forces and the periodic system of the elements - Chemical reactions and balancing - Thermodynamics - Redox- and electrochemistry <p>Practical course:</p> <ul style="list-style-type: none"> • 6 experiments in the lab on important materials properties / tensile testing / composites / non-destructive testing / corrosion / electrochemistry / polymers 					
Prerequisite Knowledge	https://gpmpublic.zhaw.ch/GPMDocProdDPublic/2_Studium/2_02_Grundlagen_Studium/T_C_L_Modulauspraegungen_SM2025.pdf					
Learning Objectives (Competences)	Students...		Competencies	Taxonomies		
	Students understand the properties of materials and can assign appropriate tests		F, M	K3		
	Students are able to determine the composition and structure of aircraft materials		M, F	K3		
	Students understanding the basics in chemistry and chemical processes and the application in the aviation industry		F, M	K3		
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
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Classroom Attendance Requirement	None
Learning material	
Comments	