

Data:	TEXTUR MA. / Examination number: 12401	Version: 04.06.2025 	Start Year: WiSe 2025
Module Name:	Mathematics of Crystallographic Texture Analysis		
(English):			
Responsible:	Hielscher, Ralf / Prof.		
Lecturer(s):			
Institute(s):	Institute of Applied Analysis		
Duration:	1 Semester(s)		
Competencies:	The module provides the students with a wide variety of mathematical methods for the analysis of the microstructure of polycrystalline materials and its anisotropic physical properties.		
Contents:	- mathematical description of crystal symmetries - quantitative description of polycrystalline materials and its anisotropic properties - determination of the orientation distribution function from EBSD and XRD data - methods of mathematical image analysis for EBSD data - analysis of orientation relationships		
Literature:	Bunge: Mathematische Methoden der Texturanalyse Moraviec: Orientations and Rotations: Computations in Crystallographic Textures Suwas, Ray: Crystallographic Texture of Materials Engler, Randle: Introduction to Texture Analysis		
Types of Teaching:	S1 (WS): Block course / Lectures (2 SWS) S1 (WS): Block course / Exercises (1 SWS)		
Pre-requisites:	Recommendations: Höhere Mathematik für Ingenieure 1, 2015-03-12 Analysis 1, 2021-04-21 Analysis 2, 2021-04-21 Höhere Mathematik für Ingenieure 2, 2015-03-12		
Frequency:	yearly in the winter semester		
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: MP [30 min]		
Credit Points:	5		
Grade:	The Grade is generated from the examination result(s) with the following weights (w): MP [w: 1]		
Workload:	The workload is 150h. It is the result of 45h attendance and 105h self-studies.		