


Data:	FUNMICRO. MA. Nr. 3209 / Examination number: 44501	Version: 11.07.2016 	Start Year: WiSe 2011
Module Name:	<b>Fundamentals of Microstructures</b>		
(English):			
Responsible:	<a href="#">Sandfeld, Stefan / Prof. Dr.</a>		
Lecturer(s):	<a href="#">Sandfeld, Stefan / Prof. Dr.</a>		
Institute(s):	<a href="#">Institute of Mechanics and Fluid Dynamics</a>		
Duration:	1 Semester(s)		
Competencies:	The students will learn theoretical aspects of microstructural elements that can be found in real crystalline materials. They will become able to solve problems of materials scientific relevance. Furthermore, students will be able to transfer their knowledge to new problems. During the practical part of this module, students will learn all relevant computational aspects that are important for solving those problems.		
Contents:	Most important ingredients are: Crystallography, Dislocations, Void and Void growth mechanisms, solute atoms and strengthening mechanisms, Inclusion and Eshelby solution, characteristic length scale associated to each elements.		
Literature:	Introduction to dislocations: Hull and Bacon Crystal defects and microstructures: Modeling across length scale. Phillips Strengthening Mechanisms in Crystal Plasticity (Oxford Series on Materials Modelling): Ali S. Argon		
Types of Teaching:	S1 (WS): Lectures (2 SWS) S1 (WS): Exercises (2 SWS)		
Pre-requisites:	<b>Recommendations:</b> None		
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/KA (KA if 6 students or more) [MP minimum 30 min / KA 120 min]		
Credit Points:	5		
Grade:	The Grade is generated from the examination result(s) with the following weights (w): MP/KA [w: 1]		
Workload:	The workload is 150h. It is the result of 60h attendance and 90h self-studies.		