

DEPARTMENT OF MATERIALS SCIENCE AND TECHNOLOGY  
COURSE SYLLABUS

Course Details						
Code			Academic Year			Semester
MWT203			2			3
Title			T	A	L	ECTS
Materials Chemistry			2	1	1	6
Language	German					
Level	Undergraduate	X	Graduate		Postgraduate	
Department / Program	Materials Science and Technology					
Forms of Teaching and Learning	Face to face					
Course Type	Compulsory		Elective			X
Objectives	Being able to describe the principles for the atomic-level build-up of solid materials and the most common and important materials synthesis methods					
Content	Basic theoretical and experimental areas of Solid State Chemistry.					
Prerequisites						
Coordinator						
Lecturer(s)	Asist Prof.Dr. Duygu Ekinci					
Assistant(s)						
Work Placement	No					
Recommended or Required Reading						
Books / Lecture Notes	1. H. Briehl, Chemie der Werkstoffe, Springer Vieweg. 2. M. Baerns, A. Behr et al. Technische Chemie, Wiley-VCH 3. M. Binnewies, Allgemeine und Anorganische Chemie, Springe-Spektrum					
Other Sources						
Additional Course Material						
Documents						
Assignments						
Exams						
Course Composition						
Mathematics und Basic Sciences						%
Engineering						%
Engineering Design						%
Social Sciences						%
Educational Sciences						%

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Natural Sciences			70%
Health Sciences			%
Expert Knowledge			30%
Assessment			
Activity	Count		Percentage (%)
Midterm Exam	1		30
Quiz			
Assignments			
Attendance			
Recitations	2		15
Projects	2		15
Final Exam	1		40
Txtotal			100
ECTS Points and Work Load			
Activity	Count	Duration	Work Load (Hours)
Lectures	14	2	28
Self-Study	16	4	64
Assignments			
Presentation / Seminar Preparation			
Midterm Exam	1	2	2
Recitations	14	1	14
Laboratory	14	1	14
Projects	2	25	50
Final Exam	1	2	2
Total Work Load			174
ECTS Points (Total Work Load / Hours)			6
Learning Outcomes			
1	Being able to describe the principles for the atomic-level build-up of solid materials and the most common and important materials synthesis methods.		
2			
3			
4			
5			
6			
7			
8			

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9	
10	
11	
12	

**Weekly Content**

1	Basic theoretical and experimental areas of Solid State Chemistry
2	Several basic and general principles about the atomic level growth of solid material (crystalline and amorphous), as well as surfaces
3	Basic structural chemistry, solid solution, microstructures and phase transformation
4	Structure and bonding of molecular coordination compounds
5	Important synthesis methods in solid state and of transition metal complexes, ligand substitutions
6	Metal Surface Treatments for Corrosion Resistance
7	Properties of Semiconductors
8	"Soft Materials" Applications, Properties and Structure
9	Surface Characterization Techniques I
10	Surface Characterization Techniques II
11	Seminar I
12	Bulk Characterization Techniques I
13	Bulk Characterization Techniques II
14	Seminar II

**Contribution of Learning Outcomes to Program Objectives (1-5)**

	P1	P2	P3	P4	P5	P6	P7	P8
All	3	2	3	3	1	2	1	3
1								
2								
3								
4								
5								

**Contribution Level** 1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High

**Compiled by:**

**Date of Compilation:**