DEPARTMENT OF MATERIALS SCIENCE AND TECHOLOGY
COURSE SYLLABUS

Course Details				
Code	**Academic Year**			**Semester**
MWT311	3			5
Title	**T**	**A**	**L**	**ECTS**
Materials Testing	2	1	2	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	Materials diagnostics, Characterization of properties, Quality inspection, Reliability and failure/fracture analysis					
Content	1. Introduction 2. Mechanical test methods 3. Hardness test 4. Fracture mechanics 5. Non-destructive test methods 6. Technological test methods 7. Measurement technology in materials testing					
Prerequisites						
Coordinator						
Lecturer(s)						
Assistant(s)						
Work Placement	No					

Recommended or Required Reading	
Books / Lecture Notes	F. Vollertsen, S. Vogler: Werkstoffeigenschaften und Mikrostruktur, Carl Hanser Verlag, München 1989 J.P. Hirth, J. Lothe: Theory of Dislocations, Second Edition, Krieger Publishing Company, Malabar, Florida 1992 D. Hull, D.J. Bacon: Introduction to Dislocations, 3rd Edition, Pergamon Press, Oxford 1984 J. F. Nye: Physical Properties of Crystals, Oxford University Press, Oxford 1979
Other Sources	W. Schatt: Werkstoffwissenschaft, Wiley-VCH, Weinheim 2003. G. Gottstein: Physikalische Grundlagen der Materialkunde, Berlin, Heidelberg 2007. P. Haasen: Physikalische Metallkunde, 3. Auflage, Springer Verlag, Berlin 1994 E. Macherauch: Praktikum in Werkstoffkunde, 3. Auflage, Vieweg & Sohn, Wiesbaden 1981

Additional Course Material	
Documents	
Assignments	

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Exams		
Course Composition		
Mathematics und Basic Sciences		20%
Engineering		40%
Engineering Design		%
Social Sciences		%
Educational Sciences		%
Natural Sciences		%
Health Sciences		%
Expert Knowledge		40%

Assessment

Activity	Count	Percentage (%)
Midterm Exam	1	40
Quiz		
Assignments		
Attendance		
Recitations		
Projects		
Final Exam	1	60
	Total	**100**

ECTS Points and Work Load

Activity	Count	Duration	Work Load (Hours)
Lectures	28	2	56
Self-Study	14	4	56
Assignments			
Presentation / Seminar Preparation			
Midterm Exam	1	3	3
Recitations	14	1	14
Laboratory	28	2	56
Projects			
Final Exam	1	3	3
		Total Work Load	**188**
		ECTS Points (Total Work Load / Hours)	**6**

Learning Outcomes

1	This course enables students to understand the basics and elementary processes of materials testing in-depth, which is of great importance for materials development and property optimization, rational use of materials, QM and technical safety.

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Weekly Content	
1	Tensile test
2	Compression test
3	Bending and torsion
4	Creep test
5	Materials fatigue
6	Impact testing
7	Hardness measurement
8	Fracture mechanics
9	non-destructive testing
10	Technological processes
11	Measurement technology
12	Seminar I
13	Seminar II
14	Seminar III
15	

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

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

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6							
7							
8							
9							
10							
11							
12							

Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High
Compiled by:	
Date of Compilation:	