DEPARTMENT OF MATERIALS SCIENCE AND TECHOLOGY
COURSE SYLLABUS

Course Details				
Code	**Academic Year**			**Semester**
MWT304	3			6
Title	**T**	**A**	**L**	**ECTS**
Mechanical Properties of Materials	3	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**	**X**	**Elective**			
Objectives	Students will be able to describe deformation and breakage in thermodynamics and kinetics. Students will be able to evaluate the property profiles of different material classes regarding their advantages and benefits					
Content	Gerilim, Gerilim şiddeti faktörü, Plastik bölgeler, Doğrusal elastik kırılma mekaniği, enerji salınım oranı, alt kritik çatlak büyümesi, mekanik dönüşümlü yük, yüksek sıcaklık davranışı, test prosedürü, Deformasyon ve şekillendirme, metallerde katılaşma, Polimerler ve viskoelastik deformasyon, kompozitler					
Prerequisites						
Coordinator						
Lecturer(s)	Instructor Dr. Çağatay Elibol					
Assistant(s)						
Work Placement	No					

Recommended or Required Reading	
Books / Lecture Notes	J. Rösler, H. Harders, M. Bäker: "Mechanisches Verhalten der Werkstoffe“, Vieweg und Teubner
Other Sources	

Additional Course Material	
Documents	
Assignments	
Exams	

Course Composition		
Mathematics und Basic Sciences		%
Engineering		100%
Engineering Design		%

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Social Sciences		%
Educational Sciences		%
Natural Sciences		%
Health Sciences		%
Expert Knowledge		%

Assessment

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

ECTS Points and Work Load

Activity	Count	Duration	Work Load (Hours)
Lectures	14	3	42
Self-Study	7	10	70
Assignments	5	10	50
Presentation / Seminar Preparation			
Midterm Exam	1	2	2
Practice	14	1	14
Laboratory			
Projects			
Final Exam	1	2	2
		Total Work Load	**180**
		ECTS Points (Total Work Load / Hours)	**6**

Learning Outcomes

1	Being able to describe deformation and breakage in thermodynamics and kinetics and to evaluate the property profiles of different material classes regarding their advantages and benefits
2	
3	
4	
5	
6	

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7	
8	
9	
10	
11	
12	
Weekly Content	
1	Voltage Intensity Factor
2	Plastic Zones
3	Linear elastic fracture mechanics, energy release rate
4	Subcritical crack growth
5	High temperature behavior
6	Test Procedure
7	Deformation and Shaping
8	Solidification in metals
9	
10	
11	
12	
13	
14	
15	

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

	P1	P2	P3	P4	P5	P6	P7
1		3	3				
2							
3							
4							
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10							
11							
12							

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