TÜRK-ALMAN ÜNİVERSİTESİ
TÜRKISCH-DEUTSCHE UNIVERSITÄT

DEPARTMENT OF MATERIALS SCIENCE AND TECHOLOGY
COURSE SYLLABUS

Course Details						
Code			**Academic Year**		**Semester**	
MWT302			3		6	
Title			**T**	**A**	**L**	**ECTS**
Materials Production and Processing Technologies			2	2	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	The student gets an initial insight into the techniques of raw material extraction and the subsequent processing techniques for the production of materials and components by melt or powder metallurgy. This includes a treatment of relevant theoretical foundations. The student succeeds in drawing parallels between processing and the properties of materials. He / she acquires a first qualification to select material-specific processing routes for the design and manufacture of components. In addition, he / she will receive an advanced level of competence in the selection and application of appropriate coating and joining techniques. Accompanying the mentioned topics, the topics of resource conservation and recycling are brought closer to the student.
Content	Component design based on material properties, raw material extraction and processing, casting processes, sintering technology, coating and thin-film processes, forming processes, recycling and resource efficiency.
Prerequisites	
Coordinator	
Lecturer(s)	Instructor Dr. Çağatay Elibol
Assistant(s)	
Work Placement	No

Recommended or Required Reading	
Books / Lecture Notes	Materials for Engineering, J. W. Martin. The Institute of Materials, London
Other Sources	• B. Ilschner, R. Singer, Werkstoffwissenschaften und Fertigungs-technik, 5. Auflage, Springer, 2010 • E. Hornbogen, G. Eggeler, E. Werner, Werkstoffe, 9. Auflage, Springer, 2008 • W. D. Callister, Jr., Materials Science and Engineering, International Student Version, 8th Edition, Wiley, 2010 • Manufacturing with Materials, Edwards, Endean, Butterworth • Materials Science and Engineering, R. W. Cahn et al. VCH-Verlag • The Production of Inorganic Materials, J. W. Evans, L. C. DeJonghe, Mc Millan • Materials for Engineering, J. W. Martin. The Institute of Materials, London

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Additional Course Material	
Documents	
Assignments	
Exams	

Course Composition		
Mathematics und Basic Sciences		10%
Engineering		70%
Engineering Design		%
Social Sciences		%
Educational Sciences		%
Natural Sciences		%
Health Sciences		%
Expert Knowledge		10%

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	14	7	98
Assignments	6	3	18
Presentation / Seminar Preparation			
Midterm Exam	1	3	3
Recitations			
Laboratory			
Projects	3	6	18
Final Exam	1	3	3
Total Work Load			182

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ECTS Points (Total Work Load / Hours)	

Learning Outcomes

1	Component design based on material properties
2	Raw material extraction and processing
3	Casting Process
4	Sintering Technology
5	Coating and thin-film process
6	Forming Operations
7	Joining Method
8	Recycling and resource efficiency
9	
10	
11	
12	

Weekly Content

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

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

	P1	P2	P3	P4	P5	P6	P7
1				2		3	

DEPARTMENT OF MATERIALS SCIENCE AND TECHOLOGY
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2							
3							
4							
5							
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:	