

Course Details									
Code					Acad	emic Ye	ear	Semester	
MWT302					4			7	
Title					т	Α	L	ECTS	
Material Production and Processing Technologies				2	2	1	6		
Language	German								
Level	Undergraduate	х	X Graduate				Postgra	duate	
Department / Program	Energy Science and Technology								
Forms of Teaching and Learning	Face-to-face								
Course Type	Compulsory		x			ective			
Objectives	The student gets an initial insight into raw material extraction techniques and downstream processing techniques for the production of materials and components by melt or powder metallurgical methods. This includes addressing the relevant theoretical foundations. The student manages to draw parallels between the processing of materials and their properties. Gains an initial qualification to select material-specific machining routes for the design and manufacture of components. It also gains an expanded level of proficiency in selecting and applying appropriate coating and bonding processes. Along with the main topics mentioned above, resource conservation and recycling issues are introduced to the student.								
Content	 Component design based on material properties Raw material extraction and processing Casting process Sintering technology Coating and thin film processes Forming processes Join processes Recycling and resource efficiency 								
Prerequisites	None								
Coordinator	DrIng. Çağatay ELİBOL								
Lecturer(s)	DrIng. Çağatay ELİBOL								
Assistant(s)									
Work Placement	None								
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 					age,			



	6) The Production of Inorganic Materials, J. W. Evans, L. C. DeJonghe, Mc Millan						
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	20	%					
Assessment							
Activity	Cou	nt	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	14	2	42				
Self-Study	14	4	52				
Assignments	5	10	50				
Presentation / Seminar Preparation							
Midterm Exam	1	3	3				
Recitations							
Laboratory							
Projects	1	2	2				
Final Exam	1	2	2				



	Total Work Load	176			
	ECTS Points (Total Work Load / Hour)	6			
Learning Outco	omes				
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
Weekly Conter	nt .				
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	Р3	P4	P5	P6	P7
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
Contribution Lev	rel 1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High						
 P1 Working with modern scientific sources. P2 Having modern scientific knowledge and scientific analysis abilities and being able to apply them to scientific problems. P3 Having theoretical and practical skills in the area of Energy Science and Technology. P4 Having foreign language skills to follow the worldwide advancements in the field of Energy Science and Technology and to be able to discuss them with foreign colleagues. P5 Having computational skills for research data analysis purposes. P6 Having appropriate skills for academic and industrial industr							
P7 Having appro	P7 Having knowledge about work occupational work and safety.						

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