

-Basics of Materials Science II		
Faculty:	Faculty of Geosciences	
Name of study program:	Materials and Metallurgy	
Department:	Materials and Metallurgy	
Level:	Bachelor	
The code of subject:	2	
Subject:	Basics of Materials Science II	
Subject Status:	Compulsory / Summer	(Winter / Summer)
Semester:	IV	(According to approved programe)
Total hours:	3+2	(According to approved programe)
ECTS:	6	(According to approved programe)
Schedule / Hall		
Academic year:	Prof. Asoc. Dr. Muharrem Zabeli	
Professor:	MSc. Bastri Zeka	
Assistants:	Lecturer:	Assistant
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Course description:	<i>The course contains topics as: the laws of diffusion, recrystallization and the Solidification of metals and alloys, processes of degradation and of strengthening of materials. Also in the course will also address the impact of microstructure on the properties of materials.</i>	
Course objectives:	<i>Familiarize students with the basics of the process of diffusion, recrystallization and the fundamental relationships between the attributes structure / microstructure of materials</i>	
Learning outcomes:	<i>After finishing the course, students will be able to:</i> 1. Assess the mechanisms and understand the basic laws of diffusion, hardness and recrystallization, 2. Understand the impact properties of Microstructure, 3. Know the main mechanisms of empowerment materials, 4. Understand the causes and consequences of the degradation of materials. 5. Acquainted with optical properties, thermal, electrical and magnetic properties of materials.	
Designed study plan:	Week	Lectures which will be held
	First week:	<i>Thermally activated processes and Diffusion in solids</i>
	Second week:	<i>Recrystallization</i>
	Third week:	<i>Solidification of metals and alloys</i>
	Fourth week:	<i>properties of the metal material-properties that are not affected by structure</i>
	Fifth week:	<i>properties that are affected by the structure of the materials</i>
	Sixth week:	<i>Properties that are affected by the structure of the materials</i>
	Seventh week:	<i>Mechanisms of strengthening of materials</i>
	Eighth week:	<i>Mechanisms of strengthening of materials</i>
	Ninth week:	<i>Creep-slippage</i>
	Tenth week:	<i>Main processes of degradation of the structure and properties of materials</i>
	Eleventh week:	<i>Main processes of degradation of the structure and properties of materials</i>
	Twelfth week:	<i>Optical properties of materials</i>
	Thirteenth week:	<i>Thermic properties of materials</i>

		Fourteenth week:	<i>Electrical properties of materials</i>		
		Fifteenth week:	<i>Properties magnetic material</i>		
Literature	Basic	1. Mursel Rama, Hamit Mehmeti, H. Oettel, Milajete Shala-Mehmeti “Shkenca e Materialeve”, Prishtine-Freiberg, 2013 2. Gian Mario Paolucci, ‘‘Leksione të Metalurgjisë – Teknologjia e materialeve metalike’’, Vëll. I&II (Përkthyer nga A. Deshiri, Botimi i 2, Tiranë 2007 3. Dilo T., “Shkenca dhe Teknologjia e Materialeve”, Tirane 2012			
	Additional	1. William D. Callister , “Materials Science and Engineering an introduction” 9E, Copyright © (2018) 2 Donald R. Askeland & Pradeep P. Fulay & Wendelin J. Wright” The Science and Engineering of Materials” Sixth Edition,Copyright © 2011, USA 3. Willaim Smith, Javed Hashemi - <i>Foundations of Materials Science and Engineering-McGraw-Hill Education (2019)</i>			
Teaching methods		Interactive lectures, numerical and exercises. Tests during lectures			
Contribution on student load					
	Activity		Hours	Days/week	Total
	Lectures		3	15	45
	Exercise theoretical/laboratory		2	15	30
	Practice work		-	-	-
	Contact with lecturer/consultations		-	-	-
	Field exercises		2		2
	Mid-terms, seminars		2	3	6
	Homework		2	5	10
	Individual time spent studying (at the library or home)		3	10	30
	Final preparation for the exam		10	2	20
	Time spent in evaluation (tests, quiz, final exam)		2	2	4
Projects, presentations, etc.		1	3	3	
Total				150	
Evaluation methods		Tests / Colloquia		2x15 (%)	
		Practical test during exercises		10 (%)	
		Seminar paper		10 (%)	
		Homework during the semester		10 (%)	
		Final exam 40 (%)		40 (%)	
Academic policies and rules of conduct:		Regular attendance is required of students in lectures and exercises. Rules of conduct as quieting learning, access to the hall of learning time, turn off cell phones, etc. are also mandatory.			