No. 20

Attachment No.3		**Course syllabus for First cycle studies**			
1.	**Course title**	**Introduction to material engineering**			
2.	**Code**	MDE3M1			
3.	**Study Program**	Metallurgical digital engineering			
4.	**Study program organizer (unit,institute, department, division)**	Faculty of Technology and Metallurgy, University “Ss. Cyril and Methodius” in Skopje			
5.	**Degree (first, second, third cycle)**	First cycle			
6.	**Academic year / semester**	Second year, III sem.	7.	**Number of ECTS**	5
8.	**Instructors**	Prof. Perica Paunović			
9.	**Prerequisites for courseenrollment**	Inorganic chemistry 1			
10.	**Objectives of the course syllabus (competencies):** Acquiring introductory knowledge in the field of materials science and materials engineering.				
11.	1. Introduction to materials engineering. 2. Atomic structure. 3. Structure of materials. Amorphous structure. Crystalline structure. 4. Fundamentals of phase transformations. 5. Mechanical properties of materials. 6. Physical properties of materials. 7. Introduction to corrosion and degradation of materials. 8. Iron-based metallic materials. 9. Metallic materials – non-ferrous metals. 10. Ceramic materials. 11. Polymeric materials. 12. Composite materials. 13. Nanomaterials. Concept, structure, and classification. Properties. Preparation. Application. Carbon nanostructures.				
12.	**Study methods:** Lectures and exercises, consultations, project (homework, seminar) assignments, home study (exam preparation)				
13.	**Total available time**	210			
14.	**Allocation of available time**				
15.	**Teaching activities**	15.1.	Lectures	45	
		15.2.	Exercises (laboratory, computational), teamwork	45	
		15.3	Industrial practice	0	
16.	**Other types of activities**	16.1.	Project assignments	20	
		16.2.	Independent assignments	20	
		16.3.	Home study	80	
17.	**Grading system**				
	17.1.	Tests: pts		80	
	17.2.	Seminar work/project, written and oral presentation: pts		10	
	17.3.	Final exam: pts		10	
18.	**Grading criteria (points/grade)**	Up to 61 points		5 (five) (F)	
		From 61 to 69 points		6 (six) (E)	
		From 70 to 79 points		7 (seven) (D)	
		from 80 to 89 points		8 (eight) (S)	
		From 90 to 95 points		9 (nine) (B)	
		from 95 to 100 points		10 (ten) (A)	
19.	**Prerequisites for taking the final exam**	Minimum 11 pts from activities 17.1 and 17.2			

20.	**Language in which lectures are conducted**		English			
21.	**Method for monitoring the quality of lectures**		Anonymous student survey			
22.	**LITERATURE**					
	22.1.	Compulsory literature				
		No.	Author	Title	Publisher	Year
		1.	Perica Paunović	Introduction to materials engineering	University "Ss. Cyril and Methodius" in Skopje	2021
		2.				
		3.				
	22.2.	Additional literature				
		No.	Author	Title	Publisher	Year
		1.	W. D. Callister, D. G. Rethwisch	Materials sicence and engineering, an introduction, 9th Edition	John Wiley & Sons, Inc.	2014
		2.				
		3.				