No. 34

Course syllabus for First cycle studies						
1.	**Course title**	Programming in Science				
2.	**Code**	MDE4M5				
3.	**Study Program**	Metallurgical Digital Engineering				
4.	**Study program organizer (unit, institute, department, division)**	**TMF** - Faculty of Technology and Metallurgy, UKIM in Skopje				
5.	**Degree (first, second, third cycle)**	First				
6.	**Academic year/semester**	Second/fourth	7.	**Number of ECTS**	5	
8.	**Instructors**	Associate Prof. Pavel Dimovski, PhD				
9.	**Prerequisites for course enrollment**	None				
10.	**Objectives of the course syllabus (competencies):** The course aims to acquire elementary knowledge of programming theory and algorithms. Upon completion, the student will be able to write and operate with code in the C programming language. **Acquired skills (competences):**					
11.	**Content of the course:** Programming in the C programming language: Syntax and semantics, program structure in C. Data types: constants, variables, and variable types. Operators: relational and logical operations, expressions, input-output expressions. Commands for controlling program execution: branching commands (if-else, switch), repetition commands (for, while). Functions. Recursive functions. Complex program structures. Arrays. Multi-index arrays (dual-index) - matrices. Concepts of searching through complex data structures. Sorting methods. Text strings. Arguments in the main() function. Concept of Data and Data Structure...					
12.	**Study methods:** Laboratory exercises, consultations, projects, and home study. Final exam.					
13.	**Total available time**	160				
14.	**Allocation of available time**					
15.	**Teaching activities**	15.1.	Lectures - Theoretical Instruction:	20 hours		
		15.2.	**Exercises (Laboratory, Tutorials), Seminars, Teamwork:**	40 hours		
		15.3	Practical Work:	0 hours		
16.	**Other types of activities**	16.1.	Project Assignments:	40 hours		
		16.2.	Independent Assignments:	0 hours		
		16.3.	Homework:	60 hours		

17.	**Grading system**				
	17.1.	Tests (Points):			0
	17.2.	Seminar Work/Project, Written and Oral Presentation (Points):			40
	17.3.	Final Exam (Points):			60
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**	Attended the course			
20.	**Language in which lectures are conducted**	Macedonian and English			
21.	**Method for monitoring the quality of lectures**	Self-evaluation, questionnaires			
22.	**LITERATURE**				
	22.1.	Compulsory literature			
		No.	Author	Title	Publisher	Year
		1.	K. Loudon	Mastering Algorithms with C	O'Reilly	1999
		2.	B. Kernighan, D. Ritchie	C Programming language	Pearson	1998
		3.				
	22.2.	Additional literature			
		No.	Author	Title	Publisher	Year
		1.				
		2.				
		3.				