No. 11

Course syllabus for First cycle studies						
1.	**Course title**	Fundamentals of mechatronics				
2.	**Code**	MDE7E4				
3.	**Study Program**	Metallurgical Digital Engineering				
4.	**Study program organizer (unit, institute, department, division)**					
5.	**Degree (first, second, third cycle)**	First Cycle				
6.	**Academic year / semester**		7.	**Number of ECTS**	7	
8.	**Instructors**	Ass. Prof. dr.sc Marjan Djidrov				
9.	**Prerequisites for course enrollment**	Before enrolling in the course, the student should have knowledge of the following materials: Mathematics 2, Mechanics 2, Electronics and Electrical Engineering				
10.	**Objectives of the course syllabus (competences) and Acquired skills (competences):** Acquiring general knowledge of mechatronics. Basic definitions of mechatronics as an engineering discipline with a focus on interdisciplinarity. Introduction to the key elements in a mechatronic system.					
11.	**Content of the course:** Mechatronics principles and applications, Mechanical components in mechatronic systems, Electrical components and electrical circuits, Semiconductors, Analog electronics, Amplifiers, Filters, Sensors, Electric actuators and motors.					
12.	**Study methods:** Interactive lectures, classroom and/or laboratory exercises, independent and/or team work on project assignments, self-study.					
13.	**Total available time**	150 (30 + 30 + 15 + 15 + 60)				
14.	**Allocation of available time**					
15.	**Teaching activities**	15.1.	Lectures-theoretical teaching	30		
		15.2.	Exercises (laboratory, practice classes), seminars, teamwork	30		
16.	**Other types of activities**	16.1.	Projects, seminar papers	15		
		16.2.	Individual tasks	15		
		16.3.	Homework and self-learning	60		
17.	**Grading system**					
	17.1.	Exams	80			
	17.2.	Seminar work/project (presentation: written and oral)	20			
	17.3.	Final Exam				
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**	10 points earned from tests (17.1) and Seminar work/ Project (17.2)				
20.	**Language in which lectures are conducted**	Macedonian and English				
21.	**Method for monitoring the quality of lectures**	Internal evaluation and surveys				

22.	**LITERATURE**					
	22.1.	Compulsory literature				
		No.	Author	Title	Publisher	Year
		1.	Godfrey Onwubolu	MECHATRONICS Principles and Applications	Ars Lamina	2009
		2.				
		3.				
	22.2.	Additional literature				
		No.	Author	Title	Publisher	Year
		1.	Robert H. Bishop	The mechatronics handbook	2007 by CRC Press LLC	2007
		2.				
		3.				