Add. 3		**Course program for the first, second and third level (cycle) of studies**
1.	Course title	INTRODUCTION TO MECHATRONICS
2.	Code	117
3.	Study group(s)	MHT
4.	The organizer of the study program (unit, institute, department)	Faculty of Mechanical Engineering - Skopje, Ss. Cyril and Methodius University in Skopje
5.	Level (first, second, third)	First
6.	Academic year / semester	Winter term

6.	Academic year / semester	Winter term	7.	ECTS credits	6
8.	Instructor	Prof. Nake Babamov, Ph. D.			
9.	Prerequisites	/			

10.	Course objectives (competences): Introduction to modern engineering. Stimulate interest for interdisciplinary knowledge. Introduction to mechatronics systems design. Active use of information technology.
11.	Course content: What is mechatronics? Overview of classical engineering disciplines. Principles of analogy and integration between mechanical movement and electronic circuits. Introduction to sensors and actuators. Key elements in mechatronic systems. Use of transistors as switches. Analog electronics. Microcontrollers and PLC. Software interface for programming and control.
12.	Study methods: Interactive lectures, auditory practice and/or labaratory practice, self-running and/or team work projects, self-learning.

13.	Total hours	6 ECTS x 30 Hours = 180 Hours	
14.	Hours allocation per activity:	30 + 45 + 0 + 45 + 60 = 180 Hours	
15.	Lectures/Lab	15.1. Lectures	30 Hours
		15.2. Lab (student work)	45 Hours
16.	Project Work/Assignments	16.1. Project assignments	0
		16.2. Individual assignments	45 Hours
		16.3. Self-study	60 Hours

17.	Points/Marks:		
	17.1.	Tests	80 points
	17.2.	Projects	15 points
	17.3.	Attendance	5 points
18.	Grading scale	Under 50	5 (five) (F)
		51 - 60 points	6 (six) (E)
		61 - 70 points	7 (seven) (D)
		71 - 80 points	8 (eight) (C)
		81 - 90 points	9 (nine) (B)
		91 - 100 points	10 (ten) (A)
19.	Prerequisites for taking the final exam	completed activities 15.2 и 16.2	
20.	Language of Instruction	Macedonian	
21.	Course evaluation	Student questionnaire	

22.	Textbooks
	22.1. Instruction materials

		No.	Author	Title	Publisher	Year
		1.	Godfrey C. Onwubolu	Mechatronics: Principles And Applications	Ars Lamina	2009
		2.				
		3.				
	22.2.	Supplemental Instruction Materials				
		No.	Author	Title	Publisher	Year
		1.	C. De Silva	Mechatronics: An Integrated Approach	CRC Press	2004
		2.	Nake Babamov	Experiments and development of mehatronics parts	Script, Faculty of Mechanical Engineering - Skopje	2006
		3.				