Add. 3	**Course program for the first, second and third level (cycle) of studies**

1.	Course title	SENSORS, MEASUREMENT AND SIGNAL PROCESSING				
2.	Code	288				
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	7.	ECTS credits	6	
8.	Instructor	Associate prof. Zlatko Petreski, Ph. D.				
9.	Prerequisites	/				
10.	Course objectives (competences): Acquiring knowledge of the physical principles of sensors and their characteristics. Basic knowledge about signal conditioning and understanding of basic principles of measurement systems. Students should be able to design measurement systems for a simple measurements.					
11.	Course content: Sensors characteristics: static and dynamic. Physical principles of sensing. Signals and systems: fundamentals, classification, properties, systems response, stability. Signals conditioning: amplifiers, exitation circuits, bridge circuits, noise. Measurement systems: fundamentals and function, structure, examples. Static characteristics of measurement systems. Dynamic characteristics of measurement systems: transfer function for typical system elements, accuracy, measurement error, uncertainty analysis. Temperature measurements. Flow measurement. Force and strain measurement. Measurement of velocity and acceleration. Optical and ultrasonic measurements.					
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)	30 Hours		
16.	Project Work/Assignments	16.1.	Project assignments	60 Hours		
		16.2.	Individual assignments	0		
		16.3.	Self-study	60 Hours		
17.	Points/Marks:					
	17.1.	Tests	60 points			
	17.2.	Projects	30 points			
	17.3.	Attendance	10 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 activitie 16.1				
20.	Language of Instruction	Macedonian				

21.	Course evaluation	Student questionnaire

22.	Textbooks					
	22.1.	Instruction materials				
		No.	Author	Title	Publisher	Year
		1.	Bentley J.	Principles of Measurement systems	Pearson	2005
		2.	Zlatko Petreski	Lectures	/	2011
		3.				
	22.2.	Supplemental Instruction Materials				
		No.	Author	Title	Publisher	Year
		1.	Fraden J.	Handbook of Modern Sensors: physics, design and application	Springer	2004
		2.	Alan S. Morris	Measurement & Instrumentation Principles	Butterworth Heinemann	2001
		3.				