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

1.	Course title	MODELING AND SIMULATION OF MECHANICAL SYSTEMS				
2.	Code	214				
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	Prof. Dame Korunoski, Ph. D.				
9.	Prerequisites	Mathematical analysis - signature				
10.	Course objectives (competences): Study of various types of mechanical systems. Analysis of the systems. Physical and software modeling of mechanical systems. Formation of mathematical, dynamic and imitation models for mechanical system. Numerical and software analysis of various types of mechanical systems and their modeling and simulation.					
11.	Course content: Introduction to MATLAB / Simulink and SimMechanics as a basis for modeling of mechanical systems. Modeling and creating models of mechanical systems. Modeling rigid bodies and bearings. Modeling of kinematic pairs. Modeling constraints and drivers. Modeling of actuators and loads. Modeling sensors, visualization and animation of mechanical systems. Analysis of the movement and dynamics of mechanical systems. Kinematics, inverse dynamics and finding forces from given motion. Simulation of static problems and characteristic movements in mechanics. Simulation of mechanisms and oscillatory systems.					
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	80 points
	17.2.	Projects	10 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.	Dame Korunoski Hristian MIckoski	Numerical simulation of mechanical systems, basics of MATLAB / SimMechanics - Lectures	Lectures developed within the TEMPUS project	2010
		2.	Mathworks	MATLAB/Simulink – User manual	Mathworks	2010
		3.				
	22.2.	Supplemental Instruction Materials				
		No.	Author	Title	Publisher	Year
		1.	E. W. Gekeler	Mathematical methods for mechanics, a handbook with MATLAB experiments	Springer	2008
		2.				
		3.				