

Add. 3		Course program for the first, second and third level (cycle) of studies				
1.	Course title	Automatic Control Systems				
2.	Code	290				
3.	Study group(s)	ACS				
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	summer	7.	ECTS credits	6	
8.	Instructor	prof. d-r Atanasko Tuneski				
9.	Prerequisites	Systems and control				
10.	Course objectives (competences): Study of the control systems in the state space, controllability and observability of the continual and discrete systems, multivariable systems, method of Liapunov for stability, optimal systems, Kalman regulator, identification systems.					
11.	<p>Course content:</p> <p>State vector of the systems. Matrix model of the systems. Selection procedure for state variable. Motion of the stationary systems in the state space. Discrete model of a linear system. Controllability and observability. Stability. Algebraic and graph-analytical stability criteria. Analysis of the system stability in the parameter plane. Integral criteria for assessing the quality of the system. Systems analysis and design. Implementation of the frequency method for design. Transmitted compensation. Systems with conditional feedback. Model of the multi variable system. The effect of feedback. Method of Liapunov. Optimization of linear systems. Parametric optimization. Kalman regulator. Settings the poles for multivariable feedback systems. Design of the observer. Identification.</p>					
12.	Study methods: Interactive lectures, laboratory exercises, exercises, independent and/or team work on project tasks, independent learning					
13.	Total hours	6ECTSx30 classes = 180 hours				
14.	Hours allocation per activity:	30 + 30 + 30 + 30 + 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	30 hours		
		16.2.	Individual assignments	30 hours		
		16.3.	Self-study	60 hours		
17.	Points/Marks:					
	17.1.	Tests			70 points	
	17.2.	Projects			20 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	Accomplished 16.1				
20.	Language of Instruction	Macedonian				
21.	Course evaluation	Student questionnaire				
22.	Textbooks					
	22.1.	Instruction materials				
		No.	Author	Title	Publisher	Year
		1.	Milic R.Stojic	Kontinualni sistemi automatskog upravljanja	Naucna knjiga, Beograd	1985
2.		C.B.Kuo	Automatic Control	Prentice-Hall	1997	

				Systems	Inc, Englewood Cliffs, New Jersey	
		3.	Tugomir Surina	Automatska regulacija	Skolska knjiga, Zagreb	1987
	22.2.	Supplemental Instruction Materials				
		No.	Author	Title	Publisher	Year
		1.				
		2.				