

Add. 3		Course program for the first, second and third level (cycle) of studies			
1.	Course title	Design of systems for automation			
2.	Code	270			
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 Laze Trajkovski			
9.	Prerequisites	Control systems in mechatronics - passed			
10.	Course objectives (competences): Description of technological process and display of the state of the control systems. Designing basic functional scheme with electric electro-pneumatic and pneumatic components. Solving some special requirements in control systems. Peripherals and communication: human-machine interface (system). Making Control circuit models on didactic chairs in laboratory of Automation and control systems.				
11.	Course content: <ul style="list-style-type: none"> <li>- Technical implementation of the logical functions.</li> <li>- Specific examples of the application of engineering methods: cascade method, method "step by step".</li> <li>- Additional conditions and the periphery of control systems and human-machine communication.</li> <li>- Examples of application of automation of machines and processes.</li> <li>- Defining the issues covered by the project tasks.</li> <li>- Implementation of the models of the control circuit on didactic chairs in the Laboratory for automation and control systems.</li> <li>- Presentation of the developed project</li> </ul>				
12.	Study methods: Interactive teaching with presentations, laboratory and/or auditory exercises, standalone and/or team project work, visit of firms in the area of automation.				
13.	Total hours	6ECTSx30 classes = 180 hours			
14.	Hours allocation per activity:	30 + 30 + 40 + 30 + 50 = 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	40 hours	
		16.2.	Individual assignments	30 hours	
		16.3.	Self-study	50 hours	
17.	Points/Marks:				
	17.1.	Tests			30 points
	17.2.	Projects			60 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	Classes attendance (min. 25%) and finished seminar assignments			
20.	Language of Instruction	Macedonian			
21.	Course evaluation	Student questionnaire			
22.	Textbooks				
	22.1.	Instruction materials			

No.	Author	Title	Publisher	Year
1.	Laze Trajkovski	Control techniques (internal script)	Faculty of Mechanical Engineering - Skopje	2002
2.	T. Bundalevski, L. Trajkovski	Pneumatic sequential control, method of cascades (internal script)	Faculty of Mechanical Engineering - Skopje	1987
3.	FESTO	Управљање у пнеуматиц (превод)	Novi Sad	1987
Supplemental Instruction Materials				
No.	Author	Title	Publisher	Year
22.2. 1.	S. Zaric	Production Automatization	Faculty of Mechanical Engineering, Belgrade	1981