

Specification for the book of courses

Study program		Electrical Engineering and Computer Science		
Module		Common		
Type and level of studies		Doctoral studies		
The name of the course		Robotics and Automation		
Lecturer (for lectures)		Raković M. Mirko, Nikolić N. Milutin		
Lecturer/associate (for exercises)				
Lecturer/associate (for OFE)				
Number of ECTS	10	Course status (obligatory/elective)	Elective	
Prerequisites				
Course objectives	Understanding the distinction, justification and needs for automated production. Introduction to the basic components of automation. Robot as a universal machine.			
Course outcomes	The building principles of automation system. Automation components and systems and their functional connections. Design and installation of automated manufacturing systems. Programmable Logic Controllers. The application of robots in automation of production.			
Course outline				
Theoretical teaching	Production system. Basic manufacturing strategy. Productivity and flexibility in production. Unregulated environment as a motive for robotics. Robots in manufacturing and non-manufacturing environments. The basic robot construction. Robot sensors. Final robot devices. Motion control and robot programming. Vision systems. Transport systems. Programmable Logic Controllers. Industrial interface. Flexible manufacturing cell design.			
Practical teaching (exercises, OFE, study and research)				
Textbooks/references				
1	Lecture notes and slides (to be posted on the web page of the Faculty)			
2	B. Borovac, G.S. Đorđević, M. Rašić, Marko Raković, Industry robotics (in Serbian), FTN publishing, Novi Sad, 2017.			
3	R.Shell, Handbook of Industrial Automation, CRC press, 2000, ISBN-13: 978-0824703738			
4	Thomas R. Kurfess, Robotics and Automation Handbook, CRC Press, 2004, ISBN: 0849318041			
5	Scientific and technical papers in accordance with student's needs			
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
3	0	0	0	0
Teaching methods	Multimedia and interactive lectures. Demonstrations and auditory exercises.			
Grade (maximum number of points 100)				
Pre-exam duties	Points	Final exam	Points	
Activity during lectures	0	Written exam	0	
Exercises	0	Oral exam	50	
Colloquia	0			
Projects	50			