

Specification for the book of courses

Study program		Electrical Engineering and Computer Science		
Module		Communications and Information Technologies - Communications and Information Processing		
Type and level of studies		Undergraduate Academic Studies		
The name of the course		Computer Systems for Data Acquisition		
Lecturer (for lectures)		Dinčić R. Milan, Denić B. Dragan		
Lecturer/associate (for exercises)		Miljković S. Goran		
Lecturer/associate (for OFE)		Jocić V. Aleksandar		
Number of ECTS	5	Course status (obligatory/elective)	Elective	
Prerequisites				
Course objectives		Introduction of students with measurements and data acquisition techniques, with sensor connections with acquisition cards and computers, as well as with the realization of computer-based acquisition systems.		
Course outcomes		Students will acquire knowledge about the types and operating principles of sensors, methods for data acquisition and signal conditioning, connection of sensors with acquisition cards and computers, writing software for implementation of computer measurement systems.		
Course outline				
Theoretical teaching		General structure of computer-based measurement and acquisition systems. Principles of operation, significance and application of sensors. Data acquisition techniques. Acquisition cards. Connection of the acquisition cards and instruments to the computer. Programming software for data acquisition. Concept of virtual instrumentation. Hardware-software realization of data acquisition systems.		
Practical teaching (exercises, OFE, study and research)		Practice, laboratory exercises, seminar and project tasks for the purpose of practical realization of measurement systems. Writing software for the implementation of computer-based measurement and acquisition systems, programming of hardware platforms for data acquisition.		
Textbooks/references				
1	D. Denić, I. Randjelović, D. Živanović, "Computer-based measurement systems in industry", Faculty of Electronic Engineering Niš and WUS Austria, script, 2005 (in Serbian).			
2	D. Stanković, "Physical-technical measurements, sensors", University of Belgrade, 1997 (in Serbian).			
3	D. Živanović, D. Denić, G. Miljković, , "Computer-based Industrial Measurement Systems - practicum for laboratory exercises", Faculty of Electronic Engineering in Niš, 2011 (in Serbian).			
4	National Instruments, "Data Acquisition and Signal Conditioning Course Manual", 2012.			
5	Robert Bishop, "Learning With LabVIEW", Pearson, 2015.			
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
2	1	1	0	0
Teaching methods		Lectures, practice, laboratory exercises, seminar tasks, projects, consultations.		
Grade (maximum number of points 100)				
Pre-exam duties		Points	Final exam	Points
Activity during lectures		5	Written exam	25
Exercises		20	Oral exam	25
Colloquia		25		
Projects				