

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		Virtual Instrumentation		
Lecturer (for lectures)		Živanović B. Dragan		
Lecturer/associate (for exercises)				
Lecturer/associate (for OFE)				
Number of ECTS	10	Course status (obligatory/elective)	Elective	
Prerequisites				
Course objectives		Studying of performances of information technology components applied in measuring and information systems and introduction with techniques for simulation of measurement methods and processing of measurement results by using of virtual instrumentation.		
Course outcomes		Fully mastery of scientific methods in development and presentation of new solutions and contribution in development of virtual instrumentation software for measuring and information applications.		
Course outline				
Theoretical teaching		Contemporary model of measuring instrument. Standard architectures of computer measuring instrumentation. Software as measuring instrument. Graphical user interfaces. Organization of software tool LabVIEW. Programming structure and functions of virtual instrument. Development of virtual instrument for gathering of measuring and information data and statistical processing of measurement results. Control of programmable instrumentation. Examples for practical applications of virtual instrumentation in measuring systems for real-time work.		
Practical teaching (exercises, OFE, study and research)		Practical development of Virtual instrument		
Textbooks/references				
1		N. Kularatna, " Digital and Analogue Instrumentation testing and measurement", The Institution of Engineering and Technology, London.		
2		J.Y. Beyon, "LabVIEW Programming, Data Acquisition and Analysis", Prentice Hall.		
3		J. Conway, "A Software Engineering Approach to LabVIEW ", Prentice Hall.		
4		S. Tumanski „ Principles of Electrical Measurement“, Taylor&Francis		
5		Burns, M.,Roberts,G.W.,"Mixed-Signal IC Test and Measurement",Oxford Univ. Press,New York		
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		Systematization of relevant publications, analysis of selected chapters, making of seminar paper, participation in realization of project tasks and preparation of papers for publication at conferences and journals.		
Grade (maximum number of points 100)				
Pre-exam duties		Points	Final exam	Points
Activity during lectures			Written exam	
Exercises		50	Oral exam	50
Colloquia				
Projects				