

Specification for the book of courses

Study program		Electrical Engineering and Computer Science		
Module		Control Systems		
Type and level of studies		Undergraduate Academic Studies		
The name of the course		Testing in Production		
Lecturer (for lectures)		Živanović B. Dragan		
Lecturer/associate (for exercises)		Simić M. Milan		
Lecturer/associate (for OFE)		Stojković S. Ivana		
Number of ECTS	5	Course status (obligatory/elective)	Elective	
Prerequisites				
Course objectives	Introducing students with basic problems and methods of testing during the production and development of the device. Considering the characteristics of the devices to be tested, as well as possible malfunctions.			
Course outcomes	Students will facilitate the inclusion in test engineers' tasks, which could independently define the test plan, select the measuring equipment and conduct the necessary testing of the development and production devices.			
Course outline				
Theoretical teaching	The cycle of designing and manufacturing electronic devices. Quality control system. Procedures and standards for testing. Measurement of components and circuit characteristics. Defect models. Measurements in the development phase. Design for easier testing. Testing analog, digital and mixed signal circuits. Testing PCBs. Test adapters. Modern measuring equipment and hardware for testing (Automatic Test Equipment - ATE). Software tools to support the testing process, TestStand. Virtual instrumentation, LabVIEW testing software. Examples of test plans in product development and in production.			
Practical teaching (exercises, OFE, study and research)	Laboratory exercises with models and measuring instruments.			
Textbooks/references				
1	P. O'Connor, " Test Engineering: A Concise Guide to Cost-effective Design Development and Manufacture, John Wiley & Sons.			
2	Burns, M., Roberts, G.W., "Mixed-Signal IC Test and Measurement", Oxford Univ. Press, New York.			
3	H. Kularatna, "Digital and Analogue Instrumentation testing and measurement", The Institution of Engineering and Technology			
4	G.C. Barney, "Intelligent Instrumentation", Prentice Hall, New York,			
5				
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
2	2	1	0	0
Teaching methods	Lectures with application of modern presentation tools. Implementation of project tasks and discussions, consultations.			
Grade (maximum number of points 100)				
Pre-exam duties	Points	Final exam		Points
Activity during lectures	5	Written exam		15
Exercises	20	Oral exam		15
Colloquia	35			
Projects	10			