

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		Control System Design		
Lecturer (for lectures)		Veselić R. Boban		
Lecturer/associate (for exercises)		Mitić M. Vladimir		
Lecturer/associate (for OFE)		Mitić M. Vladimir		
Number of ECTS	6	Course status (obligatory/elective)	Obligatory	
Prerequisites				
Course objectives	The purpose of this course is to give the theoretical and practical knowledge related to the design of control systems and to prepare students for the rapid development of different control algorithms in real-time.			
Course outcomes	Students can applied the acquired theoretical knowledge and practice in formulating and solving of various control design problems. The course offers knowledge to design controllers according to given technical requirements and their testing.			
Course outline				
Theoretical teaching	General principles of control system design. Technical specifications for tracking and regulation control system design. System identification. System frequency response. Design of conventional controllers. Various structures of analog and digital PID controllers, some methods of their tuning and examples. Cascade compensators design. Controller design for time-delayed systems, Smith's predictor. Design of disturbance-invariant control systems. Feedforward compensation. State feedback control design. State variables estimation and state observer design. Digital simulation of the designed control system.			
Practical teaching (exercises, OFE, study and research)	Solving of practice design problems during exercises, homework assignments and design projects will make it easier for students to master method units that are studied through theoretical lectures.			
Textbooks/references				
1	G. Goodwin, G. Stefan, and M. Salgado, Control System Design, Prentice-Hall, 2000.			
2	R.C. Dorf, and R.H. Bishop, Modern Control Systems, Prentice-Hall, 2004.			
3				
4				
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; Exercises; Laboratory work; Consultations.			
Grade (maximum number of points 100)				
Pre-exam duties	Points	Final exam	Points	
Activity during lectures	5	Written exam	20	
Exercises	15	Oral exam	20	
Colloquia	40			
Projects	0			