

Specification for the book of courses

Study program		Electronics and Microsystems		
Module		Electronics and Microsystems		
Type and level of studies		Master studies		
The name of the course		Electronic Control Circuits for Converters		
Lecturer (for lectures)		Mančić D. Dragan		
Lecturer/associate (for exercises)		Jovanović D. Igor		
Lecturer/associate (for OFE)				
Number of ECTS	5	Course status (obligatory/elective)	Elective	
Prerequisites				
Course objectives	Acquiring the fundamental knowledge about the control principles for power converters, methods of their realisation and practical application.			
Course outcomes	Theoretical knowledge on the control of power converters. Mastering the techniques of development, realisation and application of the various control methods for power converters.			
Course outline				
Theoretical teaching	Driver circuits for power electronic components (thyristor, bipolar transistor, MOSFET, IGBT, GTO). Control circuits with phase control. Control circuits for AC voltage controllers. Control circuits for rectifiers. Control circuits for choppers. Control circuits for inverters. Control circuits for cycloconverters. Professional systems in power electronics. Electromagnetic compatibility of power electronic devices.			
Practical teaching (exercises, OFE, study and research)	Drivers. Control of rectifiers. Control of choppers. Control of inverters. Control of a system for speed regulation of an asynchronous motor.			
Textbooks/references				
1	N.Mohan, T.M.Undeland, W.P.Robbins, "Power electronics: Converters, Applications, and Design", John Wiley & Sons., New York, 2007.			
2	R.W.Erickson, D.Maksimovic, "Fundamentals of Power Electronics, Second Edition", Kluwer Academic Publishers, New York, 2004.			
3	M.H.Rashid, "Power Electronics Handbook", Elsevier Science, 2017.			
4	S.Manias, "Power Electronics and Motor Drive Systems", Academic Press, 2016.			
5	L.A.Kumar, A.Kalaiarasi, Y.U.Maheswari, "Power Electronics with MATLAB", Cambridge University Press, Cambridge, 2018.			
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
2	2	0		
Teaching methods	Lectures; Auditorial exercises; Laboratory exercises; Computer exercises; Consultations.			
Grade (maximum number of points 100)				
Pre-exam duties	Points	Final exam	Points	
Activity during lectures	10	Written exam	20	
Exercises	15	Oral exam	20	
Colloquia	20			
Projects	15			