

## Specification for the book of courses

<b>Study program</b>	Electronics and Microsystems			
<b>Module</b>	Electronics and Microsystems			
<b>Type and level of studies</b>	Master studies			
<b>The name of the course</b>	Electronic Control Circuits for Converters			
<b>Lecturer (for lectures)</b>	Mančić D. Dragan			
<b>Lecturer/associate (for exercises)</b>	Jovanović D. Igor			
<b>Lecturer/associate (for OFE)</b>				
<b>Number of ECTS</b>	5	<b>Course status (obligatory/elective)</b>	Elective	
<b>Prerequisites</b>				
<b>Course objectives</b>	Acquiring the fundamental knowledge about the control principles for power converters, methods of their realisation and practical application.			
<b>Course outcomes</b>	Theoretical knowledge on the control of power converters. Mastering the techniques of development, realisation and application of the various control methods for power converters.			
<b>Course outline</b>				
<b>Theoretical teaching</b>	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.			
<b>Practical teaching (exercises, OFE, study and research)</b>	Drivers. Control of rectifiers. Control of choppers. Control of inverters. Control of a system for speed regulation of an asynchronous motor.			
<b>Textbooks/references</b>				
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.			
<b>Number of classes of active education per week during semester/trimester/year</b>				
<b>Lectures</b>	<b>Exercises</b>	<b>OFE</b>	<b>Study and research work</b>	<b>Other classes</b>
2	2	0		
<b>Teaching methods</b>	Lectures; Auditorial exercises; Laboratory exercises; Computer exercises; Consultations.			
<b>Grade (maximum number of points 100)</b>				
<b>Pre-exam duties</b>	<b>Points</b>	<b>Final exam</b>	<b>Points</b>	
<b>Activity during lectures</b>	10	<b>Written exam</b>	20	
<b>Exercises</b>	15	<b>Oral exam</b>	20	
<b>Colloquia</b>	20			
<b>Projects</b>	15			