

## Specification for the book of courses

<b>Study program</b>		Electrical Engineering and Computer Science		
<b>Module</b>		Electronics - Electronic Circuits and Embedded Systems		
<b>Type and level of studies</b>		Undergraduate Academic Studies		
<b>The name of the course</b>		Power Supplies		
<b>Lecturer (for lectures)</b>		Mančić D. Dragan		
<b>Lecturer/associate (for exercises)</b>		Jovanović D. Igor		
<b>Lecturer/associate (for OFE)</b>		Jovanović D. Igor		
<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 power supplies, methods of their realisation and practical application.			
<b>Course outcomes</b>	Theoretical knowledge on power supplies. Mastering the techniques of development, realisation and application of power supplies.			
<b>Course outline</b>				
<b>Theoretical teaching</b>	Types of power supply. Linear power supplies. Direct converters. Converters with insulation. Control methods of switching supplies. Power supply systems. Centralized and decentralized power supplies. Grounding of a system. Voltage balance. Uninterruptible power supplies (UPS). Elements of a system. Batteries and accumulators. Methods of implementation. Methods of regulation and control.			
<b>Practical teaching (exercises, OFE, study and research)</b>	Linear voltage regulator. Switching voltage regulator. The switching flyback converter. Switching half-bridge converter. An uninterruptible power supply system.			
<b>Textbooks/references</b>				
1	A. Pressman, K.Billings, T.Morey, "Switching Power Supply Design", McGraw-Hill, 2009.			
2	R.W.Erickson, D.Maksimovic, "Fundamentals of Power Electronics, Second Edition", Kluwer Academic Publishers, New York, 2004.			
3	S.Maniktala, "Switching Power Supply Design and Optimization", McGraw-Hill, 2014.			
4	S.M.Sandler, "Switched-Mode Power Supply Simulation with SPICE", Faraday Press, 2018.			
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	1	0	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			