

## 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 Electronic Converters		
<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 electronic converters, the methods of their realisation and practical application.			
<b>Course outcomes</b>	Theoretical knowledge on power electronic converters. Mastering the techniques of development, realisation and application of the power electronic converters.			
<b>Course outline</b>				
<b>Theoretical teaching</b>	Types of power electronic converters (AC/DC, DC/DC, DC/AC, AC/AC). DC converters (DC/DC). One-quadrant and multi-quadrant converters. Realisation methods of converters. Thyristor converters. Inverters (DC/AC). Types of inverters. Voltage inverters (single-phase and polyphase). Current inverters. Resonant inverters. AC converters (AC/AC). Cycloconverters. Matrix converters. Application of converters in powering of DC and AC motors. Application of converters in production, transmission and distribution of electricity.			
<b>Practical teaching (exercises, OFE, study and research)</b>	Single-phase thyristor rectifier; Three-phase thyristor rectifier; Chopper; Single-phase inverter; Three-phase bridge inverter.			
<b>Textbooks/references</b>				
1	M.Radmanovic, D.Mancic, "Problems And Solutions In Power Electronics" (in Serbian), Faculty of Electronic Engineering Nis, 1995.			
2	N.Mohan, T.M.Undeland, W.P.Robbins, "Power electronics: Converters, Applications, and Design", John Wiley & Sons., New York, 2007.			
3	M.H.Rashid, "Power electronics, Circuits, Devices and Applications", Pearson Education, Inc., New Jersey, 2013.			
4	M.H.Rashid, "Power Electronics Handbook", Elsevier Science, 2017.			
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			