

## Specification for the book of courses

<b>Study program</b>		Electrical Engineering and Computer Science		
<b>Module</b>		Communications and Information Technologies - Communications and Information Processing		
<b>Type and level of studies</b>		Undergraduate Academic Studies		
<b>The name of the course</b>		Optical networks		
<b>Lecturer (for lectures)</b>		Milović M. Daniela		
<b>Lecturer/associate (for exercises)</b>		Panajotović S. Aleksandra		
<b>Lecturer/associate (for OFE)</b>		Panajotović S. Aleksandra		
<b>Number of ECTS</b>	5	<b>Course status (obligatory/elective)</b>	Elective	
<b>Prerequisites</b>				
<b>Course objectives</b>				
Acquiring knowledge of optical networks from the physical level to the network functions. Students will be able to analyze optical networks from the aspect of optical network components, the evolution of optical network, reliability, control, network management and optimization.				
<b>Course outcomes</b>				
Identifying advantages and limitations of optical transmission, discerning of protection and renewal procedures in the optical network. Distinguishing the possibility of realization of optical network in the core, metro and access network. Introduction to the basic principles of optical networks with wavelength multiplexing and optical components.				
<b>Course outline</b>				
<b>Theoretical teaching</b>				
Introduction to optical networks - topology, protection capacity, routing and wavelength assignment. Optical fiber and transmission effects, optical network components, high-speed optical networks and constraints. Optical network with wavelength multiplexing (WDM). Fiber network node structure. Optical switching and optical ADM. Optical core and access network. Routing and wavelength allocation. Optical networks with channel, packet and beam switching. Optical network management, protection and regeneration. Design and optimization of optical network.				
<b>Practical teaching (exercises, OFE, study and research)</b>				
Auditory exercises, project tasks.				
<b>Textbooks/references</b>				
1	Fiber-Optic Communication System, G. P. Agrawal, Wiley-Interscience, 2010			
2	Planning Fiber Optic Networks, Bob Chomycz, McGraw-Hill, 2009			
3				
4				
5				
<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, auditory exercises homeworks, office hours.				
<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>		5	<b>Written exam</b>	25
<b>Exercises</b>		25	<b>Oral exam</b>	25
<b>Colloquia</b>				
<b>Projects</b>		20		