COURSE DESCRIPTION CARD

<table>
<tr><td colspan="10">Faculty of Electrical Engineering</td></tr>
<tr><td>Field of study</td><td colspan="6">Electrical and Electronic Engineering</td><td colspan="2">Degree level and programme type</td><td>bachelor's degree, full time programme</td></tr>
<tr><td>Specialization/ diploma path</td><td colspan="6">-</td><td colspan="2">Study profile</td><td>-</td></tr>
<tr><td rowspan="2">Course name</td><td colspan="6" rowspan="2">Fiberoptic Networks</td><td colspan="2">Course code</td><td>IS-FEE-10007W</td></tr>
<tr><td colspan="2">Course type</td><td>elective</td></tr>
<tr><td rowspan="2">Forms and number of hours of tuition</td><td>L</td><td>C</td><td>LC</td><td>P</td><td>SW</td><td>FW</td><td>S</td><td>Semester</td><td>winter</td></tr>
<tr><td>30</td><td>15</td><td></td><td></td><td></td><td></td><td></td><td>No. of ECTS credits</td><td>4</td></tr>
<tr><td>Entry requirements</td><td colspan="9">-</td></tr>
<tr><td>Course objectives</td><td colspan="9">The principle objective of the course is to familiarize the students with the basic topics of fiberoptic networks: components, operation, measurements and design. Teaching and training skills of calculations necessary to analyse and design fiberoptic networks.</td></tr>
<tr><td>Course content</td><td colspan="9">General aspects of fiberopic networks. Network topologies. WDM networks. Passive and active components of the network. Noise and SNR. Dispersion. Non-linear effects. Chosen issues of design, contructing, measurements and operation of fiberoptic networks. Basic calculations in fiberoptic networks: energy budget, dispersion, SNR, ORL</td></tr>
<tr><td>Teaching methods</td><td colspan="9">lecture, case studies, discussion.</td></tr>
<tr><td>Assessment method</td><td colspan="9">final test, case studies revision.</td></tr>
<tr><td>Symbol of learning outcome</td><td colspan="7">Learning outcomes</td><td colspan="2">Reference to the learning outcomes for the field of study</td></tr>
<tr><td>LO1</td><td colspan="7">lists basic elements and devices in fiberoptic networks and characterizes them shortly;</td><td colspan="2"></td></tr>
<tr><td>LO2</td><td colspan="7">explains operating principles of main elements and devices in fiberoptic networks;</td><td colspan="2"></td></tr>
<tr><td>LO3</td><td colspan="7">calculates selected parameters characterizing operation of a simple fiberoptic link;</td><td colspan="2"></td></tr>
<tr><td>LO4</td><td colspan="7">can select one functional element in the fiberoptic network from the point of view of one specific feature of the system.</td><td colspan="2"></td></tr>
<tr><td>LO5</td><td colspan="7"></td><td colspan="2"></td></tr>
<tr><td>LO6</td><td colspan="7"></td><td colspan="2"></td></tr>
</table>

Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed	
LO1	final test, case studies evaluation	L	
LO2	final test, case studies evaluation	L	
LO3	final test, case studies evaluation	C	
LO4	case studies evaluation	C	
LO5			
LO6			
Student workload (in hours)		No. of hours	
Calculation	lecture/consultations attendance	30	
	participation in classes	15	
	preparation for classes	15	
	Work on homeworks	20	
	preparation for and participation in exam/tests	30	
	TOTAL:	110	
Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		45	2,5
Student workload – practical activities		30	1,5
Basic references	1. De Cusatis C.: Handbook of fiber optic data communication. Elsevier Academic Press, 2002. 2. Zyskin J.: Optically amplified WDM networks. Elsevier Academic Press, 2011. 3. Chomycz B.: Planning fiber optic networks. McGraw-Hill, 2009.		
Supplementary references			
Organisational unit conducting the course	Department of Photonics, Electronics and Light Technique	Date of issuing the programme	
Author of the programme	Urszula Błaszczak, Ph.D. Eng.	02.02.2020	

L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work, S – seminar