Załącznik nr 2 do Zarządzenia Nr 915 z 2019 r. Rektora PB

COURSE DESCRIPTION CARD

<table>
<tr><td colspan="10">Faculty of Electrical Engineering</td></tr>
<tr><td>Field of study</td><td colspan="6">Electronics Engineering</td><td colspan="2">Degree level and programme type</td><td>Master's degree</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">Special Optical Fibers 2</td><td colspan="2">Course code</td><td>IS-FEE 20003W</td></tr>
<tr><td colspan="2">Course type</td><td></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></td><td></td><td>15</td><td></td><td>15</td><td></td><td></td><td>No. of ECTS credits</td><td>2</td></tr>
<tr><td>Entry requirements</td><td colspan="9">Basics of Photonics</td></tr>
<tr><td>Course objectives</td><td colspan="9">Practical familiarize students with contemporary types of special optical fibers for telecommunication and non telecommunication applications. Measurement parameters for the construction of active fiber amplifiers, fiber lasers and broadband sources. Measurements of optical parameters and physical fiber: birefringent, photonics, nonlinear, capillary. Synthesis of active materials used in the manufacture of vitreous fiber. Embodiments of the optical fiber doped with few lanthanides.</td></tr>
<tr><td>Course content</td><td colspan="9">The characteristics of special optical fibers in telecommunication and not to telecommunications applications. Methods of measurement parameters for the construction of active amplifiers fiber, lasers fiber and broadband sources. Characteristics of birefringent optical, photonic, nonlinear, capillary fibers. The types and conditions for synthesis of materials used to make optical fibers. Construction of the advanced systems of optical fibers doped with few lanthanides.</td></tr>
<tr><td>Teaching methods</td><td colspan="9">laboratory classes, practical experiments</td></tr>
<tr><td>Assessment method</td><td colspan="9">tests; laboratory classes – evaluation of reports, verification of preparation for classes and discussion</td></tr>
<tr><td>Symbol of learning outcome</td><td colspan="8">Learning outcomes</td><td>Reference to the learning outcomes for the field of study</td></tr>
<tr><td>LO1</td><td colspan="8">has detailed knowledge of the construction of special optical fibers</td><td></td></tr>
<tr><td>LO2</td><td colspan="8">characterizes contemporary types of optical fibers used in photonics</td><td></td></tr>
<tr><td>LO3</td><td colspan="8">can choose the optical material in a specific spectral range</td><td></td></tr>
<tr><td>LO4</td><td colspan="8">analyze knowledge to the application of special fiber optoelectronic systems.</td><td></td></tr>
<tr><td>LO5</td><td colspan="8"></td><td></td></tr>
<tr><td>Symbol of learning outcome</td><td colspan="8">Methods of assessing the learning outcomes</td><td>Type of tuition during which the outcome is assessed</td></tr>
<tr><td>LO1</td><td colspan="8">report on laboratory exercises., discussion during laboratory classes</td><td></td></tr>
<tr><td>LO2</td><td colspan="8">report on laboratory exercises., discussion during laboratory classesn</td><td></td></tr>
<tr><td>LO3</td><td colspan="8">report on laboratory exercises., discussion during laboratory classes</td><td></td></tr>
<tr><td>LO4</td><td colspan="8">report on laboratory exercises., discussion during laboratory classes</td><td></td></tr>
<tr><td>LO5</td><td colspan="8"></td><td></td></tr>
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Student workload (in hours)		No. of hours
Calculation	lecture attendance	
	participation in laboratory classes, etc.	15
	preparation for laboratory classes,	15
	working on projects, reports, etc.	10
	participation in student-teacher sessions related to the classes	5
	implementation of project tasks	
	preparation for and participation in /tests	5
	TOTAL:	50

Quantitative indicators	HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation	30	1
Student workload – practical activities	50	2

Basic references	1. Digonnet M., Rare Earth Doped Fiber Lasers and Amplifiers, Marcel Decker, Inc. New York, Bassel, 2001. 2. Alexis Mendez, T. F. Morse, Specialty Optical Fibers Handbook, Elsevier 2011 3. Agrawal, Govind, Nonlinear Fiber Optics, Elsevier 2013	
Supplementary references	1. Klein L.C. Sol-gel processing and applications, Kluwer, London 1994	
Organisational unit conducting the course	Department of Photonics, Electronics and Lighting Technology	Date of issuing the programme
Author of the programme	Marcin Kochanowicz, PhD, DSc	2020-01-26

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