

COURSE DESCRIPTION CARD

Faculty of Electrical Engineering									
Field of study	Electronics Engineering							Degree level and programme type	Master's degree
Specialization/ diploma path	-							Study profile	-
Course name	Special Optical Fibers 2							Course code	IS-FEE 20003W
								Course type	
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	winter
			15		15			No. of ECTS credits	2
Entry requirements	Basics of Photonics								
Course objectives	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.								
Course content	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.								
Teaching methods	laboratory classes, practical experiments								
Assessment method	tests; laboratory classes – evaluation of reports, verification of preparation for classes and discussion								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	
LO1	has detailed knowledge of the construction of special optical fibers								
LO2	characterizes contemporary types of optical fibers used in photonics								
LO3	can choose the optical material in a specific spectral range								
LO4	analyze knowledge to the application of special fiber optoelectronic systems.								
LO5									
Symbol of learning outcome	Methods of assessing the learning outcomes							Type of tuition during which the outcome is assessed	
LO1	report on laboratory exercises., discussion during laboratory classes								
LO2	report on laboratory exercises., discussion during laboratory classesn								
LO3	report on laboratory exercises., discussion during laboratory classes								
LO4	report on laboratory exercises., discussion during laboratory classes								
LO5									

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:	
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