

COURSE DESCRIPTION CARD

Faculty of Electrical Engineering										
Field of study	Electrical and Electronic Engineering							Degree level and programme type	bachelor's degree, full time programme	
Specialization/ diploma path	-							Study profile	-	
Course name	Optical Fibers							Course code	IS-FEE-10012W	
								Course type	elective	
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	winter	
	30		30					No. of ECTS credits	5	
Entry requirements	-									
Course objectives	Introduction to telecommunication systems. Learning the principles and methods for measuring properties of optical fiber components and systems. Learning determination the parameters of the optical fiber telecommunication link. Education application rules and service of specialized measurement equipment.									
Course content	Telecommunications systems. Measurements of physical parameters of optical fibers. Measurements of optical fiber components. Measurements of attenuation of optical fibers. Reflectometric measurements of optical fiber telecommunication link. Power distribution in optical fibers (transverse modes). Spectral attenuation. Optical fibers connectors.									
Teaching methods	Lecture, presentation, discussion, laboratory experiments.									
Assessment method	evaluation of reports, tests of preparation for laboratory exercise.									
Symbol of learning outcome	Learning outcomes (Student ...)							Reference to the learning outcomes for the field of study		
LO1	measures the physical parameters of optical fibers									
LO2	measures the spectral characteristics of optical fiber									
LO3	uses and configures specialized measurement equipment (optical fiber technology)									
LO4	analyzes the parameters of optical fiber systems									
LO5	classifies and summarizes the elements of the optical fiber, specifying their functionality in telecommunication systems;									
LO6	measures the parameters of optical fiber									
LO7	applies the principles of health and safety required for working with radiation in the range of NIR;									
LO8	understands the need and knows the possibilities of continuous training in the field of photonics									

Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed	
LO1	evaluation of the report on exercise, a discussion during the laboratory classes	LC	
LO2	evaluation of the report on exercise, a discussion during the laboratory classes	LC	
LO3	evaluation of the report on exercise, a discussion during the laboratory classes	LC	
LO4	evaluation of the report on exercise, a discussion during the laboratory classes, exam	L, LC	
LO5	evaluation of the report on exercise, a discussion during the laboratory classes, exam	L, LC	
LO6	evaluation of the report on exercise, a discussion during the laboratory classes	LC	
LO7	evaluation of the report on exercise, a discussion during the laboratory classes	LC	
LO8	evaluation of the report on exercise, a discussion during the laboratory classes, exam	L, LC	
Student workload (in hours)		No. of hours	
Calculation	participation in the laboratory sessions	30	
	participation in the laboratory sessions	30	
	development of laboratory reports and/or completion of homework assignments	45	
	participation in consultations related to the exercise	5	
	attending lecture, student - teacher sessions	30	
	TOTAL:	140	
Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		65	2
Student workload – practical activities		75	3
Basic references	1. Ghatak A. K., Thyagarajan K.: Introduction to fiber optics. Cambridge University Press, 2000. 2. Hecht J.: Understanding fiber optics. Pearson Prentice Hall, 2002. 3. Dignonnet M.: Rare earth doped fiber lasers and amplifiers. Marcel Decker, 2001.		
Supplementary references			
Organisational unit conducting the course	Department of Photonics, Electronics and Light Technique	Date of issuing the programme	
Author of the programme	Jacek Żmojda, PhD. DSc.	30.01.2020	

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

S – seminar