

FACULTY OF ELECTRICAL
ENGINEERING**SUBJECT CARD**

Name in Polish: **Technika światłowodowa**
 Name in English: **Fiber optics**
 Main field of study (if applicable): **Electrical Engineering**
 Specialization (if applicable): **Electrical Power Engineering**
 Level and form of studies: **2nd level, part-time**
 Kind of subject: **obligatory**
 Subject code: **ELR052274**
 Group of courses: **NO**

	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU):	11		11		
Number of hours of total student workload (CNPS):	30		30		
Form of crediting:	crediting with grade		crediting with grade		
For group of courses mark (X) final course:					
Number of ECTS points:	1		1		
including number of ECTS points for practical (P) classes :			1		
including number of ECTS points for direct teacher-student contact (BK) classes:	0.70		0.70		

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Has basic knowledge of optics needed to understand optoelectronic phenomenon and fiber guide communication
2. Is able to correctly select, connect and coordinate work of optoelectronic elements in metering and communication networks
3. Is able to properly conduct research of basic passive and active optoelectronic parameters

SUBJECT OBJECTIVES

- C1. Acquaintance with rules for exploitation of light guiding elements and their exploitation standards
 C2. Acquaintance with functions and methods of realization optoelectronic units for light guiding purposes
 C3. Explanation notions related to optical wave guides, reasons of disturbances appearance and methods of prevention
 C4. To gain practical skills needed for connecting optoelectronic elements, conducting investigations and researching circuits

SUBJECT LEARNING OUTCOMES*relating to knowledge:*

- PEU_W01 Knows structure and specifics of optical path work
 PEU_W02 Has knowledge about optical phenomenon and optical elements dedicated for optical transmission

relating to skills:

- PEU_U01 Is able to precise purpose and scope of research, project measurement circuit and select measurement equipment
 PEU_U02 Is able to elaborate results and determine conclusions if about fiber guide condition

relating to social competences:

- PEU_K01 Is conscious about responsibility for his own work and is willing to acknowledge teamwork rules

PROGRAMME CONTENT		
Form of classes - lecture		Number of hours:
Lec 1	Overview of lecture program, requirements, assessment methods	1
Lec 2	Fundamentals of wave theory of light propagation	2
Lec 3	Properties and classification of optical path and its exploitation parameters	2
Lec 4	Emission, transmission and detection units dedicated for optical transmission	2
Lec 5	Digital and analogue modulation of optical signals	2
Lec 6	Summarizing and assessment	2
Total hours:		11

Form of classes - laboratory		Number of hours:
Lab 1	Presentation of safety regulations and internal regulations of laboratory. Assessment rules. Overview of laboratory stations	1
Lab 2	Examination of multi-connected fiber guide attenuation	2
Lab 3	Examination fiber guides attenuation	2
Lab 4	Polarization characteristic measurement	2
Lab 5	Spectral characteristic measurement for photoemission elements	2
Lab 6	Assessment and completion of laboratory arrears	2
Total hours:		11

TEACHING TOOLS USED	
N1. Lecture with use of multimedia techniques	
N2. Laboratory with measurements traditionally arranged	
N3. Preparation of tests and measurements report	

EVALUATION OF SUBJECT LEARNING OUTCOMES ACHIEVEMENT		
Evaluation <i>F – forming (during semester) P – concluding (at semester end)</i>	Educational effect number	Way of evaluating educational effect achievement
F1(W)	PEU_W01 PEU_W02	Test or checking messages in the form of oral
P(W)	P=F1	
F1(L)	PEU_U01	Report and preparation for laboratory assessment
F2(L)	PEU_U02	Assessment of laboratory reports
P(L)	P=0,3F1+0,7F2	

PRIMARY AND SECONDARY LITERATURE	
PRIMARY LITERATURE:	
Palais J. C.; Zarys telekomunikacji światłowodowej, WKŁ, Warszawa 1991.	
Midwinter J. E., Guo Y. L.; Optoelektronika i technika światłowodowa, WKŁ, Warszawa 1995	
SECONDARY LITERATURE:	
Smoliński A.; Optoelektronika światłowodowa, WKŁ, Warszawa, 1985	

SUBJECT SUPERVISOR	
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