

## DESCRIPTION OF THE COURSES

- Course code: **ELR2263**
- Course title: **FIBER OPTICS**
- Language of the lecturer: **polish, english**

<i>Course form</i>	<i>Lecture</i>	<i>Classes</i>	<i>Laboratory</i>	<i>Project</i>	<i>Seminar</i>
<i>Number of hours/week*</i>	<b>1</b>		<b>1</b>		
<i>Number of hours/semester*</i>	<b>10</b>		<b>10</b>		
<i>Form of the course completion</i>	<b>Quiz</b>		<b>Completion</b>		
<i>ECTS credits</i>	<b>1</b>		<b>1</b>		
<i>Total Student's Workload</i>	<b>30</b>		<b>30</b>		

- Level of the course (basic/advanced): **basic**
- Prerequisites: **Courses in Applied Physics, Electronics, Electromagnetic Theory**
- Name, first name and degree of the lecturer/supervisor: **Prof. Bogdan Miedziński, Ph.D., D.Sc.**
- Names, first names and degrees of the team's members:  
**Grzegorz Wiśniewski, Ph.D.**
- Year:.....**IV**..... Semester:.....**8**.....
- Type of the course (obligatory/optional): **obligatory**
- Aims of the course (effects of the course): **Aquittance of student with principle of operation, parameters and problems related to application of fibre optics in real use.**
- Form of the teaching (traditional/e-learning): **traditional**
- Course description: **Wave propagation in cylindrical and planar lightguides. Optical fiber manufacturing and fibre parameters. Applied semiconductors light sources and detectors. Selection of fibres and wavelength for communication systems.**
- Lecture:

<i>Particular lectures contents</i>	<i>Number of hours</i>
<b>1. Structure and principle of operation of a lightguide</b>	<b>1</b>
<b>2. Basic elements of a light transmission path</b>	<b>2</b>
<b>3. Losses and dispersion in fibre, fibre cables</b>	<b>2</b>
<b>4. Light sources and detectors</b>	<b>2</b>
<b>5. Transmission networks, expanding system capacity by multiplexing</b>	<b>2</b>
<b>6. Quiz</b>	<b>1</b>

- Classes – the contents:
- Seminars – the contents:
- Laboratory – the contents
  - 1. Introduction, principle of the lab acceptance**
  - 2. Testing of light sources and detectors**

**3. Investigation of a transmission quality on fibre parameters**

**4. Testing of passiv elements of a transmission path**

**5. Analog and digital modulation systems**

**6. Testing of parameters of connectors and splices**

- Project – the contents:

- Basic literature:

**1. Chai Yeh: Handbook of Fiber Optics – Theory and Applications, Academic Press. Inc, London 1990**

**2. J.L. Hornet: Optical Signal Processing. Academic Press Innc. London 1987**

- Additional literature:

**1. R.M. Gagliardi, S. Karp: Optical Communications Wiley – Interscience Pub.**

**2. CIGRE Working Group 35.04: Optical Fibre Cable Selection for Electricity Utilities, Febr. 2001**

**A. Smoliński: Optoelektronika światłowodowa, WKiŁ Warszawa. 1987**

**3. J.C. Palais: Zarys telekomunikacji światłowodowej, WKiŁ Warszawa. 1991**

- Conditions of the course acceptance/creditation: **Passing grade of quiz**

\* - depending on a system of studies