

## DESCRIPTION OF THE COURSES

- Course code: **ARR2205**
- Course title: **Fiber optics**
- Language of the lecturer: **polish**

<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>2</b>				
<i>Number of hours/semester*</i>	<b>30</b>				
<i>Form of the course completion</i>	<b>Quiz</b>				
<i>ECTS credits</i>	<b>2</b>				
<i>Total Student's Workload</i>	<b>60</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:.....**I/ II stage**..... Semester:.....**1**.....
- Type of the course (obligatory/optional): **obligatory**
- Aims of the course (effects of the course): **Course intended to acquaint students with modern concept of optical signal processing and transmission**
- Form of the teaching (traditional/e-learning): **traditional**
- Course description: **Wave propagation in cylindrical lightguides. Optical fiber and fiber parameters. Semiconductor light sources and detectors. Choices of optical fibres and operating wavelength for communication systems. Expanding system capacity by multiplexing.**
- Lecture:

<i>Particular lectures contents</i>	<i>Number of hours</i>
<b>1. General introduction and requirements</b>	<b>2</b>
<b>2. Principle of wave propagation in cylindrical and planar lightguides</b>	<b>2</b>
<b>3. Dispersions and loss mechanism</b>	<b>3</b>
<b>4. General consideration of semiconductor light sources</b>	<b>3</b>
<b>5. General consideration of a good detector</b>	<b>3</b>
<b>6. Classification of optical fibres and fiber parameters</b>	<b>2</b>
<b>7. Single and multimode lightguides; properties and fabrication</b>	<b>3</b>
<b>8. Optical fiber transmitter and receiver – modulation format</b>	<b>3</b>
<b>9. Auxiliary components for optical fiber systems</b>	<b>2</b>
<b>10. Expanding communication system capacity by multiplexing</b>	<b>2</b>
<b>11. Fiber optics in electrical power engineering</b>	<b>3</b>
<b>12. Quiz</b>	<b>2</b>

- Classes – the contents:
- Seminars – the contents:
- Laboratory – the contents:
- 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