DESCRIPTION OF THE COURSES

- Course code: **ELR2267**
- Course title: **Optoelectronics**
- Language of the lecturer: **polish**, english

Course form	***Lecture***	***Classes***	***Laboratory***	***Project***	***Seminar***
*Number of hours/week**	**1**				**1**
*Number of hours/semester**	**11**				**11**
Form of the course completion	**Quiz**				**Completion**
ECTS credits	**1**				**1**
Total Student's Workload	**30**				**30**

- Level of the course (basic/advanced): advanced
- 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:..... .?..... Semester:..... .?.....
- Type of the course (obligatory/optional): **obligatory**
- Aims of the course (effects of the course): **Aquitance of student with properties of fibre optics transmission in advanced automation systems**
- Form of the teaching (traditional/e-learning): **traditional**
- Course description:
  Principles of processing and transmission of signals by means of fibre optics. Wave propagation theory and geometric optics. Problems of effective light transmission in communication systems.
- Lecture:

Particular lectures contents	*Number of hours*
1. Introduction, program, requirement of acceptance	**1**
2. Basic elements of a transmission path	**1**
3. Electromagnetic modes	**1**
4. Attenuation and dispersion	**1**
5. Fibre processing, fibre cables	**1**
6. Light sources (LED,LD)	**1**
7. Detectors	**1**
8. Transmission systems, expanding system capacity	**1**
9. Analog and digital modulation format	**1**
10. Quiz	**2**

- Classes – the contents:
- Seminars – the contents:
  - advanced fiber structures and their properties,

- advanced light sources and detectors,
- physical phenomena applied to basic and remote optical sensors,
- application of fiber optics in systems of automation and automated electric power systems.

- Laboratory – the contents:
- Project – the contents:
- Basic literature:

  1. A. Smolinski, Optoelektronika światłowodowa, WKiL, Warszawa, 1987
  2. J. C. Palais, Zarys telekomunikacji światłowodowej, WKiL Warszawa, 1991
- Additional literature:

  1. Chai Yeh, Handbook of Fiber Optics-Theory and Applications, Academic Press, London, 1990

  2. J. L. Hornet, Op[tical Signal Processing, Academic Press Inc. London 1987
- Conditions of the course acceptance/credition: **Passing grade of quiz and completion of seminars**

***** - depending on a system of studies