

Title Optoelectronics (Optoelektronika)	Code 1010402211010430665
Field TECHNICAL PHYSICS	Year / Semester 1 / 1
Specialty -	Course core
Hours Lectures: 2 Classes: - Laboratory: - Projects / seminars: -	Number of credits 2
	Language polish

Lecturer:

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Status of the course in the study program:

Core course of the study for Technical Physics, Faculty of Technical Physics.

Assumptions and objectives of the course:

Students will get familiar with propagation of the electromagnetic waves in isotropic and anisotropic dielectrics, metals and interfacial effects. Polarization of light and polarizers; principles of different type of photodetectors, CCD; type of displays: LED, PLED, OLED, LCD and image amplifiers

Contents of the course (course description):

Characterization of the optical properties of materials and structures; electromagnetic waves in dielectrics; propagation of light waves at dielectric/dielectric and dielectric/metal interface, absorption, transmission and reflection of the light at the interface; Snell law, Brewster law, propagation of the electromagnetic wave in isotropic and anisotropic dielectrics; light polarization and polarizers; different type of light detectors; semiconductor diodes as a photodetector; CCD; electroluminescence diodes LED, OLED i PLED, displays ? LCD, TN LCD, TFT LCD; plasma display , e-paper

Introductory courses and the required pre-knowledge:

Knowledge of experimental physics from basic university course of physics, introduction to the quantum mechanics and wave optics

Courses form and teaching methods:

Lectures with use of multimedia and supported by experimental demonstrations

Form and terms of complete the course - requirements and assessment methods:

Written and oral examination

Basic Bibliography:

1. D. Holiday, R. Resnick, J. Walker , ?Fundamentals of Physics?, vol. 1-5, Wiley&Sons Inc., NYC 2001.
2. H. D. Young, R. A. Freedman, A. L. Ford, ?University Physics?, chap. 17-20, Person International Edition, San Francisco 2008.
3. Ch. Kittel, ?Introduction to solid state physics?, Willey, NYC, 2005.
4. D. J. Griffiths, ? Introduction to Electrodynamics?, Prentice-Hall, New Jersey, 1999.

Additional Bibliography:

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