Title	Code
Experimental Physics (Fizyka doświadczalna)	**1010401111010430602**
Field: **EDUCATION IN TECHNOLOGY AND INFORMATICS**	Year / Semester: **1 / 1**
Specialty: **-**	Course: **core**
Hours: Lectures: **3** Classes: **3** Laboratory: **-** Projects / seminars: **-**	Number of credits: **7**
	Language: **polish**

Lecturer:

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Status of the course in the study program:

Core course of the study for Education in Technology and Informatics, Faculty of Technical Physics.

Assumptions and objectives of the course:

- Students should obtain knowledge of fundamental physical phenomena and their theoretical description on the academic level. Development of habit of physical thinking on basis of mechanics, heat and molecular physics, electricity and magnetism's phenomena in the fields of: special theory of relativity, dual nature of light and matter and atomic structure.

Contents of the course (course description):

- - The Dynamics of mass point - the running and energy, conservative strengths and unconservative, right the behaviour of energy.

- The Dynamics of stiff mass - the barycentre, speed of arrangement of mass points, right the behaviour of shoot.

- The Dynamics the rotary motion - moment of inertia, moment of shoot of substance, right the behaviour of moment of shoot.

- The mechanical Trembling - the harmonic oscillator, simple pendulum and physical, the composing the harmonic oscillation of, damped oscillation, the forced vibration and resonance mechanical.

- Wave Movement - dispersal fal in space, interference fal, waves standing.

- The Units of special theory of relativity - Galileusza's transformation, transformation Lorentza, the relativity of simultaneity, it the aspect ratio the time, it shortening the length, speed relativistic, relativistic it composing the velocity, equivalence of pulp and energy.

- The Kinetyczno - the molecular theory of gases - the patternel of gas in kinetic theory, the interpretation of temperature, principle ekwipartycji of energy, average the free tract and expansion of velocity of molecules, equation of real gas.

Chosen - the questions of electric field - the electric field, electric dipole, right Gaussa, the electric potential, electrical potential energy. The dielectric proprieties of substances - the electric capacity, dielektryki and right Gaussa.

Chosen - the questions of magnetic field - the magnetical dipole in magnetic field, the right Ampere'a and the right Biota - Savarta. Equation Maxwella as generalization say experimental, generating fal electromagnetic.

- The Units of classic optics - the interference and diffraction of blank space, diffractive mesh, bias of blank space the, double refraction, the phenomenon Kerra and Cottona - Moutona.
- The Quantum nature of radiance - the blackbody, photoelectric effect, effect Comptona, the atom of hydrogen - the patternel Bohra, the principle of correspondence.
- The wave Properties of particles - the waves of matter de Broglie, the principle of indeterminacy Heisenberga, the equation Schrödingera, the atom wodoropodobny, principle Pauliego.
- The Units of statistical phisics, statistician classic the and quantum statistics, the expansion Fermiego - Diraca for elektrons free

Introductory courses and the required pre-knowledge:

- The basis of experimental physics and basis of mathematics in range of college

Courses form and teaching methods:

- The guided in system of computer demonstration lecture, illustrated with the examples - experiences, films, as well as simulations computer diapositives.
- The practice exercise - the practical skills of resolution of physical questions.

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

- The lecture - the written examination from utilization of infliction of questions in computer system (the classic question as well as animation computer - displayed on-screen), the oral examination - the possibility of improvement on principle of oral answer the opinion on set new questions
- The practice exercise - the written leaning on principle credit of resolution of and problems theoretical arithmetic tasks.

Basic Bibliography:

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Additional Bibliography:

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