

<b>Course title</b> Fizyka I / Physics I		<b>ECTS code</b> 7.2.0537	
<b>Name of unit administrating study</b> Faculty of Chemistry			
<b>Studies</b>			
<b>Field of study</b>	<b>Type</b>	<b>Form</b>	
Environmental Protection	Bachelor	Full-time studies	
<b>Teaching staff</b> Dr hab. Aleksander Kubicki, prof. nadzw. (Aleksander Kubicki, PhD, Associate Professor)			
<b>Forms of classes, the realization and number of hours</b>		<b>ECTS credits</b> 7	
<b>A. Forms of classes, in accordance with the UG Rector’s regulations</b> Lecture, auditorium classes		classes - 45 h tutorial classes – 30 h student’s own work – 100 h	
<b>B. The realization of activities</b> in-class learning		Total: 175 h - 2 ECTS	
<b>C. Number of hours</b> 30 h lecture, 15 h auditorium classes			
<b>The academic cycle</b> First year, winter semester			
<b>Type of course</b> obligatory		<b>Language of instruction</b> Polish	
<b>Teaching methods</b>  Lecture with multimedia presentation Student’s own work (i.e. written exam preparation)  <ul style="list-style-type: none"><li>• Discussion</li><li>• Case studies</li></ul>		<b>Form and method of assessment and basic criteria for evaluation or examination requirements</b>	
		<b>A. Final evaluation, in accordance with the UG study regulations</b> course completion (with a grade)	
		<b>B. Assessment methods</b> written exam: test with additional open questions	
		<b>C. The basic criteria for evaluation</b> or exam requirements  Activity during classes and mastering the content covered by the lecture subject program provided.	
<b>Required courses and introductory requirements</b> Required basic knowledge of physics and mathematics in the field of secondary school			
<b>Aims of education</b> Understanding the basics of physics on a wider level than in high school using maths higher than at school. The known laws of physics are then to be the foundation for further subjects in the field of study. The student is to acquire the ability to analyze and explain observed phenomena and processes in chemistry from the physics point of view.			
<b>Course contents</b> Tools of physics and its relationship with other sciences. Interactions in nature. Basics of kinematics: description of the motion of a point mass, types of motion, reference systems, relativity of motion. Basics of dynamics: definition of force, principles of Newton's dynamics. The law of universal gravitation. Work, energy, power. Principles of behavior in mechanics. Basics of rigid-body mechanics. Oscillatory and wave motion: harmonic oscillator, mechanical waves and wave phenomena.  1. Basic information from mechanics (kinematics and dynamics)  2. Electromagnetic waves and their application  3. Molecular structure of bodies			

4. Hydrodynamics and hydrostatics

5. Thermodynamics

6. Acoustics and optics

7. Basis of modern physics

#### **Bibliography of literature**

##### **A. Literature required to pass the course**

D. Halliday, R. Resnick, J. Walker, „Postawy fizyki” (t. 1-5), Wydawn. Naukowe PWN, Warszawa, 2003 (dodruki 2005-2017).

J. Orear, „Fizyka” (t. 1 i 2), Wyd. Naukowo-Techniczne, Warszawa, 2004 (i późniejsze dodruki).

B. Jaworski, A. Dietłaf, (t.3 L. Miłkowska) – „Kurs fizyki” (t. 1-3), PWN 1984.

##### **B. Extracurricular readings**