

<b>Course title</b> Fizyka I / Physics I		<b>ECTS code</b> 13.3.0714	
<b>Name of unit administrating study</b> Faculty of Chemistry			
<b>Studies</b>			
<b>Field of study</b>	<b>Type</b>	<b>Form</b>	
Chemical Business	Bachelor / Engineer	Full-time studies	
<b>Teaching staff</b> Prof. dr hab. Marek Grinberg			
<b>Forms of classes, the realization and number of hours</b>		<b>ECTS credits</b> 5	
<b>A. Forms of classes, in accordance with the UG Rector's regulations</b> lecture, auditorium classes		classes - 60 h tutorial classes – 10 h student's own work – 55 h	
<b>B. The realization of activities</b> in-class learning		Total: 125 h - 5 ECTS	
<b>C. Number of hours</b> 60 h (30 h lecture, 30 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 Solving tasks Discussion Lecture with multimedia presentation		<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> lecture – exam auditorium classes – course completion (with a grade)	
		<b>B. Assessment methods</b> Written exam with open questions (tasks) Oral exam Oral test Test Establishing a final grade based on partial grades received during the semester	
		<b>D. The basic criteria for evaluation or exam requirements</b> Passing two tests.	
<b>Required courses and introductory requirements</b> Lack			
<b>Aims of education</b> Mastering the basic laws, theories and mathematical methods in the field of physics			
<b>Course contents</b> 1 The basics of classical mechanics - kinematics and dynamics, Newton's laws, the concept of kinetic and potential energy, the concept of momentum, angular momentum. Conservation laws  2. Elements of hydrodynamics  3. Vibrations and mechanical waves in elastic media - Harmonic motion, wave motion, wave vector, phase velocity and group wave speed, polarization and interference  4. Electricity and magnetism, electromagnetic waves			

- 5. Elements of geometrical and wave optics
- 6. Electrotechnical elements (Ohm's law, Kirchhoff's law, current and voltage measurements)

### **Bibliography of literature**

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

- A. Bałanda, Fizyka dla chemików, skrypt UJ, Kraków 1994.
- D. Halliday, R. Resnick, J. Walker, Podstawy fizyki, PWN, Warszawa, 2005
- J. O'Rear, Fizyka t.1. i 2

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

### **Knowledge**

- the student known and understand basic laws and theories in the field of physics;
- has the knowledge necessary to understand and describe the physical processes important for the understanding of chemistry;
  - knows the basic calculation methods necessary to solve physics problems

### **Skills**

- the student can solve basic tasks (transform and output patterns)
- the student is able to learn independently

### **Social competence**

- the student identifies the level of his/her knowledge and skills, the need for continuous training and personal development, understand the practical applications of physics