

## SYLLABUS

**Name:** General Physics  
**Name in Polish:** Fizyka ogólna  
**Name in English:** General Physics

### Information on course:

**Course offered by department:** Faculty of Organisation and Management  
**Course for department:** Silesian University of Technology  
**Study level and form:** Bachelor's degree, Full-time  
**Term:** winter semester 2021/2022  
**Coordinator of course edition:** Dr Marcin Wojtyniak

### Default type of course examination report:

ZAL

### Language:

English

### Course homepage:

<https://platforma.polsl.pl/roz/>

### ECTS

4

### Short description:

The course aims to familiarize students with physical phenomena and the fundamental laws of classical and modern physics. The student should learn the principles of correct analysis of specific problems, develop the skills of a correct description of physical phenomena occurring in simple systems, and use the principles and methods of physics to solve physical problems and typical engineering tasks.

### Description:

#### Lectures:

A classical lecture in the form of a multimedia presentation governing several topics. The role of numbers in physics, small and large numbers. Basic physical constants. Fundamental interactions. Dimensional analysis. Vector algebra. Motion along a straight line, circular motion. Inertia Forces. Newton's laws of motion. Work. Principles and laws of conservation in mechanics. Rotational motion of a rigid body. Simple and damped harmonic oscillator. Forced vibrations and the phenomenon of resonance. Wave movement. Diffraction and wave interference. Basics of thermodynamics, heat transfer mechanisms, thermodynamic laws, heat engine. Introduction to electricity, magnetism, optics, and quantum physics.

#### Exercises:

Classical exercises in front of a blackboard. The exercises are devoted to practical aspects of understanding selected physical phenomena by solving sample tasks. The tasks follow the topics presented in the lectures. Students were given a set of problems in advance for each exercise.

### Bibliography:

Authors: William Moebs, Samuel J. Ling, Jeff Sanny

Publisher/website: OpenStax

Book title: University Physics Volume 1, 2 and 3.

Publication date: Sep 19, 2016

### Learning outcomes:

Students obtain knowledge covering basic issues in physics and the ability to use the principles and methods of physics to solve typical engineering tasks.

K1A\_W04, K1A\_W05, K1A\_U01, K1A\_U04, K1A\_U05

### Assessment methods and assessment criteria:

The final grade is the average of the lecture and exercise marks.

#### Lecture:

Written exam in the form of a test. Passing criterion: over 50% of correct answers.

#### Exercises:

Written tests (2 per semester). Passing criterion: over 50% of possible points.

### Practical placement:

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