COURSE DESCRIPTION CARD - SYLLABUS

Course name
Physics [S1Log2>FIZ]

Course

Field of study
Logistics

Year/Semester
1/2

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
30

Laboratory classes
15

Other (e.g. online)
0

Tutorials
0

Projects/seminars
0

Number of credit points

4,00

Coordinators

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Lecturers

Prerequisites

Basic knowledge of high shool physics.

Course objective

The aim of the course is to familiarize students with the basic physical phenomena and their theoretical description at the academic level. To develop students' habit of thinking in physical categories.

Course-related learning outcomes

Knowledge:
1. Student knows the basics issues of chemical transformations, materials science, commodity science and strength of materials and their importnace for industrial and logistics processes [P6S_WG_03]

Skills:
1. Student is able to use appropriate experimental and measurement techniques to solve a problem in physics, including computer simulation [P6S_UW_03]
2. Student is able to identify changes in requirements, standards, regulations, technical progress in the field of physics and, based on them, determine the need to supplement knowledge [P6S_UU_01]

Social competences:
1. Student is aware of initiating activities related to the formulation and transfer of information and cooperation in society in the field of logistics [P6S_KO_02]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Knowledge acquired during the lecture is verified by two 45-minute tests carried out during the 7th and 15th lectures. Each of the tests consists of 5 questions. Passing threshold: 50% of points (<=50% - ndst; 50,1-60% - dst; 60,1-70% - dst+; 70,1-80% - db; 80,1-90% - db+; od 90,1% - bdb).
Laboratory:

Programme content

The program includes: kinematics, dynamics, vibration, basics of fluid mechanics, gravity, basics of electrostatics; electric current;

Course topics

Lecture: Principles of energy conservation, momentum and angular momentum. Kinematics and dynamics of material point and rigid body. Newton's laws of motion. Fluid Mechanics (hydrostatic pressure, barometric formula, Torricelli's equation, Archimedes' principle, equation of continuity, Pascal's principle and hydraulics, Bernoulli's equation). Thermodynamics (temperature and heat, the kinetic theory of gases, the first law of thermodynamics).Gravitation (Kepler's Laws of Planetary Motion, Newton's Law of Universal Gravitation). Oscillations (simple harmonic motion, damped oscillations, forced oscillations). Waves (transverse and longitudinal waves, combination of waves).

Laboratory: kinematics, dynamics, vibration, basics of fluid mechanics, gravity, basics of electrostatics; electric current;

Teaching methods

Lecture: multimedia presentation, illustrated by examples on a board, demonstrations of physical experiments, videos, discussion.
Laboratory: carrying out experiments that allow practical checking of physical laws.

Bibliography

Basic:
1. University Physics
https://openstax.org/details/books/university-physics-volume-1
https://openstax.org/details/books/university-physics-volume-2
https://openstax.org/details/books/university-physics-volume-3

Additional:
1. Halliday D., Resnick R., Walker J., Fundamentals of Physics

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	45	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	55	2,00