# COURSE DESCRIPTION CARD - SYLLABUS

Course name
Physics [S1Teleinf1>FIZ]

## Course

Field of study
Teleinformatics

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
15

Projects/seminars
0

## Number of credit points

5,00

## Coordinators

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## Prerequisites

The student starting the course should have basic knowledge of physics and mathematics at the secondary school level. He should also have the skills to solve elementary problems in physics based on his knowledge and obtain information from indicated sources.

## Course objective

Getting acquainted with selected concepts, laws and methods of physics to the extent necessary for the quantitative and qualitative description of basic physical phenomena. Getting to know examples of the application of physical laws and phenomena in technology.

## Course-related learning outcomes

Knowledge
The student can
1. define and explain physical concepts in the scope covered by the program content and give examples of their applications in technology.
2. indicate the laws of physics allowing to build models of real physical phenomena
3. analyze the measurement results
Skills
The student can
1. solve basic physical tasks
2. perform simple physical experiments, calculate given physical quantities and their measurement uncertainties, make graphs, draw conclusions
3. acquire knowledge from various sources
Social competences
1. The student is aware of the importance of knowledge in solving engineering problems
2. The student is able to cooperate within the team, fulfill the assigned duties, demonstrate responsibility for the results of the team's work

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Lecture: acquired knowledge is verified during final test. Passing threshold: 51% of points. Final issues and sample test questions are posted on the eKursy platform.
Tutorials: written test at the end of the semester consisting in solving tasks. Passing threshold: 51% of points.
Laboratory exercises: checking the learning outcomes on the basis of oral or written answers regarding the content of the laboratory exercises (50% pass mark) and written reports. The condition of passing the subject is passing a minimum of 85% of all the exercises planned for the student (positive evaluation of responses and reports).

## Programme content

1. Classical mechanics: kinematics, dynamics of translational and rotational motion (including: principles of dynamics, principles of conservation of energy, momentum, angular momentum);
2. Harmonic movement: free, damped, forced (resonance phenomenon)
3. Wave motion: types of waves, basics of acoustics, phenomena of waves diffraction and interference
4. Mechanisms of heat transfer
5. Gravity field, elements of general relativity theory
6. Electromagnetism
7. Fundamentals of quantum physics: particle properties of light; wave properties of matter.

## Teaching methods

Lecture: a lecture with a multimedia presentation (including: drawings, photos, animations, films) supplemented with examples given on the blackboard and demonstrations. The content presented in the slides is placed on the eKursy platform.
Tutorials: during the course students together with the teacher count tasks associated with the physics theme of the lecture.
Laboratory exercises: exercises are performed in pairs, monitoring students' progress on an ongoing detailed reviews of reports by the laboratory leader, discussion of calculations and conclusions.

## Bibliography

Basic
1. Lecture materials sent to students by the lecturer
2. D. Halliday, R. Resnick, J. Walker, Podstawy fizyki t 1-4, PWN Warszawa 2003
3. K. Jezierski, B. Kołodka, K. Sieranski, Fizyka. Zadania z rozwiazaniami, t 1-2, Oficyna Wydawnicza Scripta, Wrocław
Additional
1. Fizyka dla szkół wyższych – free textbook available on the internet www.openstax.pl
2. C. Bobrowski, Fizyka , PWN PWN 2012

## Breakdown of average student's workload

| | Hours | ECTS |
|---|---|---|
| Total workload | 116 | 5,00 |
| Classes requiring direct contact with the teacher | 60 | 3,00 |
| Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation) | 56 | 2,00 |