SYLLABUS FOR 2023/2024 ENROLMENT
FORM OF STUDY: FULL-TIME PROGRAMME

GENERAL INFORMATION

1. **Course** Physics
2. **Field of study** Computer Science
3. **Level of acquired education** first-cycle programme
4. **Number of ECTScredits3**
5. **Number of hours persemester**

semester	lecture	classes	laboratory/foreign language course	project/practical classes	self-study	internship
II	15	15	30			

6. **Language of instruction: English**
7. **Lecturer** dr Andrzej Misiejuk

DETAILED INFORMATION

8. Preliminary requirements

1. Possessing basic knowledge and skills in physics included in the general education basis at the high school level.
2. Possessing basic knowledge and skills in mathematics included in the general education basis at the high school level.

9. Course objectives

C1 Acquiring skills and competences in performing measurements of basic physical quantities
C2 Understanding basic physical phenomena and processes occurring in construction.
C3 Applying the laws of nature in technology and everyday life.

10. Field-specific learning outcomes in terms of knowledge, skills and socialcompetences

A student who completed the course:	reference to field-specific learning outcomes
KNOWLEDGE	
EU01 Knows and understands basic issues from branches of physics useful to formulate and solve tasks related to the application of physics in technology, in particular in electronics	K_W02
SKILLS	
EU02 Is able to plan and carry out experiments, measurements, interpret tasks related to application of physics in technology, especially in electronics and solve complex and unusual problems in not fully predictable conditions	K_U04
SOCIAL COMPETENCES	
EU03 Is ready to critically evaluate possessed knowledge and obtained information, recognises the importance of knowledge in solving cognitive and practical problems and is ready to consult experts in case of difficulties in solving the problem independently	K_K01

11. Course content

Course delivery method – lectures/classes/laboratories/practical classes

Lecture:

1) Classical mechanics - uniform motion, uniformly accelerated motion, Newton's principles of dynamics,rigid body dynamics, curvilinear motion, mechanics of deformed bodies, mechanical vibrations, waves,Newtonian gravity, statics of liquids and gases, acoustics.

2) Electricity and magnetism - electrostatics, Gauss's law, dielectrics, law of induction, generationalternating current, behavior of a conductor with current in a magnetic field, electromagnetic waves- Maxwell's equations.
3) Optics - reflection and refraction, Fermat's principle, geometrical optics, interference and diffraction,refractive index, polarization.
4) Thermodynamics - kinetic theory of gases, heat engines, principles of thermodynamics, gas transformations.
5) Modern physics - photoelectric phenomenon, structure of the atom, spectroscopy, fundamentals of quantum physics, wave properties quantum physics, wave properties of matter, wave picture of the structure of the atom, basics of the general theory of relativity, ionizing radiation.

Classes:

1) Uniform motion, uniformly accelerated motion, circular motion
2) Force, work, power energy, conservation of energy
3) Curvilinear motion, Moment of force
4) Moment of inertia
5) Harmonic motion, waves
6) Thermodynamics, Gas Transitions

Labs

7) Introduction to measurement and error calculus
8) Simple measuring instruments - caliper, micrometer screw and multifunction meter, oscilloscope
9) Determination of acceleration due to gravity
10) Determination of the coefficient of friction
11) Determination of the speed of sound
12) Determination of the intensity of sound
13) Measurement of refraction
14) Measurement of Lissajour figures.

12. Teachingtools and methods

1. Lecture in the form of a multimedia presentation
2. Solving tasks
3. Practical method based on observation and analysis
4. Office hours

13. Assessment method(component, final)

1. Laboratory report
2 Tests
3 Graded credit

14. Student workload

Form of activity	Number of hours
1. Classes with direct participation of the teacher and office hours	75
2.Student workload	10
sum	85
number of ECTS credits	3

15. Reference books

Primary:

1) R.P. Feynman, Feynmana wykłady z fizyki, Wyd. Naukowe PWN, Warszawa

Secondary:

1) Sz. Szczeniowski, Fizyka doświadczalna, PWN, Warszawa

2) J.Araminowicz, K.Maluszynska, M.Przytula, Laboratorium fizyki, PWN, Warszawa

16. Assessment form - details

The final grade will be determined by the student's passing grade on the tests, the evaluation of the laboratory reports and the result of the final assessment.
Requirements for admission to the examination: 50% of the sum of all points received from the tests.
Pass mark for the test:
satisfactory grade: 50% - 70% of the maximum number of points for a given test,
good grade: 71%-90% of the maximum number of points
very good grade: 91% - 100% of the maximum number of points.
Pass mark: the average grade from all exercises carried out greater than or equal to 3.
The average grade is calculated by normalizing the sum of all the grades by the number of all number of required exercises.

17. Other details concerning the course

1. Direct information about the issues of classes and a program content is provided by the teacher during classes and during office hours.

2. Classes will be held at AB in Biała Podlaska

3. Classes will be held in accordance with the current schedule

4. Office hours will be held in accordance with the applicable schedule