

PHYSICS

(course title)

COURSE SYLLABUS ABSTRACT

6-05-0611-01 – Information systems and technologies

(speciality code and name)

Information systems and technologies in design and production

(concentration)

	STUDY MODE
	full-time
Year	1
Semester	2
Lectures, hours	34
Practical classes (seminars), hours	16
Laboratory classes, hours	16
Exam, semester	2
Contact hours	66
Independent study, hours	78
Total course duration in hours/ credit units	144/4

1. Course outline

The purpose of the discipline:

1.1. Studying the basic concepts, laws, principles and theories of classical and quantum physics, basic physical phenomena and processes, as well as mastering the methods of their interpretation from the point of view of modern scientific concepts and methods of physical research;

1.2. Formation of modern physical thinking and scientific outlook;

1.3. Systematization and generalization of knowledge from the point of view of general ideas corresponding to the modern level of development of science, namely: about the unity of the world, about the fundamental nature of probabilistic patterns, about the universality of the principle of symmetry, the principle of correspondence, ideas that form new methods of thinking.

2. Course learning outcomes

As a result of mastering the academic discipline, the student must:

know: basic concepts, laws and physical models of mechanics, electrostatics and magnetostatics; the latest achievements in the field of physics and the prospects for their use for the development of the material base of informatics; **be able to:** use the basic laws of physics in engineering when developing new methods for recording, storing and transmitting information; use the methods of theoretical and experimental research in solving physical problems of informatics; use methods for numerical estimation of the order of magnitude characteristic of various applied branches of physical informatics; **to possess a skill:** knowledge of methods of experimental and theoretical physics for the development of the physical foundations of devices for recording, storing and transmitting information; knowledge of physical principles of information coding in various information systems; skills in assessing the state and trends in the development of information carriers.

3. Competencies

BPC-6 (basic professional competence) – apply the basic concepts and laws of physics to the study of physical phenomena and processes.

4. Requirements and forms of midcourse evaluation and summative assessment.

The overall assessment of the knowledge, skills and abilities of students is to analyze their work when they perform various types of classes. So, with a short survey of students before the start of the lecture, based on the results of the previous lecture, their knowledge in understanding the previously presented material is assessed. When students carry out measurements during laboratory work, it is assessed how deeply they have mastered the skills of working with measuring instruments, and when they perform calculation tasks when called to the board or independent work, their physical and mathematical culture is assessed. Intermediate attestation (exam) is carried out in two stages. The first stage includes a written answer to the questions, which are a random sample of the questions submitted for the exam and one task. The second stage consists in a brief conversation with the student on the fundamental issues of the course.