

PHYSICS

(course title)

COURSE SYLLABUS ABSTRACT

6-05-0714-02 – Mechanical engineering technology, metal-cutting machines and tools
(speciality code and name)

Equipment and technologies for highly efficient material processing processes
(concentration)

	STUDY MODE
	full-time
Year	1,2
Semester	2,3
Lectures, hours	68
Practical classes (seminars), hours	32
Laboratory classes, hours	50
Exam, semester	2,3
Contact hours	150
Independent study, hours	186
Total course duration in hours/ credit units	336/9

1. Course outline

The purpose of the academic discipline is to provide the future engineer with the basis of his theoretical training in various fields of physical science, allowing him to navigate the flow of scientific and technical information and the formation of a materialistic worldview and the scientific method of cognition.

2. Course learning outcomes

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

know: the basic laws and theories of classical and modern physical science, as well as the limits of their applicability; methods for measuring the physical characteristics of substances and fields; physical foundations of methods for studying matter; principles of experimental and theoretical study of physical phenomena and processes; **be able to:** apply the laws of physics to solve applied engineering problems; use measuring instruments in the experimental study of physical and technological processes; process and analyze the results of experimental measurements of physical quantities; **to possess a skill:** knowledge of methods of physical modeling of technical processes; knowledge of methods of analysis and solution of applied engineering problems.

3. Competencies

UC -2 (Universal competence) - solve standard problems of professional activity based on the use of information and communication technologies; BPC-1(basic professional competence) - apply knowledge about the fundamentals of higher mathematics, physics, chemistry, computer science in engineering activities for design and technological support of mechanical assembly production; BPC-1.2 - master the basic concepts and laws of physics, the principles of theoretical and experimental analysis of physical phenomena and processes for the processing and strengthening of metals.

4. Requirements and forms of midcourse evaluation and summative assessment

The general assessment of students' knowledge, skills and abilities consists of analyzing their work when performing various types of classes. So, with a brief survey of students before the start of a lecture, their knowledge in understanding the previously presented material is assessed based on the results of the previous lecture. 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. Interim certification (exam) is carried out in two stages. The first stage includes a written answer to questions that are a random selection from the questions submitted for the exam and one problem. The second stage consists of a brief conversation with the student on the fundamental issues of the course.