

# 6B05302-PHYSICS

**The purpose of the educational program:** Training physicists - innovative leaders capable of solving highly professional problems in the field of fundamental and applied physics

## 1.2 VISION, MISSION, PROGRAM GOAL, VALUES, UNIVERSITY GRADUATE ATTRIBUTES

### **Vision:**

An intellectual platform that develops educators who are open to new ideas and able to lead in a rapidly changing world.

### **Mission:**

Developing teacher leaders, who can create, develop, and disseminate advanced knowledge and values in education for the benefit our country and the world.

### **Program goal:**

Our University aims to become a hub for innovative teaching, learning, research as well as the development of rural education in Central Asia.

### **Values:**

Integrity, commitment, care.

### **University graduate attributes:**

- Self-guided learners and reflexive practitioners
- Responsible personalities with moral and ethical values
- Professionals with deep subject knowledge and digital skills
- Creative and critical thinkers and excellent team players and communicators
- Adaptive leaders in teaching and learning
- Diverse, inclusive and for equality of opportunity in society

## 1.3. THE RATIONALE BEHIND THE EDUCATION PROGRAM

Areas of professional activity of the bachelor in the educational program "6B05 Natural Sciences, Mathematics and Statistics": changes in physical science in the field of fundamental and applied physics, research, innovation, information and analytical activities.

## 1.4. DISTINCTIVE FEATURES OF THE EDUCATIONAL PROGRAM

Additional education (Minor)	«Multifunctional materials researcher» - due to the rapid development of technologies that impose new requirements on various products, in relation to materials that are the basis of any material form, and from the point of view of studying new compositions, they must have special properties that ensure a high-quality human life at a new high level.
------------------------------	---

## **Coincidence with similar EP of leading universities in the near and far abroad**

In accordance with the EP of the leading universities of the Far and near abroad. East Carolina University-52% compliance.

### **1.5. GRADUATE CAREER OPPORTUNITIES**

Has the opportunity to work in scientific and public organizations in research institutes and colleges of Kazakhstan and other foreign countries. The field of professional activity includes the duties of a researcher in colleges, educational and research institutes and research centers.

### **1.6. AREAS OF PROFESSIONAL COMPETENCE**

#### **Area of professional competence 1**

The sphere of professional activity: research work, socio-political and cultural and educational centers.

#### **Area of professional competence 2**

Public, state and non-governmental institutions and organizations

#### **Area of professional competence 3**

professional teaching, information and analytical activities in research projects

### **1.7. EDUCATIONAL PROGRAM LEARNING OUTCOMES:**

**LO 1** - Applies a variety of communication formats taking into account socio-cultural diversity, adheres to the principles of equality and accessibility in education, to create a prosperous and inclusive environment, has leadership qualities and is able to apply them to develop collective potential

**LO 2** - Possess high-level critical and creative thinking skills, are capable of self-regulation and reflection to solve professional problems

**LO 3** - Demonstrate knowledge of and adherence to ethical and legal norms in research and use of digital technologies. Apply security measures when working with digital information and data protection, promote the active, safe and ethical use of digital resources.

**LO 4** - Owns fundamental knowledge, practical skills and abilities in the fields of general, theoretical and modern physics;

**LO 5** - Solves problems of theoretical, experimental and numerical nature using knowledge from fundamental and applied physics, using the appropriate mathematical apparatus, numerical methods, computer modeling, modern software;

**LO 6** - Builds physical, mathematical and computer models of typical professional tasks using modern software and interprets the results obtained taking into account the limits of applicability of the models;

**LO 7** - Processes, analyzes and presents, including in a foreign language, data of analytical and numerical calculations, experimental data using experimental research, measuring and analytical and technological equipment of modern technical means and computer technologies;

**LO 8** - Conduct scientific research of physical objects, systems and processes, various workshops and experiments, including virtual ones in theoretical and experimental physics using modern instrumentation;

**LO 9** - Formulates and systematizes knowledge, skills and practical skills, including in a foreign language in the areas of higher mathematics, fundamental and applied

physics, various methods, technologies and teaching techniques, modern information technologies and software in their future professional activities.

### Matrix for correlating EP learning outcomes with graduate attributes

	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9
<b>GA1</b>	+	+			+				
<b>GA 2</b>	+	+						+	
<b>GA 3</b>		+	+	+	+	+	+		
<b>GA 4</b>	+		+	+					
<b>GA 5</b>			+				+	+	+
<b>GA 6</b>						+	+		+

## 1.8. REFERENCES

**The educational program is developed based on the following legal acts:**

The educational program is developed on the basis of the following normative legal acts:

1) On the approval of the state mandatory standards of higher and postgraduate education

Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No. 2.

2) On the approval of the professional standard "Teacher"

Order of the Acting Minister of Education and Science of the Republic of Kazakhstan dated December 15, 2022 No. 500.

3) Order No. 125 dated 03/27/2023 "On approval of methodological recommendations on the organization and conduct of pedagogical practice for students of the educational field "pedagogical sciences"