I approve the Dean of the Faculty of Information Technologies of the NAO "L.N. Gumilev Eurasian National University"

_____ **Seilov Sh. Zh.**
signature

_____ **2022 г.**
PP

ENU Graduate Model
according to OP 6B06306 (Bachelor's degree)
«Information security systems»
(L.N. Gumilyov Eurasian National University)

Astana, 2022 g.

The model of the graduate of the ENU L.N. Gumilyov

The ENU graduate model according to **OP 6B06306 "Information security systems"** is the competencies, knowledge, skills and abilities of a graduate, the result of training at the bachelor's degree level, obtained as a result of studying theoretical and practical aspects of information security, including information security methods, information security systems, cryptography, inter-network security, information security audit, management risks , etc.

As a result of studying under this program, graduates should acquire knowledge and skills to solve problems in the field of information security, be ready to work in the field of IT technologies, taking into account the requirements and standards of information security.

The graduate model for OP 6B06306 "Information security systems" is defined taking into account the mission, vision and values of the university. The graduate model is used for the development of educational programs (hereinafter OP) and is a framework characteristic of the graduate's abilities in the field of training and education levels, which guarantees the success of the graduate's professional activity.

The competencies accepted by the university, which graduates should have, and their goals are set out in Table 1.

Table 1- Types of competencies

Types of competencies	Goal
Universal	- Demonstrate knowledge and understanding in the field of information security legislation of the Republic of Kazakhstan, as well as in the field of certification and standardization of information security tools. - To collect and interpret information in Russian, Kazakh and foreign languages to form a judgment taking into account social, ethical and scientific considerations. Apply knowledge of economics, ecology, marketing and management in project management in the field of information security. - Know the methods of scientific research, project management, academic writing in foreign languages and at a professional level and apply them in the field of information security. -Understand the importance of the principles and culture of academic integrity and apply knowledge in the field of cultural studies, political science, sociology.

General professional	- Apply knowledge and understanding at a professional level in the field of organization and information security technologies. - Apply theoretical and practical knowledge in the field of natural sciences and mathematics, for the ability to solve engineering problems and simulate processes in the field of information security. Know the principles of the theory of electrical circuits and digital signal processing. - Demonstrate knowledge in the field of cryptology, know the mathematical principles of cryptography algorithms. - Demonstrate knowledge and understanding in the field of network technologies, routing and switching, and wireless networks. - Demonstrate knowledge and skills of administration and security of databases, operating systems, computer and telecommunication networks, computing systems. - Demonstrate knowledge and understanding of the basic requirements of international and national legislative, organizational and procedural acts regulating activities in the field of information security.
Professional	- Demonstrate knowledge of advanced concepts of information theory and coding, formal apparatus of cryptology, data science, apply them in data protection tasks. - To develop the learning skills necessary for independent continuation of further training in various methods of algorithmization and programming, as well as database development and development of web applications, mobile applications and to solve their security issues. - It is reasoned to justify the choice and use of software and hardware to ensure information security. - Apply knowledge, understanding of facts, complex dependencies in the field of malware detection, in the field of practical pentesting and investigation of computer incidents. - Apply theoretical knowledge and practical skills for the functioning of vulnerability monitoring systems, information security event management systems and information leak prevention systems. - Apply knowledge in the field of design and secure software development for verification, static analysis and identification of software code vulnerabilities. - To collect and interpret information from computer memory devices, OS registration files and application programs, documenting and storing evidence base for computer forensic examination and investigation of computer crimes.

These competencies should be implemented in the OP in such a way that graduates can:

- ability to use modern communication tools and technologies;
- ability to assess various situations based on a holistic systemic scientific worldview;
- The ability to program in modern languages using different paradigms; the use of basic natural science laws and mathematical apparatus in professional activities; work on a professional level with information technology;
- The ability to analyze, select and apply methods for assessing and implementing processes for ensuring and managing information security, covering the processes of identifying vulnerabilities and threats, security testing, countering threats, managing risks, assets, incidents,

and business continuity;

- постоянносовершенствоватьсявобластипримененияинформационныхтехнологий;
- To possess the skills of designing and safe development of programs and information systems, the skills of preventing and investigating computer crimes. To use software and hardware for data collection, processing and recovery. To control, document and protect information;
- To be able to apply methods, means and technologies for protecting computer information, to plan measures to ensure the organization's IS. To possess the skills of using hardware and software tools for information security, vulnerability monitoring systems, information security monitoring systems and information leakage prevention systems using basic international and national legislative, organizational and procedural acts regulating activities in the field of information security.

The professional competencies of the graduate are determined in accordance with professional standards and the requirements of employers for the results-oriented OP, and also take into account the specifics of the content of the educational program.

The graduate model of L.N. Gumilyov ENU OP 6B06306 "Information Security systems" (bachelor's degree) was approved at the meeting of the Department "Information Security" dated October 21, 2022 Protocol No. 20.

Head of the Department D.Sh. Satybaldina