

6B01506-COMPUTER SCIENCE

The purpose of the educational program: Training of competitive and qualified personnel who possess information and pedagogical technologies in the field of computer science.

1.2. VISION, MISSION, PROGRAM GOAL, VALUES, ATTRIBUTES OF A UNIVERSITY GRADUATE

Vision:

An intelligent platform that develops teachers who can manage in a rapidly changing world.

Mission:

Formation of teachers of leaders who are able to create, develop and disseminate advanced knowledge and values in the field of education for the benefit of the country and the world.

Program goal:

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

Values:

Integrity, dedication, caring for others

Attributes of a University graduate:

- Self-taught, able to reflect and explore their practice
- Have moral and ethical qualities and are responsible
- Have deep subject, digital knowledge and a broad intellectual outlook
- Creative and critical thinking, collaborative and communicative
- Practice leadership in teaching and learning, and are adaptable to rapidly changing conditions
- Diverse, inclusive and for equal opportunities in society

1.3. THE RATIONALE BEHIND THE EDUCATION PROGRAM

The educational program is designed to teach computer science as an academic discipline in educational institutions using modern information and communication technologies. The program reveals the use of IT tools in the organization and planning of computer science education according to the updated educational program in secondary school.

The relevance of the educational program. Currently, the training of students in computer science at school is becoming more and more significant and relevant. One of the reasons is the state educational standards, which require the development of information technology, the basics of design and design research activities by students. The second reason is the relevance in the light of the development of innovative technologies, computerization of most industries.

The educational program 6B01506-Computer Science is very relevant in today's digital era. Here are a few reasons why:

1. *Technological advances*. We live in a technological world where computers and digital systems are integrated into various aspects of our lives. OP 6B01506-Computer Science equips students with the knowledge and skills necessary to understand and work effectively with these technologies.
2. *Digital Literacy*: OP 6B01506-Computer Science helps students develop digital literacy, which is necessary for navigation in the modern world. This includes understanding how computers and digital systems work, using software applications, conducting online research, and critically evaluating digital information.
3. *Problem Solving Skills*: OP 6B01506-Computer Science develops problem solving skills by teaching students how to analyze complex problems and break them down into smaller, manageable components. It encourages logical thinking, creativity and the ability to develop systematic solutions.
4. *Computational Thinking*: OP 6B01506-Computer Science develops computational thinking, a fundamental skill for solving problems using algorithms and logical reasoning. Computational thinking helps people approach tasks with structured thinking, which allows them to effectively solve real problems in various fields.
5. *Career opportunities*: The demand for specialists with computer science skills continues to grow in all industries. Graduates of the educational program "6B01506-Informatics" with work experience in the field of informatics can choose various career paths, have the opportunity to find a job as a computer science teacher in educational institutions, in institutions of additional education and educational centers.
6. *Digital Citizenship*: OP 6B01506-Computer Science focuses on responsible and ethical behavior in the digital sphere. Students will learn about Internet security, privacy issues, intellectual property, and ethical considerations related to the use of technology. This knowledge allows students to make informed decisions and participate responsibly in the digital world.
7. *Innovation and entrepreneurship*: OP 6B01506-Computer Science encourages innovation. Students will learn about new technologies, programming languages and software development methodologies. This knowledge allows them to create innovative solutions, develop new software applications and contribute to technological advances.
7. *Data literacy*: In the era of big data, education in OP 6B01506-Computer Science equips people with the skills to effectively collect, analyze and interpret data. This ability is crucial for making informed decisions, identifying patterns, and extracting valuable insights from vast amounts of information.
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9. *Adaptability and Lifelong learning*: OP 6B01506-Computer Science instills adaptability and thinking aimed at lifelong learning. Technology is developing rapidly, and people should be aware of the latest developments. OP 6B01506-Computer scientists emphasize the importance of updating, learning new skills and continuous professional development.

In general, the 6B01506-Informatics educational program is relevant because it gives people the knowledge, skills and thinking necessary to thrive in the digital age, solve complex problems and contribute to technological advances in various fields.

Market demand. The statistical portrait of the Kazakh teacher of informatics of public schools according to the data published in the National collection Nur-Sultan for 2022 "Statistics of the education system of the Republic of Kazakhstan" is presented <https://iac.kz/wp-content/uploads/2022/05/ns-2022.02.22.pdf> the following figures: total number of computer science teachers in the country – 13020, of which 94.7% have higher education, 72 have the category of teacher-master, 1686 have the category of teacher-researcher, 2670 have the category of teacher-expert, 2976 have the category of teacher-moderator, 3892 have the category of teacher, 323 have higher, 625 have the first, 776 have the second category.

According to official website data <https://kz.trud.com> In Kazakhstan, the largest number of vacancies for the profession of Computer Science Teacher is open in Kostanay region, Atyrau region is in second place, and West Kazakhstan region is in third place, Zhambyl region is in fourth place (Diagram 1).

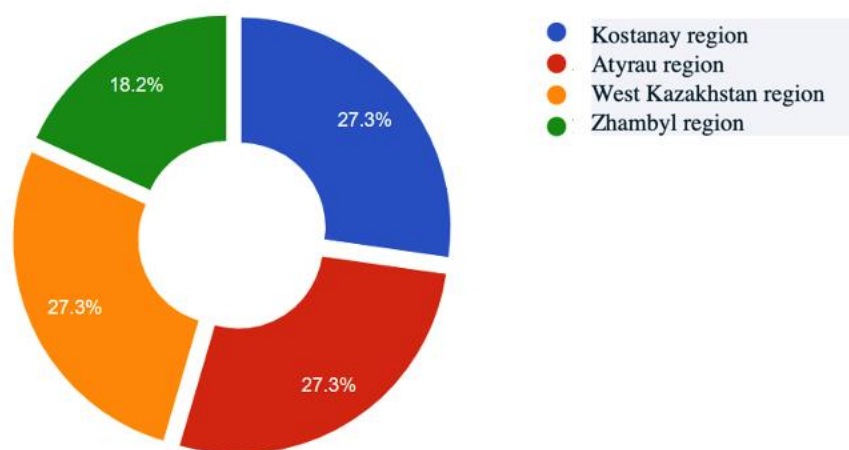


Diagram-1. Distribution of the vacancy of a computer science teacher by regions of Kazakhstan.

Coincidence with similar Educational Programs of leading universities of the far and near abroad. With Oxford University - 40%, with Western International College London (UK) - 40%, with Hong Kong University - 57%, with Mississippi Valley State University (USA) - 52%.

1.4. DISTINCTIVE FEATURES OF THE EDUCATIONAL PROGRAM

Academic mobility	<p>Aktobe State Regional University named after K.Zhubanov - Contract No. 1, dated 28.02.2018, M.O.Auezov South Kazakhstan State University - Contract dated 04.10.2021,</p> <p>Pavlodar Pedagogical University named after Alkey Margulan - Contract dated 18.10.2017,</p> <p>Korkyt Ata KSU – Contract dated 02.03.2018,</p> <p>South Kazakhstan State Pedagogical University – Contract dated 13.01.2023,</p> <p>Mississippi Valley State University (USA) – Memorandum dated 12.11.2019.,</p> <p>Western International College London (UK) – Memorandum dated 10.02.2023</p>
Double-degree program	<p>Mississippi Valley State University (USA) - Memorandum dated 12.11.2019,</p> <p>Western International College London (UK) – Memorandum dated 10.02.2023,</p> <p>Riga Technical University (Latvia) - Memorandum dated 2.09.2022.</p>
Additional education (Minor)	<p>According to the educational program «6B01506 - Computer science», additional education is being considered:</p> <p>SMM specialist is a specialist who promotes a company, its brand, products and services on social networks. The main duties of an SMM specialist include creating content for social networks and blogs - texts, photos, videos, infographics, etc.; maintaining public posts on social networks; increasing the number of subscribers and visitors to public posts; conducting targeted advertising, analytics and reporting on campaigns; communicating with subscribers and tracking their actions; organizing contests, surveys, quizzes, games and other interesting things.</p>

1.5. POTENTIAL DIRECTION AND JOBS FOR GRADUATES

A graduate of the educational program «6B01506-Computer science» has the opportunity to be employed as a computer science teacher in educational institutions and additional education, as well as in educational centers.

Employment opportunities: a graduate of the educational program «6B01506-Computer science» has the opportunity to find a job as a computer science teacher in educational institutions, in institutions of additional education and educational centers.

1.6. AREAS OF PROFESSIONAL COMPETENCE

1. Professional values. He is able to program, design, model at a professional level, use information security tools, use heterogeneous information resources, diagnostic and control programs for hardware and software.

2. Professional knowledge.

- Understands pedagogical approaches of high-quality education based on knowledge of strategic documents in the field of education, cultural values and learning theory.

- Plans the educational process, organizes a safe, favorable environment for all students/pupils and ensures the achievement of the goals of education and upbringing/

3. Professional development. Manages his own professional growth and develops competencies for effective pedagogical activity.

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 Applies subject and interdisciplinary knowledge to carry out scientific and practical research work.

LO-5 Knows computer hardware and system software, computer architecture.

LO-6 He studies software protection methods and tools, provides data protection in computer systems and networks, and also creates artificial intelligence control algorithms.

LO-7 Creates algorithms for solving tasks related to applied and robotics programming, and also develops computer programs, interface design and mobile applications.

LO-8 He uses the theory of computer science, applied knowledge of mathematics, computer and mathematical modeling programs in his professional pedagogical activity.

LO-9 Uses content and methodical aspects of computer science teaching and evaluates student achievements with the help of digital and cloud technologies.

LO-10 Acquires knowledge on storage, search, processing and protection of information in information systems and computer networks.

Matrix for correlating EP learning outcomes with graduate attributes

	LO1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9	LO 10
GA1	+	+	+	+	+	+	+	+	+	+
GA2	+	+	+							
GA3	+	+	+		+	+			+	+

GA4	+		+		+					
GA5	+		+		+					
GA6	+	+	+	+	+	+	+	+		+

1.8. REFERENCES

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

- 1) State mandatory standard of higher and Postgraduate education, approved by Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 № 2. Registered with the Ministry of Justice of the Republic of Kazakhstan on July 27, 2022 № 28916.
- 2) Professional standard «Teacher», approved by order of the Acting Minister of Education of the Republic of Kazakhstan dated December 15, 2022 year № 500. Registered with the Ministry of Justice of the Republic of Kazakhstan on December 19, 2022 №31149.
- 3) Methodological recommendations on the organization and conduct of pedagogical practice for students of the field of education "pedagogical sciences. Order No. 125 of 27.03.2023