Passport of the «IT in healthcare»

Code and classification of the field of education	6B06- Information and communication technologies
Code and classification of the direction of training	6B061- Information and communication technologies
Number and name of the educational program group	B057 Information technology
Number and name of the educational program	6B06123 IT in healthcare
The purpose of the program	Training of qualified specialists in the field of design, creation, administration, operation and maintenance of automated information systems used in healthcare.
Distinctive features of the educational program	1. This OPTION was introduced as one of the first in Kazakhstan 2. Joint educational program with NAO "Semey Medical University" 2. Students of the OP have access to the server of LLP "Educational Technologies Production KZ", where the Medical information system "YUMS Clinic" is installed
Availability of accreditation	HE-SA-000113
Learning result	ON 1 to create specialized modules of the studied CAD in medicine for carrying out strength calculations of the designed structures, to create drawings of parts and assembly drawings based on 3D models; to develop an adequate model of a system or process using modern computer tools; to be able to determine the basic electrical circuits of medical electronic devices for diagnostic and therapeutic purposes. ON 2 study the regulatory legal acts of the Republic of Kazakhstan in the field of information security; apply the basic standards in the field of information security; choose the main information security tools; analyze the types of attacks and threats to information security; formulate appropriate requirements for information security systems; apply modern DBMS for database processing; develop database structures taking into account the prospects of using the database; analyze and take measures to solve complex emergency situations and incidents that arise during the operation of the DBMS; apply a range of available database management

	tools and methods to assess the load when executing database queries. ON3 create interactive elements of Web pages; interpret the basic principles of operating system design, determine the purpose, functions and their classification; analyze calculations to evaluate the effectiveness of computer and telecommunications systems and networks. ON4 define the basic concepts related to information systems, as well as the collection, transmission, processing and storage of information; build a model of the information process, solve problems of optimizing the information process. ON5 systematize, summarize legal and economic information for use in professional, including entrepreneurial activities. Analyze, summarize economic information and systematize safety standards for use in professional activities ON 6 plan, organize and conduct statistical observation in accordance with the tasks set; formulate conclusions arising from the results of statistical observation and give a generalizing conclusion on them; diagnose according to the main criteria of epidemiological analysis, epidemiological indicators; about the stages of medical and biological experiment, planning. ON 7 identify the main theories of management in healthcare; apply effective communications in the healthcare management system; ON8 interpret the results of medical and biological data in the study and diagnosis of medical examinations; be able to calculate health indicators based on situational tasks, test devices; configure, install diagnostic software. ON 9 apply mathematical formulas to describe the most important models, demonstrate knowledge and skills of using fundamental physical laws and theories. ON 10 to evaluate the possibilities of methods of encoding and compressing biomedical data in accordance with the conditions of the task; to develop algorithms for filtering and compressing information; to design protocols for information exchange in medical systems: to assess the degree of reliability of the data obtained to solve problems of evidence-based medicine; to determine the principles of designing expert systems in the field of medicine, to create programs and algorithms for expert and information-computing systems of medical orientation. ON 11 select and apply the basic principles of software design; develop preliminary versions of user documentation for software; describe software components and interfaces be-

	tween them, for their subsequent coding and testing. ON12 choose and apply the principles of processing, analysis, evaluation of the complexity of algorithms. Object-oriented databases. Software development technology. Repair and testing of programs. Elements of error theory and mathematical processing of measurement results. Fundamentals of probability theory. Statistical aggregates, criteria. ON13 apply the basic principles of modern information and communication technologies in the field of medicine; develop and implement modern information technologies in medicine, apply mathematical methods and modern applied software tools for processing experimental and clinical diagnostic data. Application of 3D modeling in medicine. ON14 classify information systems and distinguish their characteristic features, evaluate the quality and efficiency of the use of information systems. Basics of network administration and network information systems. Network administration.
Degree awarded	Bachelor of Engineering and Technology in the educational program 6B06123 "IT in healthcare "
List of qualifications and positions	– Software engineers for the design, development, implementation and operation of information systems for healthcare institutions, their software and maintenance; – Specialists in the development of web applications, mobile applications, collection and processing of information for healthcare institutions.
Field of professional activity	The objects of the graduate 's professional activity are : - Republican e-Health Center, its branches located in the cities of Kazakhstan; - Healthcare institutions (hospitals, polyclinics, health centers, specialized centers) - Research organizations, educational institutions (medical colleges).