	ONTÚSTIK-QAZAQSTAN MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ	SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия»	
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Department «Medical Biophysics and Information Technology»
Discipline work program (Syllabus)
Educational program 6B10111-«Public health»

1.	General information about the Course		
1.1	Course code: ICT 1105	1.6	Academic year: 2023-2024
1.2	Course name: Information and communication technology	1.7	Year: 1
1.3	Prerequisites: -	1.8	Term: 1
1.4	Post-requisites: Introduction to scientific research (public health and biostatistics)	1.9	Number of credits (ECTS): 5
1.5	Cycle: general education discipline	1.10	Component: main component
2.	Course description		

An ICT role in key sectors of development of society. Introduction to computer systems. Software. Operating systems. Human-computer interaction. Database systems. Data analysis. Data management. Networks and telecommunications. Cybersecurity. Internet technology. Cloud, mobile technology. Multimedia, SMART technology. E-technology. Information technology in the professional sphere. Industrial ICT. Prospects of development of ICT.

3.	Summative assessment form			
3.1	Testing ✅		3.5	Coursework
3.2	Writing		3.6	Essay
3.3	Oral		3.7	Project
3.4	OSPE / OSCE or Practical Skills Acceptance		3.8	Other (specify)
4.	Discipline objectives			

The purpose of the discipline

Formation of students ' competence systems in the use of information and communication technologies in practical and scientific activities

5.	Learning outcomes (Course learning outcomes)
CLO1	Demonstrates knowledge of methods for implementing measures to protect public health and sanitary and epidemiological well-being of the population.
CLO 2	Uses various methods and methods to solve practical problems in the protection of public health and sanitary and epidemiological welfare of the population.
CLO 3	Identifies public health risk factors for calculating, evaluating, and analyzing health statistics within the framework of Informatization of the modern health system.
CLO 4	Takes part in ensuring sanitary and epidemiological well-being and conducting anti-epidemic measures. Conducts visual agitation and promotion of a healthy lifestyle, interacting with the media.
CLO 5	Conducts social work among the decreed layer of the population with explanations of issues of medical and hygienic education, lifestyle correction, medical and social aspects of major diseases.
CLO 6	Conducts current and preventive supervision, assessment and correction of activities in the field of public health and sanitary and epidemiological welfare of the population. Prepares the necessary accounting and reporting documentation in the health information system.
CLO 7	Researches, develops and implements projects that lead to new knowledge and new solutions in the field of public health and sanitary and epidemiological welfare of the population.
5. 1	Course learning outcomes
CLO 1	CLO 1 Applies the basic concepts and methods of public health based on the most important aspects of modern history, "Social Medical Insurance and Public Health" department 044-58/ Educational program 7 p. out of 25 philosophy and socio-political knowledge for effective intersectoral interaction with the use of modern information technologies.
CLO 2	LO 6 It works in electronic databases of the healthcare system of the Republic of Kazakhstan, ensures the maintenance of the necessary accounting and reporting documentation in healthcare organizations

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	through electronic document management and archiving programs.	
CLO 3	CLO 9 Determines public health risk factors for calculating, evaluating and analyzing quality indicators of various environmental objects, summarizing its own conclusions in the form of recommendations.	

6.	**Details of the course**					
6.1	Place of classes: Shymkent, Al-Farabi-1 sq., SKMA, main building, 5th floor, Classrooms No. 500-511. Phone: 39-57-57 (1063). Email address: fiz_mat_ict@mail.ru					
6.2	Number of hours	Lecture	Prac. lessons	Lab.lessons	SIW	SIWT
		10	40	-	70	30

7.	**Information about teachers**				
№	Full name	Degrees and title	Email address	Scientific interests, etc.	Achievements
1.	Ivanova Marina Borisovna	PhD, Professor	marina-iv@mail.ru	Theory of differential equations. Medical data processing with STATISTICA, SPSS.	Author of over 50 scientific publications, one monograph, 6 teaching aids, an electronic textbook "Biostatistics", an electronic dictionary "ICT".
2.	Berdiyeva Meruyert Aimambetovna	PhD	meruert_berdieva@mail.ru	Innovative teaching methods	Author of over 30 scientific and methodical articles, 1 book, 11 methodical instructions.
3	Abdrimova Zakhira Maratovna	Master'sdegree Senior teacher	zakira75@mail.ru	Using statistical analysis software STATISTICS for medical data processing	Author of the textbook "Collection of reports from biostatistics" in the Kazakh language. "ICT". Author of several scientific articles.
4	Maulenova Akmaral Aitbekovna	Master'sdegree Senior teacher	maral_tasken@mail.ru	Innovative teaching methods	Author of over scientific 10 and methodical articles, 1 book

8.	**Thematic plan**					
Week/ Day	Topic name	Summary	Course learning outcomes	Number of hours	Forms / methods / learning technologies	Forms / assessment methods
1	LECTURE. An ICT role in key sectors of development of society. Standards in the field of ICT. Introduction to computer systems. Architecture of computer systems	Definition of ICT. Subject ICT and its purposes. An ICT role in key sectors of development of society. Communication between ICT and achievement of the objectives of a sustainable development in the Millennium Declaration. Standards in the field of ICT.Review of computer systems. Evolution of computer systems. Architecture and components of computer systems. Use of computer systems. Data representation in computer systems.	CLO1	1	Lecture information	Feedback (quick survey)

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	PRACTICAL LESSON.. Calculation of metrics of productivity of computer system: speed, efficiency, energy costs, Amdahl's law, CPU time.	Computer lab rules. Architecture and components of computer systems. Use of computer systems. Data representation in computer systems.Computer system: speed, efficiency, energy costs, Amdahl's law, CPU time.	CLO2 CLO3	3	seminar individual task	oral survey Solve problems
	SIWT. Consultation on the implementation of an individual task 2 Development of flowcharts of computer devices. Stage 1	Consultation on the implementation of an individual task 1	CLO4 CLO3	2/5	individual task	Logical flowcharts
2	LECTURE. Software. Operating systems. Human-computer interaction.	Software. Types of the software, purpose and characteristic. Basic concepts of OS. Evolution of operating systems. Classification of operating systems, including for mobile devices. Classification of desktop applications. User interface as means of human-computer interaction. Usability of interfaces. Types of interfaces: command line interface, text interface, graphic interface. Physical and mental characteristics of the user. Development stages of the user interface. Types of testing of interfaces (testing of users). Perspectives of development of interfaces.	CLO1	1	Lecture information	Feedback (quick survey)
	PRACTICAL LESSON. Determination of properties of an operating system. Operation with files and directories.	Multifunctional and single tasking operating system. File directories and folders in operating system.	CLO1 CLO2 CLO7	3	practicum individual task	oral survey practical work
	SIWT Consultation on the implementation of an individual task 2 SIW.Development of flowcharts of operation of devices of the computer. Stage 2.	Graphical method of describing the algorithm for solving the problem	CLO3 CLO7	2/5	individual task	compiling the glossary
3	PRACTICAL LESSON. Determination of requirements to development "convenient in application" the website.	Working with programmer Mobirise.	CLO2 CLO3	2	computer based teaching	individual task, oral survey
	SIWT Consultation on the implementation of an	Creation of databases in MS Access for application in professional	CLO4 CLO5	2/4	individual task	creating database

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	individual task 3 SIW. Collecting, the analysis and structurization of data in the professional environment (development of the database in the MS Access). Stage 1.	sphere				
4	LECTURE. Database systems	Bases of database systems: concept, characteristic, architecture. Data models. Normalization. Integrity constraint on data. Query tuning and their processing. Fundamentals of SQL. Parallel processing of data and their restoration. Design and development of databases. Technology of programming of ORM. The distributed, parallel and heterogeneous databases.	CLO1	1	Lecture-information	Feedback (quick survey)
	PRACTICAL LESSON. Development of database structure, creation of tables and requests. Working with a MySQL relational database. MySQL database administration using php MyAdmin. Working with a single-table database.	The database management system: definitions and functions, basic architectural solutions. The date model of DB. Creating medical database: tables, queries. Working with Forms and Reports.	CLO6	3	computer based teaching	oral survey creation of tables and requests.
	SIWT. Consultation on the implementation of an individual task 4 SIWT.Collecting, the analysis and structurization of data in the professional environment (development of the database in the MS Access). Stage 2.	Creation of databases in MS Access for application in professional sphere	CLO4 CLO5	2/4	individual task	for preparati on crosswor d
5	LECTURE. Data analysis. Data management	Data analysis bases. Methods of collection, classification and prediction. Decision trees. Processing of large volumes of data. Methods and stages of Data mining. Tasks Datamining. Visualization of data.	CLO 1	1	Lecture information	Feedback (quick survey)
	PRACTICAL LESSON. Design and creation of the presentations of	Creating of presentations, entering text on a slide. Adding of pictures and clip art. MS PowerPoint: adding	CLO2	3	computer based teaching	individua l task spreadsh

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	lecture material, scientific reports, etc.	of hyperlinks, animations and sound effects				eets, oral survey
	SIWT Consultation on the implementation of an individual task 5 SIW. Description of network topology of the office building. Stage 1.	Software, hardware of networks using in the office building	CLO4 CLO5	2/4	individual task	creating presentat ion
6	PRACTICAL LESSON. Processing of numerical information, editing formulas and creation of charts in spreadsheet editors.	The database management system: definitions and functions, basic architectural solutions. The date model of DB. Creating medical database: tables	CLO2 CLO3	2	computer based teaching	individua l task, oral survey
	SIWT Consultation on the implementation of an individual task 6 SIW. Description of network topology of the office building. Stage 2.	Software, hardware of networks using in the office building	CLO4	2/4	individual task	creating of MCQs
7	LECTURE. Networks and telecommunications	End devices, data transfer devices, transmission medium. Types of networks. Stack protocols: TCP/IP, OSI. IP addressing. Local and wide area networks. Wire and wireless network technologies. DHCP protocol. Technologies of connection to the Internet. Telecommunication technologies.	CLO 1	1	Lecture information	Feedback (quick survey)
	PRACTICAL LESSON. Creation of a simple network configuration. IP addressing. Monitoring of a network. Analysis of traffic. Use of sniffers for the analysis of network packets.	Networks and telecommunications. Classification of networks. Types of topologies. Types of servers.	CLO2 CLO3	3	Work in pairs, partial search	individua l task, oral survey
	SIW. midterm control 1 accepting SIWT. Preparation for the midterm control1			2/4	-	Testing MCQ
8	LECTURE. Cybersecurity	Security risks of information and their classification. Industry of cybersecurity. Cybersecurity and control of the Internet. Malicious applications. Measures and means of information protection. Standards and specifications in information security field. The acts of the Republic of Kazakhstan governing legal relations in the	CLO1	1	Lecture information	Feedback (quick survey)

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		sphere of information security. Electronic digital signature. Encryption.				
	PRACTICAL LESSON. Use of hardware and software for key generation. Application of the EDS and encoding in case of message exchange by E-mail. Settings of the Firewall program element of the computer network for network traffic monitoring and filtering. Working with the various antivirus programs.	Security risks of information and their classification. Measures and means of information protection. Antivirus software. Archiving utility.	CLO 3	3	Work in pairs, computer based teaching	individual task, oral survey
	SIWT Consultation on the implementation of an individual task 8 SIW. Comparative analysis of antivirus means of information protection. Stage 1,2.	Development of presentation and web site with information base about anti-virus programs	CLO4 CLO5	2/4	individual task	compiling the glossary for pre-paration crossword
9	PRACTICAL LESSON. Data acquisition from the server. Working with WordPress and Joomla web content management systems. Development a website design using Photoshop multifunctional graphic editor and CSS style sheet language. Using of the previously developed MySQL database for the work of the website.	Development a website design using Photoshop multifunctional graphic editor and CSS style sheet language	CLO2 CLO3	2	work in pairs, tasks	individual task, oral survey
	SIWT Consultation on the implementation of an individual task 9 SIW. Information search in a specialty profile on the Internet, use of cloud services for storage and data processing. Stage 1	Information search in a specialty profile on the Internet, use of cloud services for storage and data processing.	CLO4	2/3	individual task	Logical circuits on this topic
10	LECTURE. Internet technology. Cloud and mobile technology	Basic Internet concepts. The Uniform Resource Identifier (URI), its assignment and components. DNS service. Web technologies: HTTP, DHTML, CSS, and JavaScript. E-mail.	CLO 1	1	Lecture information	Feedback (quick survey)

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		Message format. SMTP, POP3, IMAP protocols. Data centers. Tendencies of development of the modern infrastructure decisions. Principles of cloud computing. Technologies of virtualization. Web service in the Cloud. Main terms and concepts of mobile technologies. Mobile services. Standards of mobile technologies Introduction to Google Docs and Microsoft Office Web Apps cloud services. Creation accounts to work with cloud services. Study of operation modes associated with file storage, sharing and processing. Use of mobile technologies for receiving an information access. GPS navigators. GSM a signalling.				
	PRACTICAL LESSON. Introduction to Google Docs and Microsoft Office Web Apps cloud services. Creation accounts to work with cloud services. Study of operation modes associated with file storage, sharing and processing. Use of mobile technologies for receiving an information access. GPS navigators. GSM a signaling.	Internet technologies. History of the Internet development. Basic Internet concepts. Cloud technologies. Efficiency of cloud technologies application. Working with mobile applications. Internet technologies. History of the Internet development. Basic Internet concepts. Cloud technologies. Efficiency of cloud technologies application. Working with mobile applications.	CLO3	3	Computer based teaching	individual task, oral survey
	SIWT Consultation on the implementation of an individual task 10 SIW. Information search in a specialty profile on the Internet, use of cloud services for storage and data processing. Stage 2	Information search in a specialty profile on the Internet, use of cloud services for storage and data processing.	CLO4 CLO5	2/3	individual task	compiling the glossary preparation crossword
11	LECTURE. Multimedia technology. Smart technology	Representation text, audio, video and graphical information in a digital format. Basic technologies for compression of information. 3-D representations of the virtual world and animation. Instruments of development of multimedia applications. Use of multimedia	CLO 1	1	Lecture information	Feedback (quick survey)

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		technologies for planning, descriptions of business processes and their visualization.				
	PRACTICAL LESSON. Creation of video files with use of programs: HyperCam, Adobe Premiere Pro, Windows Movie Maker, etc.	Creating of video files by means of Windows Movie Maker. Use of multimedia technologies for planning, descriptions of business processes and their visualization.	CLO2	3	computer based teaching	creating of video
	SIWT Consultation on the implementation of an individual task 11 SIW. Creation of an emblem, the video and other materials on a specialty profile means of multimedia technologies. Stage 1.	Creation of an emblem, the video and other materials on a specialty profile means of multimedia technologies.	CLO4 CLO5	2/3	individual task	creating of video, preparati on crosswor d
12	Operation with Smart-applications: Smart TV, Smart Hub, etc.	Creation project skills by working with Google Slides.	CLO2 CLO3	2	seminar	individua l task, oral survey
	SIWT Consultation on the implementation of an individual task 12 SIW. Creation of an emblem, the video and other materials on a specialty profile means of multimedia technologies. Stage 2.	Creation of an emblem, the video and other materials on a specialty profile means of multimedia technologies.	CLO4 CLO5	2/3	individual task	creating of an emblem, compilin g the glossary
13	LECTURE. E-technology. Electronic business. Electronic training. Electronic government	Electronic business: Main models of electronic business. Information infrastructure of electronic business. Legal regulation in electronic business. Electronic training: architecture, structure and platforms. Electronic textbooks. Electronic government: concept, architecture, services. Formats of implementation of the electronic government in developed countries.	CLO 1	1	Lecture information	Feedback (quick survey)
	PRACTICAL LESSON. Operation with services on the website of the electronic government http://egov.kz/cms/ru/gov ernment-service s/for_citizen: registration of requests, obtaining	Electronic government: concept, architecture, services. Formats of implementation of the electronic government in developed countries. "Infrastructure of e-government. E-services in the Healthcare."	CLO3	3	computer based teaching	individua l task, oral survey

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	counterparts of documents, etc					
	SIWT Consultation on the implementation of an individual task 13 SIW. Presentation and protection of the main results of design activity in the specialty. Stage 1,2.	Presentation and protection of the main results of design activity in the specialty.	CLO4 CLO5	2/3	individual task	development of graphic objects on medicine
14	LECTURE. Information technologies in the professional sphere. Industrial ICT. Prospects of development of ICT	The software for the solution of tasks of the specialized professional sphere. Modern IT trends in the professional sphere: medicine, power, etc. Use of search engines and electronic resources in the professional purposes. Safety issues in industrial information and communication technologies. Prospects of development in the sphere of the IT market: development of the free software. Forming of an ecosystem of IT of entrepreneurship and support small startup of the companies. Programs of acceleration and incubation. Development of necessary infrastructure of electronic payments and logistics. Prospects of development of E-technologies	CLO 1	1	Lecture information	Feedback (quick survey)
	PRACTICAL LESSON. Development of structure and the maintenance of a lesson in the environment of remote learning: Moodle, eDX, etc.	Development of structure and the maintenance of a lesson in the environment of remote learning: Moodle, eDX, etc.	CLO2	3	computer based teaching	individual task, oral survey
	SIW. midterm control 2 accepting SIWT. Preparation for the midterm control 2			2/3		Testing MCQ
15	PRACTICAL LESSON. Installation and use of application programs in the professional sphere. Working in the Matlab environment for scientific and technical computing. Working with the Matlab toolboxes for applied problem solving.	Installation and use of application programs in the professional sphere. Introduction to STATISTICA 10. Setting documents appearance and working with charts in STATISTICA 10.	CLO2 CLO3	2	computer based teaching,	individual task, oral survey
	SIWT Consultation on the implementation of an	Feedback from students about the results of learning outcomes.	CLO4 CLO5	2/3	individual task	creating of MCQ

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	individual task 15. SIW. Defense of the independent study of students.					
	Exam preparation and conducting			15		

9.	**Training Methods and Control Forms**	
9.1	lectures	Lecture information (feedback quick survey)
9.2	Practical lessons	Practical work, oral survey, solve problems
9.3	SIW / SIWT	individual task logical flowchart screen recording video, project, presentation
9.4	Mid-term examination	Testing (MCQ)

10.	**Evaluation criteria**				
10.1.	**Criteria for evaluating the learning outcomes of a subject**				
№ LO	**Name of learning outcomes**	**Dissatisfying**	**Satisfying**	**Good**	**Excellent**
LO 1	Demonstrates knowledge owns information technology, effectively uses information in the field of healthcare.	1) Partly acquired basic terms of ICT; 2) Partly knows the role of ICT in key aspects of developed society; 3) Does not define the characteristics of modern perso-nal computer; 4) Does not orient in information recycle, important in solving tasks (massive informa-tion tools, databa-ses, information and communica-tion systems, Internet dictiona-ries, glossaries encyclopedia and etc.); 5) Does not know about following safety require-ments and hygiene during the work with computers.	1) Acquired basic terms of ICT; 2) Partly knows the role of ICT in key aspects of developed society; 3) Partly defines the characteristics of modern perso-nal computer; 4) Partly orients in information recycle, important in solving tasks (massive informa-tion tools, databa-ses, information and communica-tion systems, Internet dictiona-ries, glossaries encyclopedia and etc.); 5) Partly knows about following safety require-ments and hygiene during the work with computers.	1) Acquired basic terms of ICT; 2) Partly knows the principles and the role of ICT in the key aspects of developed society; 3) Defines the characteristics of modern personal computer; 4) Orients in information recycle, important in solving tasks (massive informa-tion tools, databa-ses, information and communica-tion systems, Internet dictiona-ries, glossaries encyclopedia and etc.); 5) Partly knows about following safety require-ments and hygiene during the work with computers.	1) Acquired basic and extended terms of ICT; 2)Knows the main principles and the role of ICT in the key aspects of developed society; 3) Defines the characteristics of modern personal computer; 4) Orients in information recycle, important in solving tasks (massive informa-tion tools, databa-ses, information and communica-tion systems, Internet dictiona-ries, glossa-ries encyclopedia and etc.); 5) Knows about following safety requirements and hygiene during the work with computer
LO 2	Explain the methods of collection, storage and processing of information, methods of	1) Poorly classifies the functional circuits of the computer and their devices; 2) Finds difficult	1) Partly classifies the functional circuits of the computer and their devices; 2) Partly compares the sizes	1) Can classify the functional circuits of the computer and their devices; 2) Can compare the sizes of files	1) classifies the functional circuits of the computer and their devices; 2) Can compare the sizes of files

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	implementation of information and communication processes in the medicine	to compare the sizes of files of different formats that store the same information 3) Poorly evaluates information, including information received from the media; does not know how to distinguish correct argumentation from incorrect; 4) classifies computer networks and explains the advantages of wireless communication 5) selects various data formats for solving problems in spreadsheet	of files of different formats that store the same information 3) Poorly evaluates information, including information received from the media; does not know how to distinguish correct argumentation from incorrect; 4) classifies computer networks and explains the advantages of wireless communication 5) selects various data formats for solving problems in spreadsheets	of different formats that store the same information 3) Evaluates information, including information received from the media; does not know how to distinguish correct argumentation from incorrect; 4) classifies computer networks and explains the advantages of wireless communication 5) selects various data formats for solving problems in spreadsheets	of different formats that store the same information 3) Evaluates information, including information received from the media; does not know how to distinguish correct argumentation from incorrect; 4) classifies computer networks and explains the advantages of wireless communication 5) selects various data formats for solving problems in spreadsheets
LO 3	Uses digital technologies in diagnostics, treatment and organization of medical services, uses software and hardware of computer systems and networks for data collection, transmission, processing and storage; Use information internet resources, cloud and mobile services for search, storage, processing and extension of information;	1) Partially uses Internet resources, cloud and mobile services for the search, storage, processing, protection and dissemination of information 2) cannot use the database in practice; 3)Cannot test the used hardware and software; 4) Finds difficult to use text editors to create and design text documents (formatting, saving, copying fragments, etc.); 5) does not know	1) Uses Internet resources, cloud and mobile services for the search, storage, processing, protection and dissemination of information 2) Partially uses the database in practice; 3) Cannot test the used hardware and software; 4) Finds difficult to use text editors to create and design text documents (formatting, saving, copying fragments, etc.); 5) hesitantly	1) Uses Internet resources, cloud and mobile services for the search, storage, processing, protection and dissemination of information 2) Uses the database in practice; 3) Can test the used hardware and software; 4) Uses text editors to create and design text documents (formatting, saving, copying fragments, etc.); 5) Partially applies the	1) Uses Internet resources, cloud and mobile services for the search, storage, processing, protection and dissemination of information 2) Uses the database in practice; 3) Can test the used hardware and software; 4) Uses text editors to create and design text documents (formatting, saving, copying fragments, etc.); 5) Applies the acquired skills: to

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		how to apply the acquired skills: to plot the functions specified in the table and create diagrams in the spreadsheet.	applies the acquired skills: to plot the functions specified in the table and create diagrams in the spreadsheet;	acquired skills: to plot the functions specified in the table and create diagrams in the spreadsheet;	plot the functions specified in the table and create diagrams in the spreadsheet;
LO 4	Apply of information technologies in health care, effectively use information and in-formation technologies in the field of medicine	1) does not use modern software, does not analyze medical data using various special software and does not interpret the results; 2) does not use the information resources of the society and electronic means of communication in educational and practical activities; 3) does not use presentation graphics tools when preparing and conducting oral materials 4) does not create cloud data stores 5) does not know how to use software tools designed to work with this type of information and is guided by their compliance with the task	1) Partly uses modern software, does not analyze medical data using various special software and does not interpret the results; 2) Partly uses the information resources of the society and electronic means of communication in educational and practical activities; 3) Partly uses presentation graphics tools when preparing and conducting oral materials 4) hardly creates cloud data stores 5) does not know how to use software tools designed to work with this type of information and is guided by their compliance with the task	1) Uses modern software, does not analyze medical data using various special software and does not interpret the results; 2) Uses the information resources of the society and electronic means of communication in educational and practical activities; 3) uses presentation graphics tools when preparing and conducting oral materials 4) creates cloud data stores 5) Partly uses software tools designed to work with this type of information and is guided by their compliance with the task	1) Uses modern software, does not analyze medical data using various special software and does not interpret the results; 2) Uses the information resources of the society and electronic means of communication in educational and practical activities; 3) uses presentation graphics tools when preparing and conducting oral materials 4) creates cloud data stores 5) Uses software tools designed to work with this type of information and is guided by their compliance with the task
LO 5	Carry out project activities in the specialty with the use of modern information and communication technologies.	1) It is difficult to create, edit, design, design, transfer information objects using modern software tools and online services;	5) кnows how to create, edit, design, draw, transmit simple information volumes using some software tools; 6) does not use	9) knows how to create, edit, design, draw, transfer information objects of a certain type using modern software tools and online	13) knows how to create, edit, design, draw, transmit information objects of various types and difficulties using modern software

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		2) does not use LAN and WAN capabilities to collaborate on information 3) searches for selective information on the Internet; 4) has difficulty installing software on PCs and mobile applications on a smartphone	LAN and WAN capabilities to collaborate on information 7) searches for selective information on the Internet; 8) has difficulty installing software on PCs and mobile applications on a smartphone	services; 10) leverages local and wide area network capabilities to collaborate on information 11) searches for information of various types on the Internet; 12) has difficulty installing software on PCs and mobile applications on a smartphone	tools and online services; 14) Leverages local and wide area network capabilities to collaborate on information 15) searches for information of various types on the Internet; 16) installs software on PCs and mobile applications on a smartphone

10.2.	Criteria for assessing of teching methods and technologies	
Checklist for assessing of practical lessons		
Control form	Assessment	Criterion for assessment of students' knowledge
Oral response	Exellent A (95-100%) A- (90-94%)	- does not allow any errors, inaccuracies; - demonstrates knowledge of theoretical material on the topic under consideration; - orientates itself in concepts and directions in the field of ICT and gives them a critical assessment; - determines the relationship of the topic under consideration with the future profession, gives specific practical examples; - refers to additional literary sources when answering, has an additional summary.
	Good B+ (85-89%) B (80-84%) B- (75-79%) C+ (70-74%)	- does not allow any errors, inaccuracies; - demonstrates knowledge of theoretical material on the topic under consideration; - the answer was limited to the use of educational literature specified by the teacher; - orientates itself in the main concepts and directions in the field of ICT.
	Satisfactory C (65-69%) C- (60-64%) D+ (50-54%)	- makes inaccuracies and non-fundamental errors; - demonstrates partial knowledge of theoretical material on the topic under consideration; - the answer was limited to the use of educational literature specified by the teacher; - experienced difficulties in systematizing educational material.
	Unsatisfactory FX (25-49%) F (0-24%)	- makes fundamental errors; - does not know the theoretical material on the topic under consideration; - did not systematize the educational material on the topic under consideration.
Work on a computer	Excellent A (95-100%) A- (90-94%)	- complies with safety rules when working with equipment; - demonstrates extensive knowledge when working with standard Windows OS programs and MS Office applications; - knows the purpose of the main and perefiry devices of the PC; - complies with the principles of information protection; - demonstrates the norms of information ethics; - knows how to create, edit, design, store, transfer information objects of various types and difficulties using modern software tools and online services; - leverages local and wide area network capabilities to collaborate on information; - searches for information of various nature on the Internet;

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		- installs software on PCs and mobile applications on a smartphone
	Good B+ (85-89%) B (80-84%) B- (75-79%) C+ (70-74%)	- complies with safety rules when working with equipment; - demonstrates basic knowledge when working with standard Windows OS programs and MS Office applications; - knows the purpose of the main and perefiry devices of the PC; - complies with some principles of information protection; - demonstrates the norms of information ethics - knows how to create, edit, design, store, transfer information objects of a certain type using modern software tools and online services; - leverages local and wide area network capabilities to collaborate on information; - searches for information of various nature on the Internet; - has difficulty installing software on PCs and mobile applications on a smartphone.
	Satisfactory C (65-69%) C- (60-64%) D+ (50-54%)	- knows the safety rules when working with equipment; - demonstrates selective knowledge when working with standard Windows OS programs and MS Office applications; - knows the purpose of the main and partially peripheral devices of the PC; - does not know how to protect information; - does not comply with the norms of information ethics; - knows how to create, edit, design, store, transfer simple information objects using some software tools; - does not use the capabilities of the local and wide area networks to collaborate on information; - searches for selective information on the Internet; - has difficulty installing software on PCs and mobile applications on a smartphone.
	Unsatisfactory FX (25-49%) F (0-24%)	- knows the safety rules when working with equipment; - it is difficult when working with standard Windows OS programs and MS Office application programs; - knows the purpose of the main and partially peripheral devices of the PC; - does not know how to protect information; - does not know the norms of information ethics - it is difficult to create, edit, design, store, transfer information objects using modern software tools and online services; - does not use the capabilities of the local and wide area networks to collaborate on information; - searches for selective information on the Internet; - has difficulty installing software on PCs and mobile applications on a smartphone

Checklist for assessing of SIW			
SIW 1			
	Task 1. Creating a flowchart	Max 30	Min 15
1.	- the flowchart, the algorithm are logically correct; - correctly designed input and output data; - there are no errors in the use of structural elements of the scheme and algorithm; - the student reads the flowchart and algorithm without errors.	20-30	Exellent
2.	- the flowchart and algorithm are logically correct, but 1-2 errors or 2-3 shortcomings may be made;	10-20	Good
3.	- mistakes were made in the algorithm, structural elements of the flowchart are incorrectly used; - when explaining the algorithm, the flowchart, the student experienced difficulties, which were corrected with the help of the teacher;	0-10	Satisfactory
	Task 2. Creating databases	Max 50	Min 25

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1.	- DB corresponds to a certain subject area; - The database contains several interrelated tables; - DB tables consist of fields containing different types of data, including graphic ones; - DB tables consist of at least 10 lines; - when filling tables, various MS Access tools ("Input Mask," "Substitution Wizard," etc.) were used, data was imported from MS Excel; - DB contains forms; - DB contains simple and cross queries; - The database contains reports.	40-50	Exellent
2.	- DB corresponds to a certain subject area; - The database contains several interrelated tables; - DB tables consist of fields containing different types of data, including graphic ones; - DB tables consist of at least 10 lines; - DB contains forms; - The database contains simple queries; - The database contains reports.	30-40	Good
3.	- DB corresponds to a certain subject area; - The database contains several tables; - DB tables consist of fields containing different types of data; - DB tables consist of less than 10 rows.	10-30	Satisfactory
4.	- DB does not correspond to a certain subject area; - The database contains only one table; - table fields contain different types of data; -The table contains less than 10 rows.	0-10	Unsatisfactory
	Task 3. Crosswords	Max 10	Min 5
1.	- Crosswords is based on a given topic; - the terms used are significant and reveal the topic; - Crosswords does not contain grammatical and punctuation errors; - Crosswords contains at least 20 questions; - there is a sheet with advice for verification; - the work is originally designed.	5-10	Exellent
2.	- Crosswords is based on a given topic; - Crosswords contains grammatical and punctional errors; - Crosswords contains less than 20 questions; - there is a sheet with tips for verification.	0-5	Good
	Task 4. Glossary	Max 10	Min 5
1	- Glossary is composed on a given topic; - Glossary contains at least 20 terms and definitions; - definitions are exact, concise, do not contain syntactic errors; - the work is originally designed.	5-10	Exellent
2	- Glossary is composed on a given topic; - Glossary contains less than 20 terms and definitions; - the definitions contain inaccuracies, errors, are raw material; - the work is casually executed.	0-5	Good
SIW 2			
	Task 1. Creating a Presentation	Max 50	Min 25
1.	- presentation corresponds to the topic; - a single design style is observed, the style does not distract from the content of	40-50	Exellent

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	the presentation; - different types of slides are used; - slides are not loaded with information, easy to read, do not contain syntactic and punctuation errors; - graphic and animation elements are used; - design principles are observed (laconicity, structure - presentation of the material in a clear, easily memorable form, unification - design in a single graphic and color solution within the entire presentation).		
2.	- presentation corresponds to the topic; - a single design style is observed, the style does not distract from the content of the presentation; - the same type of slides are used; - slides are loaded with information, difficult to read, do not contain syntactic and punctuation errors; - graphic and animation elements are used; - design principles are partially observed.	30-40	Good
3.	- presentation corresponds to the topic; - the uniform design style is not observed, the style distracts from the content of the presentation; - the same type of slides are used; - slides are loaded with information, difficult to read, contain syntactic and punctuation errors; - graphic and animation elements are used; - design principles are not observed.	10-30	Satisfactory
4.	- presentation does not correspond to the topic; - the uniform design style is not observed, the style distracts from the content of the presentation; - the same type of slides are used; - slides are loaded with information, difficult to read, contain syntactic and punctuation errors; - graphic and animation elements are not used; - design principles are not observed.	0-10	Unsatisfactory
	Task 2. Drawing up test questions	Max 30	Min 15
1.	- test tasks correspond to the topic; - contain at least 20 questions; - the questions are formulated clearly, correctly, specifically; - responses are of the same type and adequate; - the correct answers are presented separately. - test tasks correspond to the topic; - contain 15-20 questions; - the questions are formulated clearly, correctly, specifically; - responses are not of the same type and adequate; - there are correct answers.	20-30	Exellent
2.	- test tasks correspond to the topic; - contain 10-15 questions; - questions are formulated vaguely, incorrectly, not specifically; - responses are not of the same type and adequate; - there are correct answers.	10-20	Good
3.	- test tasks do not correspond to the topic; - contain less than 10 questions; - questions are formulated vaguely, incorrectly, not specifically;	0-10	Satisfactory

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	- responses are not of the same type and adequate; - correct answers are not specified.		
	Task 3. Word-cloud	Max 10	Min 5
1	- word cloud is composed according to the specified topic; - more than 50 terms are used; - terms do not contain grammatical errors; - the work is originally designed.	5-10	Exellent
2	- word cloud is composed according to the specified topic; - less than 50 terms are used; - terms contain grammatical errors; - the work is originally designed.	0-5	Good
	Task 4. Glossary	Max 10	Min 5
1	- Glossary is composed on a given topic; - Glossary contains at least 20 terms and definitions; - definitions are exact, concise, do not contain syntactic errors; - the work is originally designed.	5-10	Exellent
2	- Glossary is composed on a given topic; - Glossary contains less than 20 terms and definitions; - the definitions contain inaccuracies, errors, are raw material; - the work is casually executed.	0-5	Good
SIW 3			
	Task 1. Knowledge Base Logic scheme	Max 30	Min 15
1.	- the scheme is simple and concise, placed on one page; - basic and sufficient concepts on the topic are highlighted as elements of the scheme; - circuit elements are arranged so that their hierarchy is clear (for example, general and specific - in the center, on the periphery - auxiliary); - logical connections are established between the circuit elements (inside the circuit and external, i.e., relationship with adjacent circuits); - visual diagram (convenient for perception): symbols, graphic material, color shades, tables, illustrated material are used.	20-30	Exellent
2.	- the diagram is placed on one page; - basic and sufficient concepts on the topic are highlighted as elements of the scheme; - hierarchy of circuit elements is not traced, material is presented chaotically; - logical connections are established between the circuit elements (inside the circuit and external, i.e., relationship with adjacent circuits); - the diagram is not visual.	10-20	Good
3.	- the diagram is placed on more than one page; - elements of the scheme are not basic and sufficient concepts on the topic; - hierarchy of circuit elements is not traced, material is presented chaotically; - no logical connections are established between the circuit elements; - the diagram is not visual.	0-10	Satisfactory
	Task 2. Creating website	Max 50	Min 25
1.	- the website corresponds to the selected topic, the main ideas of the project are revealed and substantiated; - the organizational structure is clear; - the site has its own style - typography (artistic design of text using fonts, symbols and signs) and the general design of Good are combined; - the color palette is correctly used; - different types of blocks (tabs, shapes,contacts, card, counters,etc. are used at	40-50	Exellent

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	least 3 - included are hyperlinks to other sources of information on subjects not less than 5; - the site contains several pages (2 or more); - there are no grammatical and syntactic errors in the content; - graphic objects are included.		
2.	- the website corresponds to the selected topic, the main ideas of the project are not fully disclosed; - the organizational structure is clear; - typography and general design are combined; - background and color correspond to each other; - different types of blocks (tabs, shapes, contacts, card, counters, etc.) are used at least 2; - hyperlinks to other sources of information on subjects not less than 3 are included; - the site consists of 1 page; - there are grammatical and syntactic errors in the content.	30-40	Good
3.	- the website corresponds to the selected topic; - navigation elements are illogical; - typography and general design are not combined; - background and color do not correspond to each other; - blocks of different types (tabs, shapes, contacts, card, counters, etc.) less than 2 are used; - hyperlinks to other sources of information on topics less than 3 are included; - the site consists of 1 page; - content is difficult to perceive; - there are grammatical and syntactic errors in the content.	10-30	satisfactory
4	- the website does not match the selected topic; - navigation elements are illogical; - typography and general design are not combined; - background and color do not correspond to each other; - blocks of different types (tabs, shapes, contacts, card, counters, etc.) less than 2 are used; - there are no hyperlinks to other sources of information on the topic; - the site consists of 1 page; - content is difficult to perceive; - there are grammatical and syntactic errors in the content.	0-10	Unsatisfactory
	Task 3. Word cloud	Max 10	Min 5
1	- word cloud is composed according to the specified topic; - more than 50 terms are used; - terms do not contain grammatical errors; - the work is originally designed.	5-10	Exellent
2	- word cloud is composed according to the specified topic; - less than 50 terms are used; - terms contain grammatical errors; - the work is originally designed.	0-5	Good
	Task 4. Glossary	Max 10	Min 5
1	- Glossary is composed on a given topic; - Glossary contains at least 20 terms and definitions; - definitions are exact, concise, do not contain syntactic errors; - the work is originally designed.	5-10	Exellent

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2	- Glossary is composed on a given topic; - Glossary contains less than 20 terms and definitions; - the definitions contain inaccuracies, errors, are raw material; - the work is casually executed.	0-5	Good
SIW 4			
	Task 1. Creating Videos	Max 30	Min 15
1.	- the video is informative, informative, the topic is disclosed; - the director's decision is original; - there are visual effects of the video sequence: credits, text screensavers, graphic screensavers, logo; - participation in the author's video; - work with sound: music or readable text corresponds to the content of the video sequence, high-quality sound, volume is adjusted, sound and image are synchronous; - working with image effects: brightness, contactness, cropping; - video duration is not more than 3 minutes.	20-30	Exellent
2.	- the video is informative, the topic is disclosed; - there are visual effects of the video sequence: credits, text screensavers, graphic screensavers, logo; - work with sound: music or readable text corresponds to the content of the video sequence, high-quality sound, volume is adjusted, sound and image are synchronous; - working with image effects: brightness, contactness, cropping; - video duration 2-3 minutes.	10-20	Good
3.	- the video is uninformative, the topic is not disclosed; - visual effects of the video sequence are small or absent; - music or readable text does not correspond to the content of the video sequence, the sound is poor; - the images are not bright, the contortion is not observed, the images are distorted; - video duration is less than 2 minutes.	0-10	Satisfactory
	Task 2. Creating emblems, logos	Max 50	Min 25
1.	- the image is unique (original, unique); - the image is associative - each of its elements should be associated with the selected field of activity, any line makes sense; - the image is concise - the simpler the image, the better perceived it is; - the image is universal - it is possible to place on the site, on clothes, etc. - the color palette and fonts are correctly used; - demonstration of the emblem (logo) is accompanied by explanations of the author (the idea is explained, which symbolizes the elements of the emblem)	40-50	Exellent
2.	- the image is unique (original, unique); - the image is not associative enough; - the image is overloaded with parts; - image is universal; - the color palette and fonts are correctly used; - demonstration of the emblem (logo) is accompanied by explanations of the author.	30-40	Good
3.	- the image is unique; - the image is not associative enough; - non-universal image; - color palette is not used correctly;	10-30	satisfactory

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	- demonstration of the emblem (logo) is accompanied by explanations of the author.		
4.	- image is not unique; - image is non-associative; - non-universal image; -The color palette is not used correctly.	0-10	Unsatisfactory
	Task 3. Word cloud	Max 10	Min 5
1	- word cloud is composed according to the specified topic; - more than 50 terms are used; - terms do not contain grammatical errors; - the work is originally designed.	5-10	Exellent
2	- word cloud is composed according to the specified topic; - less than 50 terms are used; - terms contain grammatical errors; - the work is originally designed.	0-5	Good
	Task 4. Glossary	Max 10	Min 5
1	- Glossary is composed on a given topic; - Glossary contains at least 20 terms and definitions; - definitions are exact, concise, do not contain syntactic errors; - the work is originally designed.	5-10	Exellent
2	- Glossary is composed on a given topic; - Glossary contains less than 20 terms and definitions; - the definitions contain inaccuracies, errors, are raw material; - the work is casually executed.	0-5	Good
SIW 5			
	Task 1. Creation of graphic objects related to the future profession	Max 70	Min 30
1.	- the image is unique (original, unique); - the image is associative – each of its elements should be associated with the chosen field of activity, any line makes sense; - the image is concise – the simpler the image, the better it is perceived; - the color palette is used correctly.	40-50	Exellent
2.	- the image is unique (original, unique); - the image is not associative enough; - the image is overloaded with parts; - the color palette is correctly used;	30-40	Good
3.	- the image is unique; - the image is not associative enough; - color palette is not used correctly;	10-30	satisfactory
4.	- the image is not unique, it is not self-sufficient; - image is non-associative; -The color palette is not used correctly.	0-10	Unsatisfactory
	Task 2. Drawing up test questions	Max 30	Min 15
1.	- test tasks correspond to the topic; - contain at least 20 questions; - the questions are formulated clearly, correctly, specifically; - responses are of the same type and adequate; - the correct answers are presented separately. - test tasks correspond to the topic; - contain 15-20 questions; - the questions are formulated clearly, correctly, specifically;	20-30	Exellent

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	- responses are not of the same type and adequate; - there are correct answers.		
2.	- test tasks correspond to the topic; - contain 10-15 questions; - questions are formulated vaguely, incorrectly, not specifically; - responses are not of the same type and adequate; - there are correct answers.	10-20	Good
3.	- test tasks do not correspond to the topic; - contain less than 10 questions; - questions are formulated vaguely, incorrectly, not specifically; - responses are not of the same type and adequate; - correct answers are not specified.	0-10	Satisfactory

Check List for midterm control		
Computer testing	Max 100	Min 50
Testing is carried out in electronic form.	90-100	Exellent
The test contains 25 questions.	70-89	Good
A 100-point scale is used for evaluation.	50-69	Satisfactory
Test time is determined by the instructor (not more than 50 min)	<50	HeSatisfactory

Final control

Grading by letter system	Digital equivalent of points	Percentage	Assessment according to the traditional system
A	4,0	95-100	Exellent
A -	3,67	90-94	
B +	3,33	85-89	Good
B	3,0	80-84	
B -	2,67	75-79	
C +	2,33	70-74	
C	2,0	65-69	satisfactorily
C -	1,67	60-64	
D+	1,33	55-59	
D-	1,0	50-54	
FX	0,5	25-49	unsatisfactory

11.	**Learning resources**
	databases, animation simulators, professional blogs, websites, other electronic reference materials (for example: video, audio, digests)

Information system «Medicine»	https://online.zakon.kz/Medicine/

Electronic textbooks

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Laboratory physical resources

Computers and other electronical devices

Special programs

1	MS office (Word. Excel. Access. Power point)
2	Adobe Photoshop, Bandicam, Movie maker, video pad etc.
3	Moodle, Courser a, STATISTICA

Main Literature

1. Нурпеисова Т. Б. Информационно-коммуникационные технологии: учеб. пособие.-2017
2. Хакимова Т. Практикум по курсу "Основы информатики": уч. пособие. - Алматы : "NURPRESS".-2013
3. Urmashev B.A. Information-communication technology: Textbook /B.A. Urmashev.-Almaty: Association of higher educational instutions of Kazakhstan, 2016
4.Koshimbaev Sh.K. Automation of standard technological processes [Text]: textbook / Sh.K.Koshimbaev, B.A. Suleimenov.-Almaty:[s.n.], 2016.- 266p.
5.Methods of teaching computer science [Текст]: Textbook / E. Bidaibekov [and etc.].- Almaty:[s.n.], 2016.
6.Nurpeisova T.B. Information andCommunication Technologies: Text-book / T.B. Nurpeisova, I.N. Kaidash.- Almaty: Bastau, 2017.- 480 p.
7.Manapov N.T. Computer chemistry [Текст] : textbook/ N.T. Manapov.- Almaty: Association of higher educational institutions of Kazakhstan, 2016. - 312 p

Additional Literature

1.Қойбағарова Т.Қ. Информатика: оқу-әдістемелік құралы - Түзет., толықт. 2-бас. - Алматы: Эверо.-2014
2.Информатикадан тест тапсырмаларының жинағы: оқу-әдістемелік құрал / Қ. Ж. Құдабаев [т.б.]. - Алматы: Эверо.-2014

Electronic database

№	Title	Link
1	SKMA Repository	http://lib.ukma.kz/repository/
2	Republican Interuniversity Electronic Library	http://rmebrk.kz/
3	Student Advisor	http://www.studmedlib.ru/
4	Open University of Kazakhstan	https://openu.kz/kz
5	Law (access in the reference and information sector)	https://zan.kz/ru
7	Scientific Electronic Library	https://elibrary.ru/
8	Open Library	https:// kitap.kz/
9	Thomson Reuters	www.webofknowledge.com
10	ScienceDirect	http://www.sciencedirect.com
11	Scopus	https://www.scopus.com/
12	Digital library «Aknurpress»	https://aknurpress.kz/login

12. Course policy

Requirements for studying this course:
1. Do not miss classes without reason;
2. Do not be late for classes;
3. Come to classes in uniform;
4. To be active during the practical classes;
5. To prepare for lessons;
6. Take the students independent work and prepare it timely;
7. Not to do other things during lessons;
8. To be tolerant, polite and friendly to students and teachers;

				SOUTH KAZAKHSTAN	
	ONTÚSTIK-QAZAQSTAN MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ	SKMA -1979-	MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия»		

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9. Be careful to the department equipment and furniture.

10. The midterm control of students' knowledge is carried out twice during the semester on the 7th and 14th weeks of theoretical training with the setting of the results of midterm controls in the educational journal of progress and the electronic journal, taking into account penalty points for missing lectures (missed lectures in the form of penalty points are subtracted from the assessments of the midterm control). The penalty point for missing 1 lecture is 1.0 point. A student who does not show up for midterm control without an important reason is not allowed to take the course exam. The results of midterm control are sent to the dean's office in the form of a report at the end of the control week.

11. SIW mark is given at the SIWT lesson, according to the schedule, in the educational register and electronic register also, taking into account the penalty points for missing SIWT lessons. The penalty point for missing 1 SIWT lesson is 2.0 points.

12. Digital educational resources and digital content are placed by the teacher in the "Tasks" module for the attached academic group (stream). All types of training videos are linked to the department's cloud storage.

13. Module "Tasks" AIS Platonus is the main platform for distance learning and placement of all training and teaching materials.

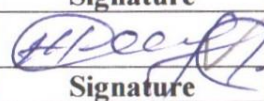| 13.	**Academic policy based on the moral and ethical values of the academy**
	https://ukma.kz/
	Академическая политика АО ЮКМА. П. 4 Кодекс чести студента http://surl.li/eroik
	The policy of grading the discipline Discipline Grading Policy Student's final mark (FM) is given at the end of the course, and calculate as a sum of the admission rating mark (ARM) and the final control mark (FCM) and is given according to the point-rating letter system. FM=ARM+FCM Admission rating mark (ARM) is equal to 60 points or 60% and includes: the current control mark (CCM) and midterm control mark (MCM). The current control mark (CCM) is the average score for practical lessons and SIW. The midterm control mark (MCM) is the average score of the two midterm controls. The admission rating mark (60 points) is calculated via the formula: $MCM_{average} \times 0.2 + CCM_{average} \times 0.4$ Final control (FC) is carried out in the form of testing and the student can get 40 points or 40% of the total mark. When testing, the student is asked 50 questions. Calculation of final control is carried out as follows: If the student correctly answered 45 questions out of 50, it will be 90%. $90 \times 0.4 = 36$ points. The final mark is calculated if the student has positive marks both in the admission rating (AR) = 30 points or 30% or more, and in the final control (FC) = 20 points or 20% or more. The final grade (100 points) = $MCM_{average} \times 0.2 + CCM_{average} \times 0.4 + FC \times 0.4$ Final control (FC) is carried out in the form of testing and the student can get 40 points or 40% of the total mark. When testing, the student is asked 50 questions. Calculation of final control is carried out as follows: If the student correctly answered 45 questions out of 50, it will be 90%. $90 \times 0.4 = 36$ points. The final mark is calculated if the student has positive marks both in the admission rating (AR) = 30 points or 30% or more, and in the final control (FC) = 20 points or 20% or more. The final grade (100 points) = $MCM_{average} \times 0.2 + CCM_{average} \times 0.4 + FC \times 0.4$ A student who has received an unsatisfactory mark for one of the types of controls (MK1, MK2, $CC_{average}$) is not allowed to the exam. Penalty points are subtracted from the average score of the current control.

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14.	Approval and revision			
	Approval date	**Protocol No.**	**Head of the Department**	**Signature**
	« *26* » *05* 202*3* y.	№ *12*	M.B.Ivanova	
	Revision date	**Protocol No.**	**Chairman of the EPC**	**Signature**
	« *9* » *06* 202*3* y.	№ *10*	G.ZH. Sarsenbaeva	
	Revision date	**Protocol No.**	**Chairman of the EPC**	**Signature**
	« » 202 y.	№		
	Revision date	**Protocol No.**	**Chairman of the EPC**	**Signature**
	« » 202 y.	№		

Ф-044/270/01-2022

Protocol of approval of the subject "ICT" with other subjects for the 2023-2024 academic year

Coordination disciplines	**Proposals for changes in the proportions of the material, the order of presentation, etc.**	**Protocol numbers and meeting dates of the corresponding departments**
1	2	3
1. Introduction to scientific research (public health and biostatistics)	The ICT course deals with the processing of numerical data and their visualization through the use of Excel spreadsheets, Statistica. The content and sequence of presentation of the material on the ICT discipline is considered appropriate	Reviewed at the meeting of the Department of Medical Biophysics and IT Protocol № *12* " *26* " *05* 202*3* y. Head of the Department _____ to Ph.D. ass. professor Ivanova M.B. Reviewed at the meeting of the Department of Social Health Insurance and Public Health, Protocol № ___ " " ____ 202__ y. Head of the Department _____ to Ph.D., ass. professor G.ZH. Sarsenbaeva

Head of the Department
Medical Biophysics and IT, PhD, ass. Professor   M.B. Ivanova.

Head of the department of Social Health
Insurance and Public Health   G.ZH. Sarsenbaeva