KARAGANDA UNIVERITY OF KAZPTOREPSOYUZ

EDUCATIONAL PROGRAM
6B06104 – «DIGITAL DESIGN AND MULTIMEDIA»

Level: Bachelor's degree

KARAGANDA 2025

Educational program 6B06104 – «DIGITAL DESIGN AND MULTIMEDIA» is based on the State Compulsory Standard of Higher and Postgraduate Education, approved by the Order of the Ministry of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No. 2 (with amendments and additions), the Rules for organizing the educational process on credit technology of education in higher education institutions dated April 20, 2011 No. 152 (with amendments and additions), the National/industry qualifications framework, professional standard/Atlas of new professions (https :// atlasbt . enbek . kz / profession /103).

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The educational program was discussed and approved at the meeting of the academic committee on December 06, 2024, Protocol No. 1.
The educational program has been discussed and approved at the meeting of the University's Educational and Methodological Seminar. Protocol No. 4 dated March 27, 2025.

CONTENT

1. Passport of the educational program

No.	Field name	Note
1	Registration number	
2	Code and classification of the field of education	6B06 Information and communication technologies
3	Code and classification of training areas	6B061 Information and communication technologies
4	Educational group programs	Values must refer to the Order of the Ministry of Education and Science (2018)
5	Name of the educational program	6B06104 Digital design and multimedia
6	Type of EP	a) Professional standard: «Development of graphic and multimedia design» dated 05.12.2022.
7	Purpose of the EP	Training of personnel capable of creating innovative visual and multimedia project solutions. The program provides development of fundamental skills in web programming and digital design using artificial intelligence, which allows graduates to develop modern IT solutions taking into account current digital trends, increasing their competitiveness in the labor market.
8	ISCED level	
9	Level according to NQR	6
10	Level according to ORC	6
11	Distinctive features of the EP	No
	Partner university (SOP)	
	Partner university (PDD)	
12	List of competencies	Formed a matrix of correlation of the educational results of the educational program with the formed competencies (table 4.1, 4.2, 4.3)
13	Learning outcomes	
14	Form of study	full-time
15	Language of instruction	Kazakh, Russian
16	Volume of credits	240
17	Academic degree awarded	Bachelor of Science in Information and Communication Technologies by the educational program 6B06104 "Digital Design and Multimedia"
18	Availability of the license for the direction of directional training	
19	Availability of accreditation of the educational program	
	Name of accreditation body	
	Duration of accreditation	
20	Information about disciplines	Information on the disciplines UC/OC, BD, MD (table 3.2)
21	The uniqueness of the program	The EP «Digital Design and Multimedia» consists of the integration tools digital design in applied industry , combination creative and technical skills for work with modern multimedia technologies .

| 22 | Conditions for implementing an educational program for persons with disabilities and special educational needs | The following conditions are provided to ensure the accessibility of the educational program: Architectural accessibility Access to an adapted environment: ramps, special classrooms, and sanitary facilities. Educational and methodological support Educational materials in alternative formats (audio, Braille). Adapted methods of knowledge assessment (oral exams, extended time, assistants). Organization of the educational process Individual study plans, distance learning technologies, and flexible class schedules. Psychological and pedagogical support Consultations with specialists (tutors, psychologists), adaptation activities Professional development of faculty members in inclusive education. |

2. Qualification characteristics of a graduate of the educational program

2.1 Degree awarded

The graduate of the educational program is awarded the degree: **Bachelor in Information and Communication Technologies By educational program 6B06104 «Digital Design and Multimedia»**

2.2 List of Bachelor's Degree Positions

Bachelors in the educational program **6B06104 «Digital Design and Multimedia»** can occupy following positions:

1. Graphical user interface developer
2. Multimedia developer
3. Developer of neural interfaces
4. AR/VR designer
5. Game designer
6. Scientific Visualization Developer

3. Contents of the educational program
3.1 Curriculum of the educational program

The Cycle of Disciplines lines	Discipline code	MC/OC/UC	Name of the discipline	Credits	Form of control	Types of educational work l/ pr-lab /SWSP/SWO/ total	1	2	3	4	5	6	7	8	Competency code
			1. SPKM Socio-political knowledge module	**9**											
GED	SPCP 2022	MC	Sociology, Political Science, Cultural Studies, Psychology	8	exam	30/30/60/120/240	4	4							CC1, LO1, LO2
BD	EP 2022	UC	Educational practice	1	report			1							
			2. SHM Social and humanitarian module	**15**											
GED	ICELS2022	OC	Interdisciplinary course "Ecology and life safety"	5	exam	30/15/15/90/150	5								CC1, LO1, LO2
	ET 2022		Economic theory												
	BOA 2022		Basics of anticorruption												
GED	HOK2022	MC	History of Kazakhstan	5	State Ex.	30/15/15/90/150	5								
GED	Phil 2022	MC	Philosophy	5	exam	30/15/15/90/150				5					
			3. PESM Physical Education and Sports Module	**8**											
GED	PhC 2022	MC	Physical culture	8	diff / diff		2	2	2	2					CC 1, LO1, LO2
			4. LM Language module	**26**											
GED	FL2022	MC	Foreign language	10	exam	0/90/30/180/300	5	5							CC1, LO1, LO2
GED	K(R)L-2022	MC	Kazakh (Russian) language	10	exam	0/90/30/180/300	5	5							
BD	ICPOL2022	UC	Interdisciplinary course «Professionally oriented language»	6	exam	0/60/30/90/180			3	3					
			5. VOCM Visual Object Construction Module	**37**											
GED	ICT 2022	MC	Information and communication technologies	5	exam	15/30/15/90/150		5							CC2, LO3, LO4
BD	DiA 2022	OC	Design in advertising	4	exam	15/30/15/60/120	4								
	AEPM 2022		Advertising for electronic and print media												
BD	VTMG 2022	OC	Visual technologies in multidimensional graphics	10	**c/w**	30/60/60/150/300			5	5					
	3DM 2022		3D modeling												
BD	FETSP 2022	OC	Fundamentals of engineering and technical support of the project	5	exam	15/30/15/90/150					5				
	EG 2022		Engineering graphics												
BD	Id 2022	OC	Identity	5	exam	30/45/15/150/240			5						
	DDE 2022		Design in the digital environment												
BD	CACDO 2022	OC	Computer aided construction of design objects	8	**c/w**	30/45/15/150/240		8							
	DCM 2022		Digital color management												
			6. MPLM Modern programming languages module	**40**											
MD	APT 2022	OC	Algorithmization, programming and testing	5	exam	15/30/15/90/150			5						CC2, CC3, LO5, LO6
	PLM 2022		Programming languages and methods												
MD	DSAHLL 2022	OC	Development of software applications in	5	project	15/30/15/90/150				5					

	Code		Course	Credits	Assessment	Hours									LO
			high- level languages												
	OOPro 2022		Object-oriented programming												
MD	FG 2022	OC	Fractal graphics	5	exam	15/30/15/90/150			5						
	VMFO 2022		Visualization methods for fractal objects												
MD	WADT 2022	OC	Web Application Development Technologies	10	project	30/60/60/150/300						5	5		
	WD 2022		Web design												
MD	OMAD 2022	OC	Organization of mobile application development	5	project	15/30/15/90/150								5	
	MCSTP2022		Mobile computing systems and their programming												
MD	UXUID 2022	OC	UX/UI design	5	exam	15/30/15/90/150								5	
	VIS 2022		Visualization of interface solutions												
MD	IP 1 2022	OC	Work experience internship	5	report						5				
			7. Module MINOR Programs (Entrepreneurial projects, Economic foundations of entrepreneurship, Basic legal, Legal foundations, Finance, Business informatics, Language and professional communication, Human development trends, Economic and legal regulation of the service sector, Sustainable development trends	**20**											
MD	Min 2022	OC	Minor	20							5	5	5	5	CC3, LO13
			8.PDMCP Projecting in design module - from concept to project	**15**											
MD	AV 2022	OC	Architectural visualization	5	project	15/30/15/90/150						5			
	ED 2022		Environmental design												
MD	IndD 2022	OC	Industrial design	5	project	15/30/15/90/150						5			CC2, CC3,, LO7, LO8
	DI 2022		Design of interior												
MD	DFD 2022	OC	Digital Fashion design	5	project	15/30/15/90/150						5			
	CMCF 2022		Computer modeling of clothing and fabrics												
			9. MTM Multimedia Technology Module	**25**											
MD	MDes 2022	OC	Motion design	5	exam	15/30/15/90/150							5		
	AD 2022		Animation design												
MD	CGD 2022	OC	Computer games development	5	exam	15/30/15/90/150							5		CC2, CC3, LO9, LO10
	BGD 2022		Basics of game design												
MD	Vigpro 2022	OC	Videoproduction	5	c/w	15/30/15/90/150							5		
	MCCTec 2022		Media content creation technology												
MD	VART 2022	OC	Virtual and augmented reality technologies	5	exam	15/30/15/90/150								5	
	CDT 2022		Computer design technologies												
MD	IP2 2022	UC	Work experience internship	5	report								5		
			10. DDSIPM Digital design solutions and information protection module	**37**											
MD	DMPD 2022	OC	**Design and multimedia project development**	8	**c/w**	30/45/15/150/240								8	CC2, CC3, LO11, LO 12
	ITPD 2022		IT project development												
MD	DAIA 2022	OC	**Development of artificial intelligence applications**	5	exam	15/30/15/90/150								5	
	NNC 2022		Neural networks in creativity												

	Code		Discipline	Credits	Assessment form	Hours	S1	S2	S3	S4	S5	S6	S7	S8	LO
MD	ICPI2022	OC	**Information security and protection of information**	5	exam	15/30/15/90/150							5		
	CS 2022		Cybersecurity												
MD	IP3 2022	UC	Work experience internship	10	report									10	
MD	PDI 2022	UC	Pre-diploma internship	9	report									9	CC3, LO13
	11. FAM Final assessment module			**8**											
IA		MC	Writing and defending a thesis (project) or preparing for and passing a comprehensive exam	8	protection of other (project, qualifying exam)									8	LO5, LO 11, LO 12
			Total labor intensity of the educational program	**240**			30	30	30	30	30	30	33	27	
	Soft skills														
DHE	PPC 2022	OC	Planning a professional career	5	exam	15/30/15/90/150							5		
	DIRBBSP 2022	OC	Development of innovative and research-based business and startup projects	5	exam	15/30/15/90/150			5						

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3.2 Information about disciplines

№	Name of discipline	Short description of discipline	Credits	Learning outcomes
The cycle of general education subjects **Component of choice**				
1	Interdisciplinary course "Ecology and life safety"	The course reveals the content of the basic laws that determine the interaction of living organisms with the environment, the laws of the biosphere, the functioning of ecological systems and the biosphere as a whole, as well as the provision of first aid and human protection in the technosphere from the negative effects of anthropogenic and natural origin	5	LO1, LO2
2	Basis of anticorruption	In the process of studying the course program "Fundamentals of anti-corruption", students will consider theoretical and methodological problems of combating corruption; get acquainted with regulatory legal acts aimed at combating corruption; form practical skills and skills of applying the acquired knowledge in their future professional activities.	5	LO1, LO2
3	Econom teory	Studies the basic concepts and theoretical provisions that reveal the essence of the economic phenomenon that determine the functioning and development of the economy at the level of the household, firm, national and world economy, based on the conclusions of the main direction of economic theory, the discipline instills the skills of research using the methods of studying economic disciplines	5	LO1, LO2
The cycle of basic disciplines **Component of choice**				
4	Discipline Description Interdisciplinary course 1 'Professionally oriented laguage'	The interdisciplinary course 'Professionally oriented language' is aimed at developing students' command of languages (Kazakh, Russian, English, German) in the professional sphere corresponding to the IT educational programme. The course is focused on the formation of lexical and communicative competences. Within the discipline students learn specialised terminology, master language constructions typical for IT documentation, as well as develop skills of oral and written communication on professional topics: programming, databases, cyber security, network technologies, project work, digital design etc.	3	LO1, LO2
5	Discipline Description Interdisciplinary course 2 'Professionally oriented laguage'	The purpose of the course is the practical mastery of the professional Kazakh language. This allows the future specialist in the field of digital design and multimedia to carry out written and oral information exchange, systematically expand active professional vocabulary, and conduct office work in the state language. In the process of studying the course, students develop all types of speech activity, gradually move on to studying the complex syntactic structure of the Kazakh language. As a result of studying the course, the student masters the communication skills and knowledge necessary to understand professional texts and scientific terminology, clearly and freely expresses his thoughts on professional and social topics of interest to him during the dialogue, realizes the importance of the state language in all spheres of life and shows respect for the spiritual heritage of the Kazakh people.	3	LO1, LO2
6	3D modeling_1	As part of the course, students will study the process of creating three-dimensional objects and scenes using specialized programs. They will master various modeling techniques, such as polygonal and NURBS modeling, texturing. In addition, students will learn to design 3D models for production, as well as get acquainted with current trends and innovations in the field of 3D modeling.	5	LO3, LO4
7	3D modeling_2	The course allows students to gain practical skills in working with modern 3D graphics tools: they will continue to study various modeling techniques: Spline modeling, using modifiers, procedural, sculptural. They will master working with lighting and rendering.	5	LO3, LO4
8	Identity	Within the course, students will study the process of creating and developing the visual identity of brands and organizations. They will	5	LO3, LO4

№	Name of discipline	Short description of discipline	Credits	Learning outcomes
		learn to develop logos, corporate identity and design elements that contribute to the formation of brand recognition and the transmission of company values. The course also covers issues of visual communication, the development of advertising materials and interaction with the audience through design.		
9	Visual technologies in multidimensional graphics_1	The course covers the basics of creating and processing three-dimensional objects and scenes. Modeling, texturing, lighting and rendering in 3D programs such as Blender or Autodesk Maya are studied. Particular attention is paid to the creation of realistic models, animation and visualization for games, films and design, as well as integration with video editors and compositing software to obtain final images or animations.	5	LO3, LO4
10	Visual technologies in multidimensional graphics_2	The course covers various techniques for creating multidimensional graphics, including procedural modeling, working with physically correct materials, and simulating natural phenomena. Global illumination algorithms, working with PBR textures, and scene optimization for real-time rendering will be studied.	5	LO3, LO4
11	Design in advertising	The course is aimed at studying the principles and methods of visual communication, which students will master to create effective advertising materials. During the training, they will develop skills in graphic design, layout, selection of fonts and colors, as well as develop creative concepts that can attract attention and influence the target audience, taking into account the features of different communication channels.	4	LO3, LO4
12	Design in the digital environment	As part of the course, students will study the creation of visual solutions for various digital platforms, such as websites, mobile applications, and interfaces. They will master the principles of user experience (UX) and user interface (UI), and learn to work with tools for designing interactive elements and adaptive designs. The course is focused on developing skills in creating functional and aesthetic solutions optimized for work on digital devices and platforms.	5	LO3, LO4
13	Engineering graphics	During the course, students will study methods for creating and processing drawings and models using computer-aided design (CAD) systems. They will master tools for developing technical documentation, 2D and 3D modeling , and will also become familiar with the standards and norms of engineering graphics. Students will learn to apply printing and prototyping technologies to create physical models.	5	LO3, LO4
14	Computer-aided construction of design objects	The course is dedicated to mastering specialized software tools for creating and modeling design objects. Students study 2D and 3D modeling methods, as well as designing parts and shapes in digital environments. Particular attention is paid to CAD technologies, which allows developing accurate, functional and visually attractive solutions for various design areas, from industrial to graphic.	8	LO3, LO4
15	Maynors "Entrepreneurial projects" Business planning	The purpose of the course is to help students form a scientific and applied apparatus for business planning and future business modeling for the short and long term, taking into account the numerous and constantly changing conditions of the external and internal environment, as well as preparing future specialists to implement the applied tasks of business planning through scientific approaches and tools of related disciplines, such as strategic planning, forecasting, investment and financial planning	5	LO13
16	MKPPUR	- know the specifics of managing intra-company entrepreneurial projects; - be able to develop a business idea, business model and business plan of an entrepreneurial project; -possess technologies for building business models in an unstable market. Problem solving requires an appropriate system, since the three main functions — problem solving, solution implementation management, problem recognition and prediction — as well as the function of providing information to decision makers are closely interrelated.	5	LO13

№	Name of discipline	Short description of discipline	Credits	Learning outcomes
17	Minor "Entrepreneurial projects" Entrepreneurship	The course examines the theoretical and methodological foundations of entrepreneurship, studies the organization and analysis of entrepreneurial activities, evaluates its effectiveness, studies the mechanism of state regulation and support for the development of entrepreneurship	5	LO13
18	Minor"Entrepreneurial Projects" Risk Management	Risk management course advocates for preventive risk management, continuous assessment of existing risks and the integration of these processes into overall decision-making activities throughout the project or business process life cycle	5	LO13
		The cycle of profile disciplines **The university component/Component of choice**		
19	Fundamentals of engineering and technical support of the project	The course covers key aspects of the interaction between design and engineering technologies. The principles of constructive design, materials, production methods and technical features of product creation are studied. The course focuses on the integration of aesthetic and functional solutions with technical requirements for the effective production and operation of the design.	5	LO3, LO4
20	Advertising for electronic and print media	The course focuses on the theory and practice of creating advertising materials for various types of media. Students study the specifics of developing advertising for television, radio, the Internet and printed media, analyze target audiences, develop strategies for effective placement and measure the effectiveness of advertising campaigns in different formats.	4	LO3, LO4
21	Digital color management	The course covers the principles and methods of accurate reproduction and management of color in digital technologies. Students study color theory, color models, and tools for adjusting and calibrating colors on various devices. The course covers issues of color harmony, color management in printing and in digital design to achieve high accuracy and consistency of color.	8	LO3, LO4
22	Algorithmization, programming and testing	Introduction. Development environment, language basics and data types. Programming in a basic procedural-oriented algorithmic language. Calculations and basic mathematical operations. If condition operators . For loop operators. While loop operators. Lists. Function declaration in programming languages. Organization of program execution on a PC. Sets. Dictionaries. Error analysis (throw Exceptions). Tests and their role in the software development process. Documenting and analyzing errors. Development of tests. Assessment of the degree of software testability. Criteria for structural testing.	5	LO5, LO5
23	Animation design	The course covers the processes of creating animation and visual effects for various media. Students are introduced to the principles of animation, working with characters and backgrounds, and methods for developing dynamic and expressive animation projects. The course covers both traditional and digital techniques used to create animation for film, television, and the Internet.	5	LO9, LO10
24	Architectural visualization	The course is dedicated to the creation of realistic images and animations of architectural objects using 3D modeling and rendering. Students study technologies for visualizing architectural projects, including interiors and exteriors, with an emphasis on lighting, textures and details. The course is aimed at the ability to convey design ideas in a visual and understandable form, which is important for presentations and analysis.	5	LO7, LO8
25	Videoproduction	The course focuses on the processes of creating video content, including filming, editing and post-production . Students learn how to work with video cameras, lighting, sound equipment, as well as editing and visual effects. The course focuses on creating high-quality video content for various formats, such as film, television, advertising and social media.	5	LO9, LO10
26	Visualization of interface solutions	Explores methods and tools for creating visual representations of interfaces. Students learn principles of graphic design, including	5	LO5, LO5

№	Name of discipline	Short description of discipline	Credits	Learning outcomes
		composition, color palette, and typography, to develop attractive and functional interfaces. The course focuses on using prototypes and mockups to improve user experience and interaction with digital products.		
27	Design of interior	The course is aimed at studying the design and decoration of interior spaces with an emphasis on functionality, aesthetics and comfort. Students master the work with planning, selection of materials, lighting, furniture and decor, while taking into account the psychological and physical comfort of users. The course is aimed at creating harmonious and comfortable interiors for various types of premises.	5	LO7, LO8
28	Environmental design	The course is dedicated to the design of the surrounding space, including architectural, interior and landscape solutions. Students learn to create functional and aesthetic spaces that meet the needs of users. The training covers working with scales, materials, lighting and organization of space, as well as attention to the psychological and physical comfort of people in different environments.	5	LO7, LO8
29	Information safety and information protection	Information security in the implementation of information processes of input, output, transmission, processing and storage of information. Software to protect information in computer networks. Protection of information from unauthorized access. Protection of information in open networks and ACS, TCP / IP protocols and corporate networks. Cryptographic information security tools. Software implementation of encryption algorithms. Organizational means of protecting information in computer networks. Technical means of information protection	5	LO11, LO12
30	Cybersecurity	This training course aims to familiarize students with a modern approach to ensuring information security (IS), discLRsing the importance of IB for the successful implementation of an enterprise, explaining the main stages of deveLRping and implementing an information management system, familiarizing with the main provisions of leading world standards for information security.	5	LO11, LO12
31	Computer modeling of clothing and fabrics	The course includes a study of the process of designing clothing and textile materials. Students learn modeling techniques, creating patterns, as well as fabric design based on textures, colors, and patterns. The course includes working with various fabrics, technological processes, and principles for creating stylish and functional clothing collections in Substance 3D.	5	LO7, LO8
32	Computer design-technologies	The discipline "Computer Design Technologies" covers the basics of computer graphics, teaching the use of graphoanalytic methods and algorithms to create information systems. Students master three-dimensional graphics, apply practical knowledge in graphic programs, developing the ability to create animated graphic elements. The discipline promotes the development of independence and the ability to be creative in design. The skills acquired as a result of mastering the discipline will be useful in the presentation of data and the development of new financial products.	5	LO9, LO10
33	Visualization methods for fractal objects	The course focuses on creating digital art works using the Art Dabbler, Apophysis, Mystica and Fractal Explorer applications. Students study methods for creating and analyzing fractal images, as well as their application in digital art and scientific research.	5	LO5, LO5
34	Mobile computing systems and their programming	Technology and system stack. Basic modules of the OS. An overview of the advantages and disadvantages of Android. Comparison with other mobile OS. Differences between Android applications and Java web and desktop applications. Setting up the development environment. User application markup elements. Using the menu. Signaling. Sensor control. Manage network connections. Get device information. Service sending and receiving SMS. Support Bluetooth/Wi-Fi protocols. Installing the gateway via Wi-Fi Direct	5	LO5, LO5

№	Name of discipline	Short description of discipline	Credits	Learning outcomes
35	Motion design	The course focuses on creating animated and dynamic visual solutions for various media formats . Students master animation, graphic design and visual effects techniques, as well as working with moving images in film, advertising, video games and web design. The course is aimed at developing skills in creating expressive and creative animation projects.	5	LO9, LO10
36	Neural networks in creativity	The discipline explores the use of artificial neural networks to create artistic and creative projects. Students master the use of AI to generate images, music, texts and other types of content. The course focuses on human-machine interaction in the creative process, exploring the possibilities of neural networks in design, art and multimedia projects.	5	LO11, LO12
37	Object-oriented programming	The course is devoted to studying the principles of software development using objects and classes. Students master key concepts of object-oriented programming, such as encapsulation, inheritance, polymorphism and abstraction. The main focus is on creating flexible and scalable software solutions, improving the structure of code and increasing its reuse using object-oriented programming languages.	5	LO5, LO5
38	Organization of mobile application development	Covers the main aspects of creating software for mobile devices. The choice of technology stacks and development tools, user interface design taking into account usability principles, architectural patterns and development methods including Agile and DevOps are studied. Topics of mobile app testing and debugging, performance optimization, and security are explored. App monetization strategies and practical aspects of implementing apps in app stores are explored to develop skills in creating innovative solutions for mobile devices.	5	LO5, LO5
39	Basics of game design	The course covers the basic principles of video game development, including the creation of game mechanics, plots, levels and characters. Students master the structure of the game, analyze user interaction and design the balance of the game. The course is aimed at developing the skills to create engaging and functional games taking into account the interests of players and technical capabilities.	5	LO9, LO10
40	Industrial design	The course focuses on the creation and development of functional, aesthetic and ergonomic mass-produced products. Students study the processes of design, selection of materials, production technologies and implementation of innovations for various products. The main focus is on developing a design that combines practical value, visual appeal and user friendliness.	5	LO7, LO8
41	Design and multimedia project development	The course covers the use of computer technology to develop design projects. Students master software for 2D and 3D modelling, creating visual concepts and developing prototypes. The focus is on the use of CAD systems and other tools for efficient and accurate design in various design fields such as graphics, industrial and interior design.	8	LO9, LO10
42	Computer games development	The course covers the fundamentals of video game design, development and testing. Students learn how to develop game mechanics, write scripts, create graphics and sounds, and study programming languages and game engines. The course includes practical work on creating prototypes and full-fledged games for various platforms, with an emphasis on user interaction and optimization.	5	LO9, LO10
43	Development of artificial intelligence applications	foundations of IP. Prologue-using predicate logic. Knowledge engineering. Statistical approach to IP. Intelligent systems, logical inference. Creation of software for advanced AI systems. The technology of designing economic intelligent systems (IS). Design and organization of IP "Deduction". Neural networks. Self-organizing Kohonen maps.Methods of cluster analysis.Neuropackages.The DataMining process.Intelligent systems.Modeling of intelligent systems.	5	LO11, LO12
44	Development of software applications	The study of the classification of programming languages, the basics of object-oriented programming, the features of programming in C#.	5	LO5, LO5

№	Name of discipline	Short description of discipline	Credits	Learning outcomes
	in high-level languages	Introduction to OOP. The composition of the language and data types. Variables, operations, expressions. The simplest I/O. Control operators. Arrays, symbols, and strings. Classes. Working with databases. Working with graphics.		
45	IT project development	The discipline covers the process of creating a complete design solution, from idea to realisation. The stages of design are studied, including research, conceptualisation, visualisation and presentation. The course aims to master the methods of working with different types of projects, from graphic and industrial to interior design, taking into account the client's needs and functional requirements	5	LO11, LO12
46	Virtual and augmented reality technologies	This discipline allows you to form knowledge and individual skills for performing engineering design in Augmented Reality (AR), Virtual Reality (VR) and Mixed Reality and information technology, lay the foundation for practical skills in using modern multimedia technologies. The development of students' personal (soft skills) competencies: public and intercultural communication in the field of VR/AR, creativity and ingenuity, initiative and collaboration, information retrieval, self-organization, creative thinking, team model development, presentation of teamwork.	5	LO11, LO12
47	Web application development technologies_1	The course covers modern technologies for developing interactive and dynamic web applications. Students will study the JavaScript programming language, its role in creating client web interfaces, as well as working with the Document Object Model (DOM) and event handling.	5	LO5, LO5
48	Web application development technologies_2	The discipline covers concepts of WEB technologies. Client-server architecture. Transferring information on the Internet. WEB technologies in networks of various levels. TCP/IP protocol stack. Addressing on the Internet. OSI model application layer protocols. TCP/IP application layer protocols. Telnet and NNTP protocols. IP telephony. HTML hypertext markup language. Cascading style sheets (CSS). CGI technology. Flash technology. Information security in computer networks.	5	LO5, LO5
49	Media content creation technology	The course aims to study the processes of development and production of various types of media: video, audio, text and graphics. Students master the technical aspects of recording, editing, processing and distribution of content. The main focus is on the use of modern technologies and tools to create high-quality media content aimed at various platforms and target audiences.	5	LO9, LO10
50	Fractal graphics	The course is devoted to the basics of creating and visualizing fractals - complex self-similar structures that repeat at different scale levels. Students study the mathematical principles of fractals, algorithms for their construction, and the use of graphics programs to generate images. The course covers both artistic and scientific applications of fractal graphics in art, design, and scientific research.	5	LO5, LO5
51	Digital Fashion Design	The course allows students to explore the creation and development of clothing and accessories in a digital environment, taking into account current trends, aesthetics and functionality. Students master the process of designing, modeling, cutting and sewing, as well as working with fabrics and materials using the CLO3D program. The course includes the study of 2D and 3D visualization, virtual fittings and various fabric tests. The course supports a wide range of pattern export formats	5	LO7, LO8
52	Programming languages and methods	Programming languages. Types of data and operations. Instructions, functions, modules. Object Oriented Programming. Development of graphical interfaces. Tools for creating graphical user interfaces. Creating and configuring a widget. Accommodation Manager	5	LO5, LO5
53	UX/UI Design	The course is based on the study of user interface design principles. The processes of creating user-friendly and intuitive interfaces focused on user needs are studied. The course includes working with prototyping,	5	LO5, LO5

№	Name of discipline	Short description of discipline	Credits	Learning outcomes
		interaction design and visual elements, as well as testing to optimize user experience and improve the effectiveness of interfaces.		
54	Web-design_1	Web Design Course covers the fundamental principles of web design, including the basic aspects of usability, user interface (UI) and experience (UX). Special attention is paid to creating adaptive layouts and working with prototyping tools (Figma, Adobe XD). Students master the basic technologies of front-end development — HTML5 and CSS3, and also learn how to create intuitive interfaces for various devices.	5	LO5, LO5
55	Web design_2	The course examines modern web development methods in depth. Students learn advanced layout techniques, cross-browser and adaptive optimization, as well as the basics of JavaScript for interactive elements. The practical part includes creating comprehensive web solutions based on UX principles, performance testing and optimization for various platforms and devices.	5	LO5, LO5
	Practice: Educational practice	Safety briefing. Excursion. System software. Performing specific tasks using application software: Editing and formatting Word text, Performing calculations in an Excel spreadsheet Database development in the Access database management system. Features and main characteristics of the studied algorithmic language. Getting to know the Python environment. Work on the global network.	1	
	Work experience internship	To get acquainted with the current data processing system at the practice facility. To study the technical support. To design software tools, economic and mathematical models, algorithms for solving problems, to justify the choice of a programming language for the current IP. Describe the certificates and standards. Identify the shortcomings of the current information system and describe ways to improve it.	5	
	Work experience internship	Characteristics of the practice base and organizational structure . Familiarization with the technical means and technical documentation in force at the IP enterprise. Description of software tools: system, utility, tool, and application programs. Development of technical specifications and own software module and database, programmer's and user's guide, company logo and interface the layout of the company's website.	5	
	Work experience internship	Familiarization with the activities of the practice base. Familiarization with the technical support of the enterprise and the architecture of the CS. The study of software used in the enterprise. Description of the company's computer network. Designing your own software module. Description of methods and means of information protection.	10	
	Pre-diploma internship	Completing individual tasks. The subject of individual assignments is determined by the nature of the pre-graduate practice and should determine: the relevance of the research, have practical significance; internal integrity, justification of the decisions made.; Materials on diploma design should be collected in the following sections: analytical, design, experimental parts and economic justification of the project.	9	

4. Competencies and learning outcomes of the educational program
4.1 List of competencies and learning outcomes

Competence code	Content of the competence	Learning Outcome Cipher	The content of the learning outcome of the educational programme
CC1.	The ability to work in a team based on building constructive communications, showing flexibility and adaptability to changing conditions, empathy, managing emotions and time, as well as critically analyzing life situations and making decisions on emerging problems.	LO1	Demonstrates personal and professional competitiveness, citizenship, physical and environmental culture, critical thinking, creativity and readiness for collaboration.
		LO 2	Carries out interpersonal, intercultural and professional communications using grammatical knowledge and speech means in oral and written forms in the state, Russian and foreign languages, analyses information in accordance with the situation of communication.
CC 2	The ability to effectively use operating systems, digital technologies, software, cloud services and storage, social media, platforms, mobile applications, and analytical tools to perform tasks and solve problems related to cybersecurity and information retrieval in the internet space.	LO 3	Uses different types of ICT: Internet resources, cloud and mobile services to search, store, process, protect and disseminate information.
		LO 4	Knows the basic principles of designing visual objects, modern tools and technologies. Has skills of working with graphic editors and multidimensional modelling software. Possesses engineering and technical skills of creating visual objects.
		LO 5.	Possesses basic methodological programming skills, basics of syntax and semantics of languages, testing. Can program in high-level algorithmic languages to solve applied problems.
CC3	The ability to apply the acquired knowledge in a specialized field based on problem-solving, research and production skills, and an understanding of professional duties and work functions	LO 6.	Possesses the skills and abilities to program fractal images, organise and develop mobile and Web applications to visualise interface solutions.
		LO 7.	Can work with modern tools of multidimensional modelling, rendering and composition, which allows to effectively implement ideas in architectural visualisation, industrial and fashion design. Able to analyse trends, consider functionality and aesthetics, and present projects taking into account customer requirements and modern standards
		LO 8.	Applies visualisation, design and modelling tools to create innovative solutions. Possesses skills in working with professional programmes, develops creative thinking to develop functional design projects for various spheres. Is able to integrate the applied orientation of projects to meet the demands of the labour market.
		LO 9.	Can select, compose, edit and modify audio and video content, apply special effects, combine elements and animate them taking into account ergonomic requirements. Has knowledge of graphics, special effects, animation, video processing for use in computer games and multimedia content.
		LO 10.	Able to create, design and animate static images, apply effects to animations, add and edit sound to them. Work in VR and AR projects. Knows the basics of animation, computer and motion design, development of VR, AR tools and applications to work with them.
		LO 11.	Demonstrates skills in using modern software tools to create and develop multimedia projects, including modelling, visualisation and design optimisation taking into account current technological trends based on artificial intelligence.
		LO 12.	Uses data and information security techniques in the design and development of applications, including artificial intelligence, to ensure data confidentiality and integrity.
Minor programmes:			
CC7	Ability to understand the essence of economic relations for the operation of a successful business in the professional field.	LO 13	Demonstrates an understanding of the essence of finance, navigates the basic principles of the tax and banking systems, applies the acquired skills for effective interaction with various subjects of the financial system of the country

4.2 Matrix of correlation of learning outcomes for the educational program as a whole with the developed competencies

	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11	LO12	LO13
CC1	*	*											
CC2			*	*	*	*	*	*	*	*	*	*	
CC3			*	*	*	*	*	*	*	*	*	*	*

4.3 The competency formation map

Competence code	discipline code	Name of disciplines forming competences	MC/ OC/ UC	Volume in credits	Number of hours	Form of assessment of achievement of the result
CC1	SPCP2022	SPCP (Sociology, Political Science, Cultural Studies, Psychology) 1 term	MC	4	4/120	Exam Testing
CC1	SPCP-2022	SPCP (Sociology, Political Science, Cultural Studies, Psychology) 2 term	MC	4	4/120	Exam Testing
	EP 2022	Educational practice	UC	1	1/30	report
CC1	FL2022	Foreign language 1	MC	5	5/150	Oral exam
CC1	K(R)L-2022	Kazakh (Russian) language 1	MC	5	5/150	Oral exam
CC1	FL2022	Foreign language 2	MC	5	5/150	Oral exam
CC1	K(R)L2022	Kazakh (Russian) language 2	MC	5	5/150	Oral exam
CC1	ICPOL2022	Interdisciplinary course 'Professionally oriented language'_1	UC	3	3/90	Oral exam
CC1	ICPOL2022	Interdisciplinary course 'Professionally oriented language'_2	UC	3	3/90	Oral exam
CC1	HOK 2022	History of Kazakhstan	MC	5	5/150	Oral State Exam
CC1	IC ELS 2022	Interdisciplinary course 'Ecology and Life Safety'	OC	5	5/150	Exam Testing
CC1	ET 2022	Economic theory	OC	5	5/150	Exam Testing
CC1	BOA 2022	Basics of anticorruption	OC	5	5/150	Exam Testing
CC1	Phil 2022	Philosophy	MC	5	5/150	Exam Testing
CC1	PhC 2022	Physical culture 1	MC	2	2/60	differentiated credit
CC1	PhC 2022	Physical culture 2	MC	2	2/60	differentiated credit
CC1	PhC 2022	Physical culture 3	MC	2	2/60	differentiated credit
CC1	PhC 2022	Physical culture 4	MC	2	2/60	differentiated credit
CC2	ICT 2022	Information and communication technologies	MC	5	5/150	Exam Testing
CC2	DiA 2022	Design in advertising	OC	4	4/120	Project defence
CC2	AEPM2022	Advertising for electronic and print media	OC	4	4/120	Project defence
CC2	VTMG 2022	Visual technologies in multidimensional graphics	OC	10	10/300	(course project) Project defence
CC2	3DM 2022	3D modelling	OC	10	10/300	(course project) Project defence
CC2	FETSP 2022	Fundamentals of engineering and technical support of the project	OC	5	5/150	Exam Testing
CC2	EG 2022	Engineering Graphics	OC	5	5/150	Exam Testing
CC2	Id 2022	Identity	OC	5	5/150	Project defence
CC2	DDE 2022	Design in the digital environment	OC	5	5/150	Project defence
CC2	CACDO 2022	Computer-aided construction of design objects	OC	5	5/150	(course project) Project defence
CC2	DCM 2022	Digital color management	OC	5	5/150	(course project) Project defence
CC2, CC3	APT 2022	Algorithmization, programming and testing	OC	5	5/150	Exam Testing
CC2, CC3	PLM 2022	Programming languages and methods	OC	5	5/150	Exam Testing
CC2, CC3	DSAHLL2022	Development of software applications in high-level languages	OC	5	5/150	Project defence
CC2, CC3	OOPro 2022	Object-oriented programming	OC	5	5/150	Project defence

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CC2, CC3	FG 2022	Fractal graphics	OC	5	5/150	Exam Testing
CC2, CC3	VMFO 2022	Visualization methods for fractal objects	OC	5	5/150	Exam Testing
CC2, CC3	WADT 2022	Web-application development technologies	OC	10	10/300	Project defence
CC2, CC3	WD 2022	Web design	OC	10	10/300	Project defence
CC2, CC3	OMAD 2022	Organization of mobile application development	OC	5	5/150	Project defence
CC2, CC3	MCSTP2022	Mobile computing systems and their programming	OC	5	5/150	Project defence
CC2, CC3	UXUID 2022	UX/UI design	OC	5	5/150	Exam Testing
CC2, CC3	VIS 2022	Visualisation of interface solutions	OC	5	5/150	Exam Testing
	IP 2022	Work experience internship	**UC**	**5**	**5/150**	report
CC3		Minor		20	20/600	Exam
CC2, CC3	AV 2022	Architectural visualisation	OC	5	5/150	Project defence
CC2, CC3	ED 2022	Environmental Design	OC	5	5/150	Project defence
CC2, CC3	IndD 2022	Industrial Design	OC	5	5/150	Project defence
CC2, CC3	DI 2022	Design of interior	OC	5	5/150	Project defence
CC2, CC3	DFD 2022	Digital Fashion design	OC	5	5/150	Project defence
CC2, CC3	CMCF 2022	Computer modeling of clothing and fabrics	OC	5	5/150	Project defence
CC2, CC3	MDes 2022	Motion design	OC	5	5/150	Project defence
CC2, CC3	AD 2022	Animation design	OC	5	5/150	Project defence
CC2, CC3	CGD 2022	Computer games development	OC	5	5/150	Project defence
CC2, CC3	BGD 2022	Basics of game design	OC	5	5/150	Project defence
CC2, CC3	Vigpro 2022	Videoproduction	OC	5	5/150	(course project) Project defence
CC2, CC3	MCCTec 2022	Media content creation technology	OC	5	5/150	(course project) Project defence
CC2, CC3	VART 2022	Virtual and augmented reality technologies	OC	5	5/150	Written examination
CC2, CC3	CDT 2022	Computer design technologies	OC	5	5/150	Written examination
CC2, CC3	**IP2 2022**	Work experience internship	**UC**	**5**	**5/150**	report
CC2, CC3	DMPD 2022	Design and multimedia project development	OC	8	8/240	(course project) Project defence
CC2, CC3	ITPD 2022	IT project development	OC	8	8/240	(course project) Project defence
CC2, CC3	DAIA 2022	Development of artificial intelligence applications	OC	5	5/150	Project defence
CC2, CC3	NNC2022	Neural networks in creativity	OC	5	5/150	Project defence
CC2, CC3	ICPI2022	Information security and protection of information	OC	5	5/150	Written examination
CC2, CC3	CS 2022	Cybersecurity	OC	5	5/150	Written examination
CC3	**IP3 2022**	Work experience internship	**UC**	**10**	**10/300**	report
CC3	**PDI 2022**	Pre-diploma internship	**UC**	**9**	**9/270**	report

5. The development plan of the educational program

Target indicators of the development of the EP 6B06104
'DIGITAL DESIGN AND MULTIMEDIA'

Tasks	Target indicators	Indicators			
		Measurement units	2025-2026	2026-2027	2027-2028
PRIORITY 1: BUILDING A DYNAMIC EDUCATIONAL ECOSYSTEM THROUGH DIGITAL TRANSFORMATION					
Task 1.1 Developing undergraduate programs and increasing accessibility to higher education	Number of students in the educational program	pers.	40	45	50
	Average UNT score	%	71	73	75
	Number of Altyn Belgi holders	pers.	-	-	1
	Number of graduates «with honors»	pers.	-	-	-
	Employment rate of graduates	%	-	-	-
Task 1.2 Development of postgraduate education	Number of graduates in the last academic year who continued their education in a master's degree program	pers.	-	-	-
Task 1.3 Development of continuous education	The number of massive open online courses (MOOCs) developed by the university and presented in open access on national and foreign educational platforms, such as moocs.kz, openu.kz, coursera.org, etc.	pcs.	1	1	1
Task 1.4 Transformation of teaching methods and development of new forms of learning	Number of teaching staff who have undergone advanced training in the profile of the taught disciplines within the framework of the EP	pers.	6	7	8
	The number of practical workers involved in conducting training sessions and teaching elective subjects	pers.	2	3	4
	Number of final qualifying works completed by order of enterprises	pcs.	-	-	-
PRIORITY 2. SUSTAINABLE DEVELOPMENT OF THE UNIVERSITY'S RESEARCH ACTIVITIES					
Task 2.1 Increasing the research potential and innovative activity of the university	Percentage of teachers with PhD	%	30	31	32
	Number of teachers with the title of "Best Teacher", state awards, scholarships, grants	pers.	-	-	1
	Total number of publications	unit	25	27	30
	Number of publications in Web journals of science / Scopus	unit	-	1	1
	Number of publications in the list of	unit	1	2	2

	SHEQAC				
	Number of publication citations	unit	1	2	2
	Hirsch index	unit	1	1	1
	Number of joint publications with scientific organizations	unit	-	-	1
	Number of joint publications with industrial business partners	unit	1	1	2
	Number of publications on SDGs	unit	-	-	1
Problem 2.2 Creation of a multi-channel system of financing scientific research of departments	Total volume of scientific-research works funding (state and non-state funding, international grants) (F $_{SRW}$)	thous and tenge	500	550	600
	Number of scientific project managers	pers.	-	1	2
	Number of certificates of intellectual property: licenses, patents, copyright certificates, inventions of teachers	pcs.	-	-	-
Task 2.3 Attracting students to science and production	Number of student winners at scientific and practical conferences, Olympiads in Kazakhstan and the CIS countries	pers.	-	-	1
	The number of students - winners at scientific and practical conferences, Olympiads in foreign countries	pers.	-	-	-
	Number of certificates of intellectual property: licenses, patents, author's certificates, students' inventions	unit	-	-	1
PRIORITY 3. EFFECTIVE INTEGRATION OF THE UNIVERSITY AS AN EQUAL PARTNER IN THE GLOBAL SCIENTIFIC AND EDUCATIONAL SPACE					
Task 3.1 Compliance with international quality standards in research and educational programs	Number of joint double-degree educational programs with foreign universities with the issuance of diplomas or certificates (TOP-700 QS ranking)	unit	-	-	-
	Number of disciplines taught in foreign languages	unit	-	-	1
	Number of joint publications with representatives of foreign organizations	unit	-	-	1
Task 3.2 Favorable environment for teaching and research	Number of foreign students	pers.	-	-	1
	Number of foreign teachers involved in the educational process (at least 2 weeks)	pers.	-	-	-
	Number of students on incoming external mobility	pers.	-	-	-
	Number of students on outgoing external mobility	pers.	-	-	-
	Number of university graduates who received international grants or international scholarships (except for the Bolashak scholarship)	pers.	-	-	-
Problem 3.3	Number of international scientific	unit	-	-	-

Improving the international image of the Karaganda University of Kazpotrebsoyuz	projects				
	Number of countries with representatives of which scientific projects are being implemented	unit	-	-	-
	Number of teaching staff with a diploma/degree from universities abroad	pers.	-	-	1
	Number of subscribers to the official website of the department in social networks	pers.	500	600	700
	Number of links to the university website on the department's partner websites	unit	3	3	3
PRIORITY 4. IMPLEMENTATION OF THE THIRD MISSION OF THE UNIVERSITY THROUGH THE FORMATION OF SOCIAL RESPONSIBILITY, PATRIOTISM AND LEADERSHIP QUALITIES IN YOUTH					
Task 4.1 Implementation of a complex on patriotic education and formation of civic activity of youth	Number of disciplines covering sustainable development issues	pcs.	1	1	2
	Number of student winners in sports and creative competitions in the CIS countries and abroad	pers.	-	-	1

6. Educational program approval sheet

Position	Signature	FULL NAME
Vice-rector for Academic Affairs		Nakipova G.E.
Department of Academic Development of Higher and Postgraduate Education		Daniyarova M.T.
Director of the department of strategic development		Glazunova S.B.
Dean of the Faculty of Accounting and Finance		Serikova G.S.
Head of the Department of Digital Engineering and IT Analytics		Ten T.L.