



**Project Management Institute**  
**Department of Management and Mathematical Economics**

**EDUCATIONAL PROGRAM**  
**6B04104 – Startup undergraduate**

Code and classification of the field of education: 6B04 Business, management and law

Code and classification of areas of study: 6B041 Business and management

Group of educational programs: B044 "Management and management"

NQF level: 6

ORC level: 6

Duration of study: 4 years

Credits: 240

**Almaty 2022**


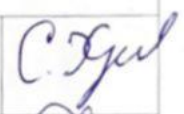



Educational program "Startup bachelor's degree" approved by Academic Council of KazNITU named after. K.I. Satpaeva.

Minutes No. 14 dated May 17, 2022

Considered and recommended for approval at a meeting of the Educational and Methodological Council of KazNITU named after. K.I. Satpaeva.

Minutes No. 8 dated May 16, 2022

Educational program 6B04104 – Startup undergraduate developed by the academic committee in the direction of "Business and Management"

FULL NAME.	Academic degree/ academic title	Job title	Place of work	Signature
<b>Chairman of the academic committee:</b>				
Turegeldinova Aliya Zhumabekovna	PhD	Head of department	SU	
<b>Teaching staff:</b>				
Khrushchev Sergey Vitalievich	Doctor of Physics and Mathematics, Professor	Professor	SU	
Tsekhovoy Alexey Filippovich	Doctor of Technical Sciences, Professor	Professor	SU	
<b>Employers:</b>				
Eralieva Akerkin Egamberganovna	PhD	Vice-chairman	NPP Atameken	
<b>students</b>				
Kalykova Ayaulym		Undergraduate		

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## **List of abbreviations and symbols**

**NJSC "Kazakh National Research Technical University named after K.I. Satpayev"**- NAO KazNITU named after K.I. Satpaev

**OP** – educational programm

**OC** -optional component

**NKF** -national qualifications framework

**SKF**- sectoral qualifications framework

**LO** -learning outcomes

## 1. Description of the educational program

The EP "Startup Bachelor" is focused on training highly qualified managers who have the necessary competencies to organize their own business and start-up.

The field of professional activity of graduates who have mastered the undergraduate program includes:

- management activities in organizations of any organizational and legal form, in which graduates work as executives or leaders in various departments of the management apparatus;
- entrepreneurial and organizational activities in structures where graduates are entrepreneurs who create and develop their own business;
- research activities in scientific organizations related to the solution of management problems;

The objects of professional activity of graduates who have mastered the undergraduate program are:

- management processes of organizations of various organizational and legal forms;
- public and private management processes;
- research processes.

The area of professional tasks solved by the specialist in the EP "Startup bachelor's degree" (bachelor's degree) organizational and managerial activities:

- organizing your own business and/or start-up.
- development of strategies for the development of organizations and their individual divisions;
- management of subdivisions of enterprises and organizations of different forms of ownership, state and local authorities;
- organization of creative teams (teams) to solve organizational and managerial tasks and manage them;
- analytical activity:
  - search, analysis and evaluation of information for the preparation and adoption of management decisions;
  - analysis of existing forms of organization and management processes, development and justification of proposals for their improvement;
  - assessing the effectiveness of projects, taking into account the uncertainty factor;
- activity: scientific - research organization of scientific research:
  - definition of tasks for groups and individual performers, selection of research tools, analysis of their results, collection, processing, analysis and systematization of information on the research topic, preparation of reviews and reports on the research topic;
  - development of models of the studied processes, phenomena and objects related to the field of professional activity, evaluation and interpretation of the results obtained;

- identification and formulation of topical scientific problems;
- preparation of reviews, reports and scientific publications.

## **2. CPurpose and objectives of the educational program**

**Purpose of the OP:**training of entrepreneurs with practical business skills, with a system of competencies necessary for a competitive entrepreneur, possessing analytical, research, leadership skills and innovative thinking.

### **Tasks of the OP:**

- to study the tasks of organizational development;
- study the methods and tools of business process engineering;
- learn how to structure and link individual tasks into integrated development programs;
- master applied tools for improving business engineering;
- to master the skills of carrying out changes in the work of the company, to overcome resistance to change;
- master the methods of evaluating the economic efficiency of a business.

## **3. Requirements for evaluating the learning outcomes of an educational program**

LO 1: Has the ability to think abstractly, analyze, synthesize, generate ideas, and conceptualize new products and services that are in demand in the market.

LO 2: Demonstrates a commitment to ethical values, has the skills of socio-cultural and business communication, is able to independently find the right solutions in non-standard situations; applies knowledge of economic laws, life safety, ecology; a culture of academic integrity.

LO 3: Makes and evaluates strategic business management decisions based on personal leadership and entrepreneurial skills.

LO 4: Has a willingness to lead a team in the area of his professional activity, tolerantly perceiving social, ethnic, confessional and cultural differences.

LO 5:Shows the ability to present, defend one's position, negotiate

LO 6: Able to build a process of effective personal time management and implement a self-development trajectory based on the principles of lifelong learning.

LO 7: Develops corporate strategy, organizational development and change programs and ensures their implementation, promotes innovation to various target audiences from investors to end users.

LO 8: Uses modern financial management techniques to achieve strategic objectives.

LO 9: Develops technologies for creating biomedical equipment and organizes its production.

LO 10: Uses modern tools to introduce progressive socio-economic solutions to the market, their support, support, creation of marketing innovations that help attract and retain consumers, achieve a sustainable competitive advantage.

LO 11: Uses in professional activities various types of information and communication technologies, software tools for solving general engineering problems, modeling electrical and electronic devices.

LO 12: Demonstrates a set of process management skills, the ability to choose methods, methodologies and evaluation criteria to obtain results.

LO 13: Demonstrates the ability to constantly learn, to acquire new, expand and deepen previously acquired knowledge, skills and competencies, to work in a team of developers and users of engineering systems.

LO 14: Demonstrates basic knowledge of computer systems architecture, data warehousing, data management systems, information systems, algorithmization and programming, software development technologies, methods and models for analyzing, processing and interpreting data.

## 4. Passport of the educational program

### 4.1. General information

No.	Field name	Note
1	Code and classification of the field of education	6B04 Business, administration and law
2	Code and classification of areas of study	6B041 Business and management
3	Group of educational programs	B044 "Management and management"
4	Name of the educational program	Startup undergraduate
5	Brief description of the educational program	is focused on training highly qualified managers who have the necessary competencies to organize their own business and start-ups.
6	Purpose of the OP	training of entrepreneurs with practical business skills, with a system of competencies necessary for a competitive entrepreneur, possessing analytical, research, leadership skills and innovative thinking.
7	OP type	higher professional education
8	NQF level	6
9	ORC level	6
10	Distinctive features of the OP	interdisciplinary
eleven	List of competencies of the educational program:	K 1 Generation of business and social initiatives K 1.1 Ability to see business opportunities and formulate a business idea K 1.2 Ability to develop business projects and update the business concept K 1.3 Ability to find and attract resources for the implementation of business projects K 1.4 Ability to assess the social, economic and technological conditions for doing business and predict business development scenarios

	<p>K 1.5 Possession of basic knowledge of the basics of competitive intelligence and the ability to apply them in their activities</p> <p>K 1.6 Ability to demonstrate leadership qualities in the processes of creating and managing a business</p> <p>K 1.7 Ability to create and manage a brand</p> <p>K 1.8 Possession of basic knowledge of legal documents, incl. in the field of entrepreneurship, and the ability to apply them in their activities</p> <p>    K 2 Organizational and managerial activities</p> <p>K 2.1 Ability to assess the human capital of business partners and employees</p> <p>K 2.2 Possession of the basics and principles of business management</p> <p>K 2.3 Possession of skills and ethics of business communications</p> <p>K 2.4 Ability to work in a group and manage subordinates</p> <p>K 2.5 Ability to manage conflicts</p> <p>K 2.6 Ability to organize the search, selection and work of personnel</p> <p>K 2.7 Ability to manage staff development and development</p> <p>K 2.8 Possession of methods of motivation and stimulation of personnel</p> <p>K 2.9 Possession of methods for assessing the quality of personnel work</p> <p>K 2.10 Proficiency with marketing tools</p> <p>K 2.11 Possession of methods and tools of operational management</p> <p>K 2.12 Knowledge of methods and tools of quality management</p> <p>K 2.13 Ability to manage distribution channels</p> <p>K 2.14 Ability to find and make organizational and managerial decisions in conditions of uncertainty, redundant information and expanding markets, as well as take into account their consequences</p> <p>K 2.15 Ability to assess, predict risks and minimize their consequences;</p> <p>K 2.16 Proficiency with strategic management methods</p> <p>K 2.17 Knowledge of innovation management methods</p> <p>K 2.18 Possession of methods for developing and implementing an investment strategy</p> <p>K 2.19 Possession of basic knowledge of the foreign economic activity of the enterprise</p> <p>K 2.20 Possession of basic knowledge on the protection of intellectual property</p> <p>K 2.21 Ability to interact with financial institutions</p> <p>K 2.22 Ability to manage cash flows</p> <p>    K 3 Information and analytical activities</p> <p>K 3.1 Possession of methods of quantitative analysis and modeling, theoretical and experimental research</p> <p>K 3.2 Computer skills and the ability to use application programs in the process of creating and managing a business</p>
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		<p>K 3.3 Ability to identify and assess economic trends, market trends and market gaps</p> <p>K 3.4 Ability to assess the economic system in the internal and external environments of the enterprise</p> <p>K 3.5 Ability to manage knowledge within the implemented entrepreneurial field of activity</p> <p>K 4 Settlement and economic activity</p> <p>K 4.1 Possession of basic economic knowledge</p> <p>K 4.2 Possession of the basics of money circulation</p> <p>K 4.3 Proficiency in accounting methods</p> <p>K 4.4 Possession of methods and tools of financial management</p> <p>K 4.5 Proficiency in methods for assessing and managing business value</p> <p>K 5 Production and technological activities</p> <p>K 5.1 Ability to manage documents using modern information technologies</p> <p>K 5.2 Ability to manage product life cycle</p> <p>K 5.3 Ability to design and organize the production of products</p> <p>K 5.4 Ability to plan and manage production</p> <p>K 5.5 Ability to allocate and manage production and technological resources</p> <p>K 5.6 Ability to plan and conduct product testing</p> <p>K 5.7 Ability to certify products and production</p> <p>K 5.8 Ability to understand (foresee) the environmental consequences of project implementation, develop measures to reduce possible environmental risks</p>
12	Learning outcomes of the educational program:	<p>LO 1: Has the ability to think abstractly, analyze, synthesize, generate ideas, and conceptualize new products and services that are in demand in the market.</p> <p>LO 2: Demonstrates a commitment to ethical values, has the skills of socio-cultural and business communication, is able to independently find the right solutions in non-standard situations; applies knowledge of economic laws, life safety, ecology; a culture of academic integrity.</p> <p>LO 3: Makes and evaluates strategic business management decisions based on personal leadership and entrepreneurial skills.</p> <p>LO 4: Has a willingness to lead a team in the area of his professional activity, tolerantly perceiving social, ethnic, confessional and cultural differences.</p> <p>LO 5: Shows the ability to present, defend one's position, negotiate</p> <p>LO 6: Able to build a process of effective personal time management and implement a self-development trajectory based on the principles of lifelong learning.</p> <p>LO 7: Develops corporate strategy, organizational development and change programs and ensures their</p>

		<p>implementation, promotes innovation to various target audiences from investors to end users.</p> <p>LO 8: Uses modern financial management techniques to achieve strategic objectives.</p> <p>LO 9: Develops technologies for creating biomedical equipment and organizes its production.</p> <p>LO 10: Uses modern tools to introduce progressive socio-economic solutions to the market, their support, support, creation of marketing innovations that help attract and retain consumers, achieve a sustainable competitive advantage.</p> <p>LO 11: Uses in professional activities various types of information and communication technologies, software tools for solving general engineering problems, modeling electrical and electronic devices.</p> <p>LO 12: Demonstrates a set of process management skills, the ability to choose methods, methodologies and evaluation criteria to obtain results.</p> <p>LO 13: Demonstrates the ability to constantly learn, to acquire new, expand and deepen previously acquired knowledge, skills and competencies, to work in a team of developers and users of engineering systems.</p> <p>LO 14: Demonstrates basic knowledge of computer systems architecture, data warehousing, data management systems, information systems, algorithmization and programming, software development technologies, methods and models for analyzing, processing and interpreting data.</p>
13	Form of study	full-time
14	Training period	4 years
15	Volume of loans	240
16	Languages of instruction	Kazakh, Russian
17	Awarded Academic Degree	Bachelor of Business and Management
18	Developer(s) and authors:	Orsariev A.A., Turegeldinova A.Zh.

### 4.2. The relationship between the achievability of the formed learning outcomes in the educational program and academic disciplines

No.	Name of the discipline	Brief description of the discipline	Number	Formed learning outcomes (codes)													
				RO1	PO2	PO3	PO4	RO5	RO6	RO7	RO8	RO9	RO10	RO11	RO12	RO13	PO14
<b>Cycle of general education disciplines</b>																	
<b>Required Component</b>																	
1	Foreign language	Learning a foreign language from the level determined on the diagnostic test	10		v			v									
2	Kazakh (Russian) language	Learning Kazakh / Russian language starting from the level determined on the diagnostic test	10		v												
3	Physical Culture	Formation of the physical culture of the individual and the ability to use various means of physical culture for the preservation and promotion of health, psychophysical training and self-training for future professional activities	8		v												
4	Information and Communication Technologies (in English)	Leveling the basic knowledge of students in the field of information and communication technologies	5											v			v

5	Modern history of Kazakhstan	The purpose of the course is to familiarize students of technical specialties with the main theoretical and practical achievements of domestic historical science on the problems of the history of modern Kazakhstan, a comprehensive and systematic study of the main stages of the formation and development of Kazakhstani society	5	v	v												
6	Philosophy	The aim of the course is the formation of cognitive, operational, communicative, self-educational competencies	5		v												
7	Module of socio-political knowledge (culturology, psychology)	The purpose of the course: to form in undergraduate students an understanding of the specifics of the development of national culture in the context of world culture and civilization, the need to preserve the cultural code of the Kazakh people, the ability to independently pursue a strategy for preserving the cultural heritage of the Kazakh people in a dynamically changing multicultural world and society.	3		v												

8	Module of socio-political knowledge (sociology, political science)	The purpose of the course is the political socialization of students of a technical university, providing the political aspect of training a highly qualified specialist on the basis of modern world and domestic political thought.	3		v											
<b>Cycle of general education disciplines</b>																
<b>Selectable Component</b>																
9	Fundamentals of anti-corruption culture	Studying the basis of anti-corruption culture, system, methods, principles of forming the basis of anti-corruption culture.	5		v											
10	Fundamentals of Entrepreneurship and Leadership	The purpose of the discipline: the study, systematization and consolidation of the foundations of the theory and practice of entrepreneurial activity in modern economic conditions; familiarization of students with the mechanism of work of business entities; obtaining a comprehensive understanding of the methodology of entrepreneurship.	5	v		v	v									
eleven	Fundamentals of scientific research methods	The purpose of studying the discipline is, on the basis of theoretical and practical knowledge, to ensure the adoption of evidence-based decisions in the performance of professional tasks.	5		v	v										

12	Ecology and life safety	The purpose of studying the discipline is to form the foundations of environmental knowledge, which is the theoretical foundation of all environmental protection measures, including measures to ensure the environmental safety of a person, preserve his health, ecologization of consciousness and education of ecological culture.	5	v												
<b>Cycle of basic disciplines</b>																
<b>University component</b>																
13	Mathematics for Economists	The course is intended for students studying economics. It aims to teach the methods of differential and integral calculus used to build mathematical models of various economic and financial disciplines, including banking, management, accounting.	5	v								v				
14	business statistics	The purpose of the discipline is to acquire by students the necessary skills to apply the methods of quantitative statistical analysis in various economic situations and business processes.	5	v										v		
15	Introduction to the specialty	The study of the discipline "Introduction to the specialty" is necessary to familiarize students with their future profession and encourage them to master the	5												v	

		necessary knowledge and skills, as well as to familiarize students with the specifics of university education and the graduating department.														
16	Engineering and computer graphics	The course develops the following skills for students: depict all possible combinations of geometric shapes on a plane, conduct research and measure them, allowing image transformations; create technical drawings, which are the main and reliable means of information providing communication between the designer and the designer, technologist, builder, in the AutoCAD environment.	5													
17	The psychology of entrepreneurship	The purpose of the discipline is the formation of students' skills and abilities of socio-psychological analysis of problems in the areas of business and interpersonal relations, the use of acquired knowledge in practical work in the field of business, instilling in students an interest in research work, awareness of its social significance, the formation of adequate ideas among students about their abilities	5			v	v	v							v	

		to do business and about the psychological factors of success in the business sphere.															
18	Business management	The purpose of studying the discipline is to master the theoretical foundations and the mechanism of business functioning, as well as gaining practical skills in business management tools and managerial decision-making, studying the main directions, activities, projects that form the appropriate policy of the organization.	5														
19	Microeconomics	The purpose of studying the discipline is the formation of future specialists' theoretical knowledge about the microeconomic aspects of the functioning and development of the modern economy, as well as practical skills in the field of microeconomic analysis and other modern scientific tools for studying microeconomic processes.	5						v					v			



20	Macroeconomics	The purpose of studying the discipline is to give students knowledge about macroeconomics as an integral system that studies the functioning and development of the country's national economy, analyzes the most pressing problems of the economy, the impact of the state's economic policy on the economic life of society.	5							v					v		
21	Business engineering 1	In the system of economic education, the course contributes to the formation of modern economic thinking of a specialist focused on the application of an engineering approach to solving practical problems of enterprises by creating and using enterprise architecture models.	5														
22	Theories for inventive problem solving	An idea of the trends in the development of methods for solving inventive problems, of a creative approach in solving problems, of the essence and types of contradictions, of methods for resolving contradictions in technical systems, in particular electronic engineering.	6														

23	Analysis of the competitive environment and competitors	The purpose of the discipline is to study the modern theory of competition, mastering the practical skills of organizing and analyzing the activities of competitors; analysis of the company's competitive environment; comparative analysis of competitors' activities.	5			v	v			v			v			
24	Accounting and audit	The purpose of the discipline is to familiarize students with the basic principles and methods of accounting and auditing, as well as the possibilities of their application in solving problems that arise in their subsequent professional activities.	5							v						
25	Communication skills	The discipline is dedicated to a block of professional competencies of a manager related to communication. The purpose of the discipline: the formation of a versatile understanding of business communication among students, as well as the development of a number of communicative competencies of a leader.	5					v								
26	Fundamentals of agile technologies	The purpose of the discipline is the development of skills and practical skills for effective project management, ensuring the	5			v				v						

		achievement of certain results in terms of the composition and scope of work, cost, time, quality and satisfaction of project participants.														
27	Theory and practice of project management	The goal is to acquire by students knowledge in the field of theory and practice necessary for project management.	5			v				v						
28	Finance and investment	The study of the discipline aims to develop students' theoretical knowledge and practical skills in the field of finance and investment activities.	5								v					
<b>Cycle of basic disciplines Optional component</b>																
29	Introduction to the specialty - Computer Science	The course studies the main trends in the development of the field of computer science, its history, features of problems and methods for solving them, and also teaches the first skills of working with a computer, introduces basic terminology, promising trends in the development of information technology, basic concepts of algorithmization and programming.	5												v	v
thirty	Introduction to Electronic Science and Engineering Technology	The course gives an idea of the trends in the development of electronic industry technologies, the patterns of	5										v		v	

		their development, which determine the relationship between the quality indicators of the element base, performance parameters, and energy consumption indicators of electronic systems. Introduces students to the methods and fundamentals of electronic science and engineering; with the basic concepts, models and principles of building the electronics industry.													
31	Business engineering 2	The purpose of the discipline is to form a system of practical knowledge and skills in students in the field of design, business process management, their improvement and redesign in order to increase efficiency.	5		v				v						
32	Fundamentals of electromechanics and electronics	The course is aimed at developing students' knowledge of the basics of electromechanics and electronics, design methods and calculations of electronic devices. Obtaining knowledge, skills and abilities to read structural and schematic diagrams of electronic devices, understand the principles of their operation and make the	5									v		v	

		right choice of elements of electronic equipment.															
33	Algorithmization and basics of programming	Introducing students to the basic principles of developing and analyzing algorithms and data structures and high-level programming languages and acquiring skills in designing and programming computer applications.	5													v	v
34	Theoretical foundations of electrical engineering	The discipline deals with: basic concepts and definitions used in electrical engineering; modern methods of modeling electromagnetic processes; methods of analysis of electrical and magnetic circuits; numerical methods for the analysis of electrical circuits; basic laws and principles of electrical engineering, properties and characteristics of electrical circuits; methods for analyzing electrical circuits in steady state and transient modes; selection of the	5									v					

		optimal calculation method, determine the main parameters and characteristics of electrical circuits																
35	Biomedical electronics	The discipline "Biomedical Electronics" refers to the profiling cycle as one of the fundamental sciences in the field of electronics, associated with the concept of obtaining information, its processing and transmission. On the basis of electrical devices, electrical transducers (sensors), elements of diagnostic and physiotherapeutic equipment used in clinical medicine are based.	5								v							



37	General communication theory	The study of the basic patterns of information transmission in infocommunication systems, the main types of signals used in telecommunication systems, processing methods, efficient transmission and noise-immune reception in information systems for various purposes.	5														
38	Nodes and elements of biotechnical systems	This discipline aims to form the basic concepts and definitions of the subject among students; show students the principles of constructing units and elements of medical equipment; consider the basic features of modules and blocks of various medical devices and systems; consider the design features of the execution of electronic units of medical equipment	5								v		v				



<b>Cycle of major disciplines University component</b>																
39	Multimedia technologies in telecommunication systems	The course studies various editors for processing sound and video, creating animation effects and processing various graphic objects, creating multimedia presentations. The program direction of the course defines the range of issues related to the study of software tools designed to process sound, graphic and video information and the technology of working in them. The technical direction determines the knowledge of the computer hardware used directly when working with sound and video.	5											v		v
40	Business Law	The purpose of studying the discipline "Business Law" is to familiarize students with the legal foundations of entrepreneurial activity, the theory and practice of applying the rules of business law, the formation of practical skills for applying the acquired knowledge in relation to the materials of the practice of resolving economic disputes.	5													

41	Marketing	The purpose of studying the discipline "Marketing" is to form students' initial knowledge of marketing, ideas about its importance and necessity, as well as to give future specialists both the theory and practice of marketing, and specific areas and technologies of marketing activities in industries that produce goods and services.	5									v					
<b>Cycle of major disciplines</b>																	
<b>Selectable Component</b>																	
42	Fintech technologies	The course explores new technologies aimed at improving and automating the provision and use of financial services. The course includes questions about new technologies of artificial intelligence and machine learning that are used in the financial industry. The course provides an opportunity to identify new artificial intelligence, machine learning and fintech technologies from various insurance and real estate companies and their impact on the future of finance and investment.	5									v					v
43	Electronic Design	Designing modern electronic technical products, their individual elements, the	5											v			v

		basics of building technological processes for their production; protection of products from external destabilizing factors.															
44	Design of electrical devices	Studying the method of system analysis in the design of electrical devices. Determination of the main features of electrical devices and the basis for the search for technical solutions. Heuristic search methods. Morphological and automated methods for the synthesis of technical solutions. Methods and principles for solving inventive problems. Evaluation and consideration of electromagnetic compatibility of electrical devices in the design. Methods for solving engineering, technical and economic problems using application software	5											v			v
45	Touch electronics and sensors	The discipline is aimed at acquiring knowledge about the principles of operation, basic parameters, designs of sensors, measuring transducers based on them and sensors for various purposes. He studies the basics of physical phenomena and processes	5											v			

		that underlie the principles of operation of sensors and measuring transducers.															
46	Mobile Application Development	The course studies the theoretical and practical foundations of developing programs for mobile devices using various modern programming languages and mobile technologies. The course includes studying the architecture of mobile devices, their operating systems, platforms for mobile development and programming languages for mobile applications using mobile DBMS.	5													v	v
47	Programming for microcontrollers	The discipline is aimed at studying the methods of programming microcontrollers and acquiring skills in the practical application of microcontrollers in modern information-measuring and control systems; formation of programming skills for microcontrollers for solving various problems, using analog-to-digital and digital-to-analog converters.	5									v				v	v
48	Methods for processing and analyzing biomedical signals and data	The objectives of mastering the academic discipline "Methods of processing biomedical signals and data" are: formation of a system of	5								v						

		views among students on the correct use of existing mathematical methods and algorithms for analyzing experimental information of various physical nature; creation of software-algorithmic and mathematical support for automated primary processing of biomedical signals; development of medical and technical requirements for the creation of new and improvement of existing medical devices and systems, designs, programs and methods for their testing.													
49	CRM systems	The course studies the basic concepts, categories and tools of modern CRM, the technical aspects of CRM systems, the features of the choice and integration of software products used in CRM projects, the basics of the work of analytical models for analyzing and predicting customer behavior. A special feature is its practical focus on studying examples of developing strategies and tools for managing customer relationships, as well as implementing CRM implementation projects in various industries.	5			v				v			v		

50	Development of computer games	The course is devoted to the main methods of developing computer games, developing documentation and implementing independent game projects. The course begins with a description of the general ideas of computer game development, game documentation. The first deals with the creation of two-dimensional games, using their example to explore concepts that are fair for any kind of games, the second is focused on working with three-dimensional graphics. Both blocks end with an analysis of a fairly large-scale game project that demonstrates the interaction of technologies studied earlier.	5															v
51	3D printing of machine parts and elements	When compiling the program for this course, the following goals were taken into account: to familiarize students with the classification of additive technologies, to provide general information about the main types of AM technologies, manufacturers of AM machines, development trends and examples of the practical use of AM technologies in industry.	5										v			v		

52	Artificial intelligence and expert systems	The discipline includes consideration of the main issues of modern theory and practice of building intelligent and expert systems, including neural networks, error backpropagation, LISP and Prolog programming languages, programming mathematical formulas in C ++.	5													v	v	
53	Basics of cybersecurity	To give a general idea of security in the information society and, on this basis, to form an understanding of information security technologies and the ability to apply cybersecurity rules in all areas of activity	5															v
54	The device of sensors and actuators of electromechanical and electronic systems of vehicles	In the process of studying the course, the following are considered: design features of modern electronic vehicle control systems; designs of specialized vehicle onboard systems; Automotive multiplex information transmission systems. The designs of hybrid electric vehicles, the operation of sensors in automotive electronic systems are being studied.	5										v					
55	Inspection and testing of medical equipment	The discipline "Inspection and testing of medical equipment" is aimed at	5															v

		developing students' knowledge about the operation and maintenance of medical devices, biotechnical systems and devices in the conditions of medical and biological organizations, teaching the principles of ensuring conditions for safe life in the development, production and operation of biomedical devices, complexes and systems, training in methods of application of methods for organizing routine maintenance, verification and certification of medical equipment.														
56	SMM	The purpose of the discipline is to form students' fundamental understanding of social media marketing (SMM) with the possibility of applying the acquired knowledge and skills in the activities of digital agencies and digital divisions of companies.	5													
57	Product Management	The purpose of the discipline is the formation of students' theoretical knowledge, practical skills and competencies necessary for the effective implementation of product management tasks. and services in the	5				v			v						



		positions of marketing manager, brand manager.															
58	Lean management	The discipline studies the basics of the formation of a value stream by qualified employees in Lean management; key aspects, implementation algorithms, Lean management models; the concept of stimulating production according to the basics, Lean management; ways and methods of introducing and developing Lean management in accordance with the synchronization of continuous improvement of the company's activities.	5			v			v			v					
59	Operational efficiency	The purpose of the discipline is to form students' holistic understanding of approaches to improving operational efficiency in organizations with various types of production processes based on a systematic approach.	5			v			v			v					
60	Oratory	Discipline Oratory is aimed at the formation and development of practical skills of public speaking. During the course, students	5				v										

		will learn the basics of oratory, the history of the issue, existing theories and techniques.															
61	Emotional intellect	The purpose of studying the discipline "Emotional Intelligence" is to develop students' theoretical and practical knowledge, skills and abilities of emotional competence in the management of value chains, as well as the formation of emotionally competent behavior necessary for the professional activity of a high-level specialist based on the consideration of the emotional factor in business processes modern companies.	5				v	v	v								
62	Taxes and taxation	The purpose of mastering the discipline "Taxes and Taxation" is the acquisition of theoretical knowledge in the field of tax planning, the acquisition, development and consolidation of skills and abilities in applying tax planning methods in companies and financial institutions, calculating tax savings, as well as the formation of systemic and professional competencies.	5							v							

63	Tax planning	The purpose of mastering the discipline is to form a solid theoretical and practical basis for understanding the economic mechanism of tax planning, as well as instilling practical skills in assessing tax risks.	5							v								
64	Personnel management and team building	The main goal of the discipline is to study and assimilate by students the theoretical foundations and practical skills of managing project groups, teams and teams. Knowledge of the theory and methods of team management is necessary for the successful implementation of innovative projects, effective management of teams of small enterprises, departments of large companies.	5				v											
65	Motivation and stimulation of personnel work	The purpose of the discipline is the acquisition by students of theoretical knowledge and practical skills that allow them to professionally carry out managerial functions to motivate, stimulate and pay staff, as well as to contribute to the effective implementation of other personnel management functions.	5				v											

66	Investment management	The purpose of mastering the discipline is to study the basics of investment analysis, to obtain basic skills for evaluating the effectiveness of investment projects, to acquire knowledge in the field of evaluating the effectiveness of investment projects based on discounted cash flows.	5								v					
67	Financial business strategies	The discipline is a course in which students will be able to get acquainted with various business strategies for applying financial technologies in the activities of traditional and innovative financial companies, as well as non-financial firms.	5								v					
68	Capstone project 1	The course will allow students to learn how to transform an idea into a concrete solution and determine the most optimal approach to its implementation. Course participants will gain a holistic understanding of the process, key techniques and tools needed to design, develop and further develop their products and services.	4	v										v		

69	MVP Prototype Development	The purpose of the discipline is to help the student develop his own MVP (minimum viable product) to test market demand without large investments. As a result, the student will be able to quickly bring a product to market, identify a problem, analyze the target audience, market and competitors, develop critical functionality and receive first feedback from users, develop concepts aimed at reducing costs and making a profit on later versions of the product solution.	4	v											v			
70	Capstone project 2	The course is aimed at solving the problems of scaling your business and attracting investments. The purpose of the course is to develop students' understanding of the process of attracting investments and scaling a business, and to develop practical skills in the field of attracting investments in a startup.	5															
71	Sales technologies	The objectives of mastering the discipline are the training of specialists who own the system of knowledge about sales and the formation of students' practical skills in planning, organizing and	5						v			v						

		managing the marketing activities of an enterprise; as well as informing students about the mechanism of sales technologies for a product or service, the features of purchasing behavior, the organization of the work of an effective existing sales department and control over this activity.																
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## 5. Curriculum of the educational program

### CURRICULUM

of Educational Program on enrollment for 2022-2023 academic year

Educational program 6B04104 - "Startup Bachelor's degree"

Group of educational programs B044 - "Management and governance"

Form of study: full-time

Duration of study: 4 years

Academic degree: Bachelor of business and management

Discipline code	Name of disciplines	Cycle	Total amount in credits	Total hours	Classroom amount lec/lab/pr	SIS (including TSIS) in hours	Form of control	Allocation of face-to-face training based on courses and semesters							
								I course		II course		III course		IV course	
								1 semester	2 semester	3 semester	4 semester	5 semester	6 semester	7 semester	8 semester
<b>CYCLE OF GENERAL EDUCATION DISCIPLINES (GED)</b>															
<b>M-1. Module of language training</b>															
LNG 108	English language	GED, RC	10	300	0/0/6	210	E						5	5	
LNG 104	Kazakh (Russian) language	GED, RC	10	300	0/0/6	210	E						5	5	
<b>M-2. Module of physical training</b>															
KFK 101-104	Physical education	GED, RC	8	240	0/0/8	120	Difcredit	2	2	2	2				
<b>M-3. Module of information technology</b>															
CSE 677	Information and communication technologies (in English)	GED, RC	5	150	2/1/0	105	E			5					

<b>M-4. Module of socio-cultural development</b>															
HUM 137	History of Kazakhstan	GED, RC	5	150	1/0/2	105	SE		5						
HUM 132	Philosophy	GED, RC	5	150	1/0/2	105	E	5							
HUM 120	Socio-political knowledge module (sociology, politology)	GED, RC	3	90	1/0/1	60	E		3						
HUM 134	Socio-political knowledge module (culturology, psychology)		5	150	2/0/1	150	E		5						
<b>M-5. Module of anti-corruption culture, ecology and life safety base</b>															
HUM 133	Fundamentals of anti-corruption culture	GED, CCH													
MNG 488	Fundamentals of entrepreneurship and leadership		5	150	2/0/1	150	E	5							
HYD 438	Ecology and life safety														
<b>CYCLE OF BASIC DISCIPLINES (BD)</b>															
<b>M-6. Module of mathematical training</b>															
NSE450	Mathematics for economists	BD, UC	5	150	2/0/1	105	E							5	
NSE188	Business statistics	BD, UC	5	150	2/0/1	105	E					5			
<b>M-7. Module of basic training</b>															
MNG539	Introduction to the specialty	BD, UC	5	150	2/0/1	105	E	5							



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GEN 429	Engineering and computer graphics	BD, UC	5	150	1/0/2	105	E				5				
NSE191	Psychology of entrepreneurship	BD, UC	5	150	2/0/1	105	E					5			
NSE193	Business Management	BD, UC	5	150	2/0/1	105	E	5							
NSE130	Microeconomics	BD, UC	5	150	2/0/1	105	E		5						
NSE139	Macroeconomics	BD, UC	5	150	2/0/1	105	E	5							
MNG500	Business Engineering 1	BD, UC	5	150	2/0/1	105	E	5							
ELC474	Theories of inventive problem solving	BD, UC	6	180	2/0/2	120	E			6					
NSE427	Analysis of the competitive environment and competitors	BD, UC	5	150	2/0/1	105	E					5			
NSE192	Accounting and auditing	BD, UC	5	150	2/0/1	105	E						5		
NSE138	Communication skills	BD, UC	5	150	2/0/1	105	E					5			
MNG530	Fundamentals of flexible technologies	BD, UC	5	150	2/0/1	105	E					5			
MNG533	Theory and practice of project management	BD, UC	5	150	2/0/1	105	E		5						
NSE194	Finance and investments	BD, UC	5	150	2/0/1	105	E						5		
2201	Elective	BD, CCH	5	150	2/0/1	105	E			5					
2202	Elective	BD, CCH	5	150	2/0/1	105	E			5					
2203	Elective	BD, CCH	5	150	2/0/1	105	E			5					
AAP401	Educational practice	BD, UC	3						3						

<b>CYCLE OF SPECIAL DISCIPLINES (SD)</b>														
<b>M-8. Module of professional entrepreneurship activity</b>														
CSE521	Multimedia technologies in telecommunication systems	PD, UC	5	150	2/0/1	105	E						5	
NSE195	Business law	PD, UC	5	150	2/0/1	105	E							5
NSE196	Marketing	PD, UC	5	150	2/0/1	105	E				5			
2301	Elective	PD, CCH	5	150	2/0/1	105	E				5			
2302	Elective	PD, CCH	5	150	2/0/1	105	E				5			
2303	Elective	PD, CCH	5	150	2/0/1	105	E				5			
2304	Elective	PD, CCH	5	150	2/0/1	105	E				5			
2305	Elective	PD, CCH	4	150	2/0/1	105	E				4			
3301	Elective	PD, CCH	5	150	2/0/1	105	E						5	
4301	Elective	PD, CCH	5	150	2/0/1	105	E							5
4302	Elective	PD, CCH	5	150	2/0/1	105	E							5
4303	Elective	PD, CCH	5	150	2/0/1	105	E							5
4304	Elective	PD, CCH	5	150	2/0/1	105	E							5
4305	Elective	PD, CCH	5	150	2/0/1	105	E							5
AAP402	Industrial practice I	PD, UC	1								1			
AAP403	Industrial practice II	PD, UC	3											3
<b>M-9. Module of final attestation</b>														



**ELECTIVE DISCIPLINES of the educational program for recruitment for the 2022-2023 academic year**

**Educational program 6B04104 - "Startup Bachelor's degree"**

**Group of Educational programs B044 - "Management and governance"**

Full-time study

Study duration : 4 years

Academic degree: bachelor of business and management

Year of study	Code of elective	Code of discipline	Name of discipline	Semestr	Cycle	Credits	Total hours	lec/lab/pr	SIW (including SIWT) in hours
<b>The module of basic entrepreneurial training</b>									
2	2201	CSE624	Introduction to the specialty – Computer Science	3	BD, CCH	5	150	1/1/1	105
		ELC505	Introduction to Electronic Science and Engineering Technologies				150	2/0/1	105
		MNG521	Business Engineering 2		BD, CCH		150	2/0/1	105
		ROB410	Fundamentals of Electromechanics and electronics				150	1/1/1	105
	2202	CSE155	Algorithmization and programming basics	3	BD, CCH	5	150	1/1/1	105
		ELC541	Theoretical foundations of electrical engineering				150	2/1/0	105
		ROB100	Biomedical electronics		BD, CCH		150	2/1/0	105
	2203	CSE528	Introduction to ERP Systems	3		BD, CCH	5	150	1/0/2
		ELC569	General theory of communication		150			1/1/1	105
		ROB419	Nodes and elements of biotechnical systems		150			2/0/1	
<b>Module of profile entrepreneurial activity</b>									
2	2301	CSE519	Fintech technologies	4	PD,CCH	5	150	1/1/1	105

		ELC521	Design of electronic means		PD,CCH		150	2/0/1	105	
		ELC435	Design of electrical devices		PD,CCH		150	2/0/1	105	
		ROB138	Sensor electronics and sensors		PD,CCH		150	2/1/0	105	
	2302		CSE636	Mobile application development	4	PD,CCH	5	150	1/1/1	105
			ROB543	Programming for microcontrollers		PD,CCH		Φ	2/1/0	105
			ROB122	Methods of processing and analysis of biomedical signals and data		PD,CCH		150	2/0/1	105
	2303		CSE520	CRM system	4	PD,CCH	5	150	1/1/1	105
			CSE518	Development of computer games		PD,CCH		150	1/1/1	105
			GEN193	3D printing of machine parts and elements		PD,CCH		150	2/1/0	105
			ROB115	Artificial intelligence and expert systems		PD,CCH		150	2/1/0	105
	2304		SEC402	Basics of cybersecurity	4	PD,CCH	5	150	1/1/1	105
			TRA559	The device of sensors and actuators of electromechanical and electronic systems of motor vehicles		PD,CCH		150	1/1/1	105
ROB417			Inspection and testing of medical equipment	PD,CCH		150		2/0/1	105	
4	4301	NSE430	SMM	7	PD,CCH	5	150	2/0/1	105	
		NSE400	Product Management		PD,CCH		150	2/0/1	105	
	4302	MNG523	Lean management	7	PD,CCH	5	150	2/0/1	105	
		NSE409	Operational efficiency		PD,CCH		150	2/0/1	105	
	4303	NSE432	Oratory	7	PD,CCH	5	150	2/0/1	105	
		MNG800	Emotional Intelligence		PD,CCH		150	2/0/1	105	

	4304	NSE433	Investment Management	7	PD,CCH	5	150	2/0/1	105
		MNG147	Taxes and taxation		PD,CCH		150	2/0/1	105
		NSE440	Tax planning		PD,CCH		150	2/0/1	105
		NSE437	Financial business strategies		PD,CCH		150	2/0/1	105
	4305	NSE438	Personnel management and team building	8	PD,CCH	5	150	2/0/1	105
		NSE439	Motivation and stimulation of staff work		PD,CCH		150	2/0/1	105
<b>Module "R&amp;D"</b>									
2	2305	NSE441	Capstone project 1	4	PD,CCH	4	150	0/0/3	105
		NSE443	Prototyping MVP		PD,CCH		150	1/1/1	105
3	3301	NSE442	Capstone project 2	6	PD,CCH	5	150	0/0/3	105
		NSE444	Sales technologies		PD,CCH		150	1/1/1	105

<b>Credits numbers of elective disciplines over the entire period of study</b>	
<b>Cycle of disciplines</b>	<b>Credits</b>
<b>Cycle of basic disciplines (B)</b>	15
<b>Cycle of special disciplines (S)</b>	54
<b>Overall:</b>	<b>69</b>