

AGREED
Chairman of the EMC,
Vice-Rector of AEA.

Mustafina A.K.
"14" March 2023

P.S.

APPROVED
Chairman of the Board Rector
JSC "International University
Information technologies"
Khimmetov A.K.


"14" March 2023

P.S.

EDUCATIONAL PROGRAM
6B041604 "FINANCIAL ENGINEERING"

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: B046 – Finance, economics, banking and insurance
ISCED level: 6
NQF level: 6
NCO level 6
Duration of study: 4 years
Credits: 240 ECTS credits

AGREED

Даняров
Даняров
"25" March 2023 г.


AGREED

Мударова Р.Р.
Мударова Р.Р.
"17" April 2023 г.
Leader 67


Almaty, 2023

JSC ITU
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LIST OF ABBREVIATIONS AND SYMBOLS

EP – Educational program
 ISCED – International Standard Classification of Education
 NQF – National Qualification Framework
 SQF – Sectoral Classification Framework
 RC – Required Component
 BC – Basic Component
 PC – Profile Component
 LO – Learning outcome
 SIW – Student’s Independent Work

1. DESCRIPTION OF THE EDUCATIONAL PROGRAM

This educational program "Information Technologies in Business" was developed based on the main regulatory documents that determine the content of training in the educational program:

➤ “On approval of state compulsory standards of education at all levels of education” Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 31, 2018 No. 604.

➤ “On Approval of the Model Rules for the Activities of Educational Organizations of the Relevant Types and Types” Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 30, 2018 No. 595.

➤ Law of the Republic of Kazakhstan dated July 27, 2007 No. 319-III “On Education” (as amended and supplemented as of May 03, 2022);

➤ “On approval of the Rules for organizing the educational process on credit technology of education” Order of the Minister of Education and Science of the Republic of Kazakhstan dated April 20, 2011 No. 152.

The program is designed to implement the principles of the democratic nature of education management, expanding the boundaries of academic freedom and the powers of educational institutions, which will ensure the training of elite, highly motivated personnel for innovative and knowledge-intensive sectors of the economy. Various financial institutions, corporations, and enterprises, acting as investors and issuers, use or have needs for new financial instruments. However, the creation and launch of a variety of tools, and the development of the processes of securitization of financial markets and financial assets lead to the emergence and growth of risks that must be managed, which requires the creation of new ways of protection against volatility in the financial markets. The proposed educational program (EP) "Financial engineering» solves the issues of adapting existing and creating modern financial instruments that allow financial market participants to effectively cope with the changing situation.

The present educational program in the sphere of "Financial engineering" is developed based on the professional standard "Financial Management" developed by the Private organization "Research and Development Institute for Regional Development". Order No. 263 of 23.12.2019y.

2. GOALS AND OBJECTIVES OF THE EDUCATIONAL PROGRAM

The goal of the EP is to train financial specialists-financial engineers who can design and develop financial products, technologies, strategies, and systems to meet the needs of financial institutions and corporations, using mathematical and quantitative methods in solving financial problems based on the acquired competencies and skills of practical modeling.

Tasks:

- 1) Develop students' ability to focus on social and ethical values in their professional activities; the basics of the legal system and legislation of Kazakhstan to become a highly educated people with a broad Outlook and culture of thinking;
- 2) Develop the skills of conducting marketing analysis of markets, assessing the state of an industry or industry, making predictions based on mathematical and statistical methods, and

modeling financial and economic processes to solve specific business (production) tasks with the use of ICT;

- 3) Develop the ability to interact with project teams, be interested by stakeholders, effectively organize groups, and manage the development, and implementation of projects, incl. investment ones, by attracting the necessary and sufficient resources (labore, Financee, etc.) on the local and international stock markets to achieve the company's goals;
- 4) Develop skills and knowledge in managing a portfolio of securities: conducting valuations of stocks and bonds, as well as analyzing the portfolio of securities, derivatives, and speculative transactions and strategies, on the limits of the yield of the portfolio of securities using the Monte Carlo method;
- 5) Prepare for participation in the development, formation, and implementation of the investment strategy of the Bank, and company, taking into account fundamental and technical analysis; конструированиидesign of financialx technologies and products with risk assessment.

3. PASSPORT OF THE EDUCATIONAL PROGRAM "FINANCIAL ENGINEERING»

3.1. General information

№	The name of the field	Note
1	Education area code and classification	6B04 Business, management, and law
2	Code and classification of training	6B041 Business and management
3	Group of educational programs	Finances
4	Name of the educational program	Financial engineering
5	Brief description of the educational program	Various financial institutions and enterprises, acting as investors and issuers, use or have needs for new financial instruments. The creation of various instruments and the development of financial markets and financial assets lead to the emergence and growth of risks that need to be managed, which requires the creation of new ways of protection against the background of volatile markets. EP solves the issues of adapting existing and creating modern financial instruments that allow financial market participants to effectively cope with the changing situation.
6	The purpose of the EP	To prepare financial specialists – financial engineers who can design and develop financial products, technologies, strategies, and systems to meet the needs of financial institutions and corporations, using mathematical and quantitative methods in solving financial problems based on their acquired competencies and practical modeling skills.
7	ISCED level	6
8	NCF level	6
9	SCF on level	6
10	The list of competencies of the educational program:	<p>RC1: Ability to focus on social and ethical values in their professional activities; fundamentals of the legal system and legislation of Kazakhstan.</p> <p>RC2: To have an idea of ethical and spiritual values; about the sociological approach to personality, the basic laws, and forms of regulation of social behavior; about the nature of power and political life, political relationships, and processes, on the role of political systems in society and different social groups; the role of consciousness and self-consciousness in behavior, communication, and activities of people, the formation and development of personality.</p> <p>RC3: Possess ethical and legal norms of behavior; a system of practical knowledge and skills that ensure the acquisition, development, improvement, and activation of psychophysical abilities and qualities, the acquisition, preservation, and promotion of health, the ability to work in a team, correctly defend your point of view, offer new solutions.</p> <p>RC4: Ability and willingness to understand the role of art, to strive for aesthetic development and self-improvement, respect and preserve the historical heritage and cultural traditions, tolerant to perceive social and cultural differences, understand the diversity of cultures and civilizations in their interaction ability and readiness for practical analysis of the logic of various arguments, to public speaking, argumentation, the conduct of discussion and debate.</p> <p>RC5: Ability and readiness to understand the driving forces and laws of the historical process, the place of a person in the historical process, the political organization of society, to analyze political events and trends, and to participate responsibly in political life.</p>

- RC6: Ability and readiness for practical analysis of the logic of various kinds of reasoning, for public speeches, argumentation, conducting discussions, and polemics.
- RC7: Ability and willingness to carry out their activities in various spheres of public life, taking into account the moral and legal norms adopted in society.
- RC8: Be able to adequately navigate various social situations; Express and justify their position on issues related to the value attitude to the historical past; find compromises, and correlate their opinion with the opinion of the collective.
- RC9: Possess basic knowledge that contributes to the formation of a highly educated person with a broad Outlook and culture of thinking. Ability to find organizational and managerial solutions in non-standard conditions and in conditions of different opinions and willingness to take responsibility for them.
- RC10: Ability to write and speak in the state language and the language of interethnic communication; ability to logically correctly, argumentatively, and build oral and written speech; readiness to use one of the foreign languages.
- BC1: Ability to form a mathematical basis for making decisions in the field of Finance.
- BC2: Have skills in conducting statistical analysis of financial and economic data.
- BC3: Be competent to model financial and economic processes for solving specific tasks.
- BC4: The ability to forecast financial and economic data using modern information technologies, computer technologies, databases, and application software packages in their subject area.
- BC5: Be able to conduct research using the methods and methodology of scientific research; solve research and production tasks.
- BC6: Evaluate the economic state of the country and its development prospects.
- BC7: Ability to evaluate the state of an industry or industry by making forecasts.
- BC8: Be able to conduct an economic analysis of the company's activities, taking into account the impact factors of the internal and external environment.
- BC9: Be able to calculate the cost of production and labor productivity.
- BC10: Ability to use basic ICT skills in a business career.
- BC11: Be able to use the Mat lab programming environment, and perform mathematical calculations on a computer.
- BC12: Understand the concepts, practices, and management of software development and how it relates to systems engineering.
- BC13: Be able to perform static testing to identify deficiencies and use various dynamic test development methods to write test cases.
- BC14: Willingness to use IC resources and capabilities IC.
- BC15: Be able to draw up technical tasks for solving financial and economic problems.
- BC16: Be able to develop corporate information management systems.
- BC17: Ability to analyze how new technologies can be applied to improve compliance control and regulatory reporting.
- BC18: Ability to interact with project teams, effectively organize groups and manage projects.
- BC19: Be able to manage the resources (labor, financial, etc.) of the enterprise.
- BC20: Ability to conduct marketing analysis of the market, develop and implement a marketing and commercial plan at the national level, using IT tools.
- BC21: Ability to apply knowledge and techniques that can be optimally used to successfully conduct business internationally.
- BC22: Ability to cope with accounting issues, and conduct an accounting of the economic activities of the enterprise.
- BC23: Financial management skills, be able to conduct financial and managerial analyses of the company's activities.
- BC24: Ability to prepare and consolidate the budget, and report on the implementation of the budget for financing and development of the investment program of the enterprise.
- BC25: Ability to evaluate the investment attractiveness of the project, and planned transactions.
- BC26: Be able to use the necessary knowledge about the principles of the banking and financial environment in which banks operate.

	<p>BC27: Ability to manage a portfolio of securities: evaluate stocks and bonds, and evaluate the portfolio of securities, derivatives, and speculative transactions and strategies, determine the return on the portfolio of securities using the Monte Carlo method.</p> <p>BC28: Skills to conduct financial calculations in Excel.</p> <p>BC29: Be able to perform tasks related to the acquisition and efficient allocation of funds of a business organization and the formation of an optimal capital structure.</p> <p>BC30: Willingness to use knowledge of financial markets and intermediaries to achieve financial and investment goals.</p> <p>PC1: Possession of fundamental knowledge about random processes and Markov chains used in financial mathematics.</p> <p>PC2: Ability to develop financial models for analyzing and solving financial problems; to study the impact of various scenarios for the development of the financial industry on the financial model.</p> <p>PC3: Be able to perform quantitative analysis for budgeting purposes.</p> <p>PC4: The ability to conduct an overview of the main financial innovations, models, and simulation methods used in applications.</p> <p>PC5: Readiness to participate in the development, formation, and implementation of the investment strategy of the Bank, or company, taking into account fundamental and technical analysis.</p> <p>PC6: Be able to use Big Data (Data Science) and cloud computing technologies to analyze financial markets, and information about the financial performance of companies when making investment decisions.</p> <p>PC7: Ability to design financial technologies and products.</p> <p>PC8: Be able to use qualitative and quantitative risk management methods, and analyze and evaluate them.</p> <p>PC9: Be able to manage assets and liabilities in banks.</p> <p>PC10: Ability to analyze the investment climate and investments in countries where investments have been made or are planned to be made.</p> <p>PC11: Be able to find new investment ideas and projects on the local and international stock markets; attract investors.</p>
11	<p>Learning outcomes of the educational program:</p> <p>LO1 Independently analyze the processes and phenomena occurring in modern society; correctly and convincingly formulate their thoughts orally and in writing; use acquired knowledge in specific situations.</p> <p>LO2 Conduct market analysis of the market, develop a strategy and manage a business, attract and retain customers and investors; plan, find and use business resources using IT tools.</p> <p>LO3 To demonstrate sociability, initiative and psychological preparedness for work, including when working in a team and making management and technical decisions.</p> <p>LO4 Resolve business problems through modeling and automation; identify an innovative solution; plan IT projects; formulate business requirements; draw up technical tasks for solving economic problems; develop corporate management information systems; use Matlab programming environment, SAP resources and capabilities.</p> <p>LO5 Conduct business accounting, financial and management analysis.</p> <p>LO6 Be able to apply the acquired knowledge in the chosen additional educational program</p> <p>LO7 Identify the main socio-economic problems of society, IT entrepreneurship, analyze them, evaluate the economic parameters of functioning and use the economic potential, industry, company.</p> <p>LO8 To be fluent in Kazakh / Russian and a foreign language at a level that allows for the basic types of speech activity in various ways of oral and written communication.</p> <p>LO 9 To justify and evaluate the effectiveness of financial decisions; evaluate financial assets; develop investment projects; to find new investment ideas, projects in the local and international stock markets; apply modern techniques and methods of financial planning, budgeting, forecasting; attract investors.</p>

	<p>LO10 Make financial calculations in Excel; determine the yield of a securities portfolio using the Monte Carlo method; perform tasks for the acquisition and effective distribution of funds of the business organization.</p> <p>LO 11 Predict the course of innovation processes; develop and manage innovative programs and projects; evaluate the effectiveness of investment in innovations.</p> <p>LO 12 Apply various mathematical and statistical methods for solving management problems; use a systematic approach to the process of quantitative analysis of information for making management decisions.</p>	
12	Form of training	Full-time
13	Languages of instruction	English
14	Volume of loans	240
15	Awarded academic degree	Bachelor in the field of Economics and business in the educational program "6B041604 Financial engineering»
16	Developer (s) and authors:	<p>JSC "international University of information technologies", Department of Economics and Business»:</p> <ol style="list-style-type: none"> 1. Shildibekov Ye. Zh. 2. Adambekov N.

3.2. Matrix of correlation of learning results of the educational program with the formed competencies

	LO1*	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11	LO12
RC 1	X											
RC 2	X											
RC 3	X					X						
RC 4	X											
RC 5	X											
RC 6	X					X						
RC 7	X											
RC 8	X									X		
RC 9						X						
RC10	X	X										
BC 1			X								X	X
BC 2			X								X	X
BC 3			X	X			X	X	X			
BC 4			X				X		X			
BK 5			X									
BC 6				X				X	X	X		
BC 7				X				X		X		
BC 8				X				X		X		
BC 9				X			X					
BC 10					X					X		
BC 11			X		X							
BC 12					X							
BC 13					X							X
BC 14					X			X	X			
BC 15					X			X				
BC 16				X	X			X		X		
BC 17								X				
BC 18						X			X	X		
BC 19						X				X		
BC 20						X				X		
BC 21								X				
BC 22							X					
BC 23							X	X				
BC 24							X	X				
BC 25								X	X	X	X	
BC 26								X			X	
BC 27								X			X	
BC 28					X			X			X	
BC 29						X	X	X			X	
BC 30								X			X	
PC 1			X								X	X
PC 2				X				X			X	
PC 3							X	X			X	
PC 4								X			X	
PC 5						X		X			X	
PC 6					X			X			X	
PC 7					X			X	X		X	X
PC 8			X					X			X	X
PC 9							X	X			X	X
PC 10								X			X	
PC11								X	X	X	X	

Notes * Tick the appropriate box

* Competencies and learning outcomes are listed in the following tables

3.3. Information about the disciplines (if there are any modules, select them)

№	Name of the discipline	Short description of the discipline	Number of credits	Generated competencies (codes)	Prerequisites	Postrequisites
The cycle of General education disciplines University component / elective Component						
1.	History of Kazakhstan	This course consists of studying the modern history of the country to understand the role and significance of current events in the historical context.	5	RC5	Knowledge defined by the program for high schools and colleges	Philosophy
2.	Philosophy	This course consists of teaching philosophy to form a conscious attitude to the environment.	5	RC1, RC2, RC3, RC4, RC5	The modern history of Kazakhstan	
3.	Foreign language (2)	This course consists of teaching a foreign language to develop communication skills in a foreign language.	10	RC10	Knowledge defined by the program for high schools and colleges, including knowledge and skills in a foreign language	Business English
4.	Kazakh (Russian) language (2)	This course consists of training in Kazakh/Russian for the formation of communication skills in the state and Russian languages.	10	RC10	Knowledge defined by the program for high schools and colleges	
5.	Information and communication technologies	The course provides an overview of various areas of ICT, allowing students to gain basic knowledge on the use of modern ICTs in their scientific and practical work, for self-study and other purposes.	5	BC10, BC14, BC20, BC28	Knowledge defined by the program for high schools and colleges	MathLab, Information Systems, Big Data, Java, UI/UX design
6.	Psychology	The course introduces you to various concepts, basic concepts, laws of management psychology	2	RC3, RC4		Management, Marketing
7.	Political science	The course provides знания students with knowledge of the political sphere of society, an understanding of the relationship and mutual influence of politics and management	2	RC2	Knowledge defined by the program for high schools and colleges	Business law
8.	Sociology	This course consists of teaching sociology to understand society and social development.	2	RC2, RC3, RC4, RC8		Management, Marketing
9.	Cultural studies	The course forms the necessary knowledge about cultural studies	2	RC2, RC3,	Philosophy	Marketing

		and develops an understanding of the uniqueness of peoples' cultures		RC4, RC8		
10.	Physical culture (2)	The course provides the solution to the main tasks of physical education, for students	8	RC3		
11.	Economic theory	The course contains an overview of the principles and regulations of economic relations.	5	BC3, BC4, BC6		Microeconomics, Macroeconomics
The cycle of basic disciplines						
University component						
12.	Educational practice	Practical training is conducted with the purpose of the acquisition by students of skills of professional work to deepen and consolidate knowledge and competencies in financial management.	3	BC8, BC9, BC10		
13	Mathematics 1	The course provides an overview of basic mathematical laws and tools.	5	BC1, BC2, PC1	Economic theory	Quantitative methods in business
14.	Microeconomics	The course provides an overview of the principles and laws of microeconomics.	5	BC3, BC4, BC6	Economic theory	Macroeconomics, Marketing
15.	Macroeconomics	The course provides an overview of the principles and regulations of macroeconomics.	5	BC3, BC4, BC6	Economic theory, Microeconomics	Marketing
16.	Statistics	The course provides an overview of the basic probability-statistical approach to solving managerial tasks.	5	PC1, BC3	Math 1.2	Quantitative methods in business
17.	Marketing	The course is dedicated to familiarizing students with the theoretical foundations and modern methods of marketing activities of enterprises.	4	BC20	Microeconomics, Macroeconomics	business Organization
18.	Business and Technology (ACCA)	The course is dedicated to the formation of fundamental theoretical knowledge in the field of accounting and auditing.	5	BC22	Microeconomics, macroeconomics	1C Accounting
19.	Professionally oriented foreign language (2)	This course consists of training in a professionally oriented foreign language for the formation of communicative skills in a foreign language and for solving professional tasks.	10	RC10	Foreign language	
20.	Entrepreneurial law	The course business law studies the legal basis of business activity in the conditions of the modern development of the market economy of the Republic, the theory and practice of applying the norms of business law, as well as issues of	3	OC1, BC6, BC7, BC19, BC20		Business Organization

		protecting the rights and interests of entrepreneurs.				
21.	Financial accounting	The course is aimed at familiarizing students with the basic models of financial accounting and audit. Mainly focuses on reports and their intercorrelations	5	BC22, BC23	Business Technology, Finance,	Analysis of financial statements
22.	Mathematics 2	This course provides students with basic knowledge of linear algebra and matrix theory. The course "Analytical geometry" includes an in-depth analysis of plane, solid and coordinate geometry, as they relate to both abstract mathematical concepts and real problem situations	5	BC1, BC2, PC1	Math 1	Statistics, Econometrics
23.	Management	The course includes the following main topics in blocks: Methodological foundations of management, Integration processes in management, management Functions, Group dynamics and leadership.	5	BC18, BC19	Economic theory	Project management, Change management, Startups and entrepreneurship
24.	Internship (2)	Production practice allows you to consolidate the theoretical knowledge and practical skills obtained during training, to form professional skills.	8	BC23, PC7	Financial management	Pre-diploma practice
25	Management accounting	Course Description Managerial accounting is the field of accounting aimed at providing managers with financial information to help them make decisions and maintain effective control of their organizations. This course introduces the student to internal accounting for business managers.	5	BC22, BC23	Business technology, Finance	Analysis of financial statements
26.	Research Methodology	This course provides a basic introduction to the principles, methods, and techniques of empirical social research. Topics include the fundamentals of the scientific method and scientific inquiry, ethical considerations in research, basic methods of quantitative and qualitative data collection, and strengths and weaknesses of various data collection methods. The course is designed to make	4	BC2, BC4, BC5	-	Diploma research

		you a more informed consumer of scientific research through discussion, analysis, and hands-on practice.				
The cycle of basic disciplines						
Component of choice						
27.	Startups and entrepreneurship	This course provides an introduction to what a business is, how it works and how to run it. Students will define ownership and processes used in manufacturing and marketing, finance, personnel, and management in business operations.	5	BC18, BC19	Management	
28.	Digital marketing and brand management	Digital marketing and brand management is a new and exciting blend of technologies, marketing, and data analysis that addresses the key marketing challenges of today. Many of the challenges include new ways of interacting with customers and gaining a deeper knowledge of customers by facilitating online communications channels and better satisfying the needs of the customer. This subject also looks into identifying patterns of customer behavior and analyzing them to achieve a new level of customer satisfaction and drive traffic to a website or application.	5	BC22, BC28	Marketing	
29.	Project management	This course provides students with a comprehensive overview of the principles, processes, and practices of software project management.	5	BC18, BC19, BC20	Management	
30.	Change management	This module will familiarize with processes, methods and techniques to analyze situation in the organization and successfully generate change in order to withstand and correspond to the conditions of the volatile world. It focuses on how people and teams are affected by change.	5	BC18, BC19	Microeconomics, Management, Macroeconomics	
31.	Tax and taxation	Discipline provides a systematic view of the theoretical and methodological basis of the tax system of the Republic of Kazakhstan, the formation and changes in its structure, and all types of taxes and fees paid by enterprises and organizations in the territory of the Republic of Kazakhstan.	5	BC19	Finance	Financial modeling

32.	1C Accounting	"1-C: Accounting" is a universal accounting program focused on a wide range of possible applications from small to very large enterprises, and various fields of activity. The purpose of the course is determined by giving the totality of theoretical knowledge and practical skills to future specialists.	5	BC10, BC14, BC22, BC28	Business Technology, Finance, Information and communicatio n technologies	
33.	Introduction to SAP ERP (ERP-1)	This course covers the most critical procurement and inventory management functions, and configuration requirements you'll need to know for implementing the SAP MM module. Through lectures and numerous exercises, you will receive extensive practice working through many business transactions leading to increased confidence in being able to apply what you have learned, in subsequent projects.	5	BC10, BC22, BC28	Business Technology, Finance, Information and communicatio n technologies	
The cycle of profile disciplines						
University component / optional Component						
34.	Undergraduate practice	The practice expands the professional knowledge and experience of professional activities in the field of financial engineering, as well as facilitating the collection and systematization of materials for writing a diploma project.	5	BC23, PC5, PC7	Financial investments, Financial markets, and intermediaries	Writing a diploma project
35.	Finance	The course is dedicated to describing the functioning of Corporate Finance and developing practical skills in its organization.	5	BC23, BC24, BC25, BC26, BC27	Economic theory, Microeconomi cs, macroeconomi cs	Corporate Finance
36.	Financial management	The course trains students to perform the task of acquiring and efficiently distributing funds of a business organization and forming an optimal capital structure.	5	BC24, BC29	Business technology, Finance	Financial modeling, Financial investments
37.	Corporate Finance	The course introduces students to the basics of Corporate Finance, and the key principles of analyzing the activities of companies.	6	BC23, BC24, BC25	Financial management, Business technology	
38.	Banking	The course provides students with the necessary knowledge about the principles of the banking and financial environment in which banks operate	4	BC26, PC9	Analysis of financial statements	

39.	Financial markets and intermediaries	The course forms a theoretical basis on the issues of financial market infrastructure, taking into account the specifics of its development in the Republic of Kazakhstan, and the activities of various financial intermediaries.	5	PC2, PC11, BC30	Finance	
40.	Financial statement analysis	The course teaches you how to conduct financial analysis of CSOs, and managerial analysis of the company's activities.	5	BC24, BC29	Business technology	Corporate Finance
41.	Financial investments	The course introduces students to the tools for evaluating valuations and stocks and bonds, as well as managing a portfolio of securities.	5	PC2, PC11, BC28	Financial institutions and markets	
42.	Insurance	The course will teach knowledge of probabilistic and statistical bases of actuarial calculations; solve problems in determining the size of insurance tariffs and premiums, insurance amounts, damages, systems, and sizes of insurance coverage and compensation.	5	PC2	data analysis and forecasting, Statistics	
43.	Financial risk management	This course is an introduction to the principles and concepts of risk and risk management. It explores the history of risk management to help understand the current drivers of enterprise risk management, as well as the development and impact of international standards.	4	PC8	Financial institutions and markets	
44.	Financial modeling	The course teaches you how to develop financial models for analyzing and solving financial problems; analyze the influence of various scenarios of financial industry development on the financial model.	5	PC1 - PC11	Data Analysis and forecasting, Quantitative methods in business, Finance	
45.	Derivatives	The course is dedicated to solving problems related to the design of financial technologies and products; implementing and calibrating models using the software.	5	PC1-PC11	Securities portfolio management, Financial management	
46	Minor 1	Additional educational program (Minor) (minor) - a set of disciplines and (or) modules and other types of educational work, determined by students for study in order to form additional competencies.	5	PC2 PC6 BC2		

47	Minor 2	Additional educational program (Minor) (minor) - a set of disciplines and (or) modules and other types of educational work, determined by students for study in order to form additional competencies.	5	PC2 BC2		
48	Minor 3	Additional educational program (Minor) (minor) - a set of disciplines and (or) modules and other types of educational work, determined by students for study in order to form additional competencies.	5	PC2 BC2		
49.	Portfolio management	This course covers the basic principles and application of portfolio management, with a strong focus on investing in an international environment.	5	BC1, BC24, PC3	Financial management	Corporate Finance
Additional types of training (DVO)						
Component of choice						
50.	Financial markets and intermediaries	The course forms a theoretical basis on the issues of financial market infrastructure, taking into account the specifics of its development in the Republic of Kazakhstan, and the activities of various financial intermediaries.	5	PC2, PC11, BC30	Finance	
51.	Derivatives	The course is dedicated to solving problems related to the design of financial technologies and products; implementing and calibrating models using the software.	5	PC1- PC11	Securities portfolio management, Financial management	
52.	Financial risk management	This course is an introduction to the principles and concepts of risk and risk management. It explores the history of risk management to help understand the current drivers of enterprise risk management, as well as the development and impact of international standards.	3	PC8	Financial institutions and markets	
53.	Analysis of financial statements	The course teaches you how to conduct financial analysis of CSOs, and managerial analysis of the company's activities.	5	BC24, BC29	Business technology	Corporate Finance
55.	Economic theory	The course contains an overview of the principles and regulations of economic relations.	5	BC3, BC4, BC6		Microeconomics, Macroeconomics
54.	Finance	The course is dedicated to describing the functioning of Corporate Finance and	5	BC23, BC24, BC25,	Economic theory, Microeconomics	Corporate Finance

		developing practical skills in its organization.		BC26, BC27	cs, macroeconomics	
55.	Corporate Finance	The course introduces students to the basics of Corporate Finance, and the key principles of analyzing the activities of companies.	5	BC23, BC24, BC25	Financial management, Business technology	

3.4. List of modules and learning outcomes

Name of the educational program: Financial engineering
 Qualifications: Bachelor of business and management

Module code/module Name	Learning outcomes	Criteria for evaluating the learning outcomes	of the Discipline forming the module Code / Name
GENERAL education MODULES			
OOM6701 "Social and humanitarian"	LO 4	Gained abilities, knowledge, and skills during studies of the module subjects	The modern history of Kazakhstan, Philosophy, Psychology, Political Science, Sociology, Cultural Studies, Entrepreneurial Law, Physical culture, Research Methodology
OOM6702 The "language"	LO 1, LO 2	Gained abilities, knowledge, and skills during studies of the module subjects	Foreign language, Professionally oriented foreign language, Kazakh (Russian) language, Professional Kazakh (Russian) language
BASIC MODULES			
BM6701 "Mathematical and analytical"	LO 3	Gained abilities, knowledge, and skills during studies of the module subjects	Mathematics 1, Mathematics 2, Statistics
BM6702 "Economy"	LO 4	Gained abilities, knowledge, and skills during studies of the module subjects	Economic theory, Microeconomics, Macroeconomics
BM6703 "IT minors"	LO 4, LO 5, LO 9, LO 12	Gained abilities, knowledge, and skills during studies of the module subjects	Information systems, Big Data, Java, UI/UX design, Introduction to SAP ERP, ICT
BM6704 "Accounting module"	LO 6, LO 7, LO 9	Gained abilities, knowledge, and skills during studies of the module subjects	Managerial accounting, Business Technology, Financial accounting, IC accounting
BM6705 "Marketing"	LO 10		Marketing, Digital marketing, and brand management
BM6706 "Finance"	LO 8, LO 11	Gained abilities, knowledge, and skills during studies of the module subjects	Finance, Financial management, Tax, Corporate finance
BM6707 "Management"	LO 1, LO 2, LO 3, LO 6	Gained abilities, knowledge, and skills during studies of the module subjects	Project management, Change management, Management, Startups and entrepreneurship
BM6708 "Internship / practice"	LO 1, LO 2, LO 3	Gained abilities, knowledge, and skills during studies of the module subjects	Educational practice, Internship, Internship
PROFESSIONAL MODULES			
PM6702 "Finance"	LO 8, LO 11	Gained abilities, knowledge, and skills during studies of the module subjects	Financial markets and intermediaries, Financial statement analysis, Banking, Insurance, Financial risks management, Portfolio management
PM6705 "Financial engineering"	LO 11, LO 12	Gained abilities, knowledge, and skills during studies of the module subjects	Financial modeling, Portfolio management, Derivatives, Financial investments
PM6707 Module of Pre-diploma practice and diploma works defense	LO 6	Gained abilities, knowledge, and skills during studies of the module subjects	Pre-diploma practice, Writing, and defense of diploma works and projects

4. EDUCATIONAL PROGRAM

Module code	Module name	Discipline cycle	Discipline component	Code of subject	Subject name	Academic credits	Academic study period	Control in the academic period			Total	Number of hours						Distribution of credits per academic period																				
								Exams	Differentiated test	Term paper/project		Lectures	Laboratory	Practice	Studio lessons	Practice	Independent work of students	Independent work of students	1 course		2 course		3 course		4 course													
											Number of weeks in the academic period																											
											15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15										
General modules																																						
Modules of specialty/education program																																						
Additional modules beyond qualification																																						
Modules of choice																																						
1		GER	CS	LAN6001A	Foreign language	5	1	1			5/150								15	90	5.0																	
2		GER	CS	LAN6001KR	Kazakh (Russian) language	5	1	1			5/150								15	90	5.0																	
3		GER	CS	HK6002	History of Kazakhstan	5	1	1			5/150	15							15	90	5.0																	
4		GER	CS	PhC6005	Physical Culture	4	2	2			4/120	15							15	60				4.0														
5		GER	CS	LAN6002A	Foreign language	5	2	2			5/150								15	90				5.0														
6		GER	CS	LAN6002KR	Kazakh (Russian) language	5	2	2			5/150								15	90				5.0														
7		GER	CS	ICT6001	Information and Communication Technologies	5	2	2			5/150	15							15	90				5.0														
8		GER	CS	PhC6006	Physical Culture	4	3	3			4/120	15							15	60					4.0													
9		GER	CS	SPS6005	Psychology	2	3	3			2/60	15							15	15					2.0													
10		GER	CS	SPS6004	Cultural studies	2	3	3			2/60	15							15	15					2.0													
11		GER	CS	SPS6003	Political science	2	4				2/60	15							15	15					2.0													
12		GER	CS	SPS 6002	Sociology	2	4	4			2/60	15							15	15						2.0												
13		GER	CS	SPS6001	Philosophy	5	5	5			5/150	15							15	90																		
14		GER	UC	ECO6006	Economic theory	5	1	1			5/150	15							15	90				5.0														

15	BS	UC	MAT6009	Mathematics 1	5	1	1	1	5/150	15	30								
16	BS	UC	LAW6006	Entrepreneurial law	3	1	1		3/90	15	15								
17	BS	UC	MAT6010	Mathematics 2	5	2	2		5/150	15	30			5.0					
18	BS	UC	PP6705	Educational practice	3	2			3/90				90					3.0	
19	BS	UC	ECO6701	Microeconomics	5	3	3		5/150	15	30					5.0			
20	BS	UC	ACC6701	Business and Technology (ACCA)	5	3	3		5/150	15	30					5.0			
21	BS	UC	LAN6001PA	Professionally oriented foreign language 1	5	3	3		5/150		45							5.0	
22	BS	UC	MRK6703	Marketing	4	3	3		4/120	15	30					4.0			
23	BS	UC	ECO6702	Macroeconomics	5	4	4		5/150	15	30							5.0	
24	BS	UC	MAT6012	Statistics	5	4	4		5/150	15	30							5.0	
25	BS	UC	ACC6704	Financial accounting	5	4	4		5/150	15	30							5.0	
26	BS	UC	PP6702	Internship	4	4			4/120				120					4.0	
27	BS	UC	LAN6001PA2	Professionally oriented foreign language 2	5	4	4		5/150		45							5.0	
28	BS	UC	ACC6703	Management accounting	5	5	5		5/150	15	30							5.0	
29	BS	UC	MGT6719	Management	5	5	5		5/150	15	30							5.0	
30	BS	UC	PP6703	Internship	4	6			4/120				120					4.0	
31	BS	UC	RM6701	Research Methodology	4	7	7		4/120	15	30								4.0
32	BS	UC	FIN6714	Tax and taxation	5	7	7		5/150	15	30								5.0
33	BS	ES	MNR6701	Minor 1	5	5	5		5/150	15	30							5.0	
34	BS	ES	MGT6703	Project management	5	5	5		5/150	15	30							5.0	
35	BS	ES	MGT6716	Change management	5	5	5		5/150	15	30							5.0	
36	BS	ES	MNR6702	Minor 2	5	6	6		5/150	15	30							5.0	
37	BS	ES	FIN6715	IC Accounting	5	6	6		5/150	15	30							5.0	
38	BS	ES	SFT6143	Introduction to SAP ERP (ERP-1)	5	6	6		5/150	15	30							5.0	
39	BS	ES	MNR6703	Minor 3	5	7	7		5/150	15	30							5.0	
40	BS	ES	MGT6706	Startups and entrepreneurship	5	7	7		5/150	15	30							5.0	

		BS	ES	MRK6702	Digital marketing and brand management	5	5	5	5	5/150	15	30		15	90								
41					Digital marketing and brand management																		
42		AS	UC	FIN6701	Finance	5	2	2	2	5/150	15	30		15	90	5.0							
43		AS	UC	FIN6704	Financial markets and intermediaries	5	4	4	4	5/150	15	30		15	90	5.0							
44		AS	UC	FIN6702	Corporate Finance	6	5	5	5	6/180	15	30		15	120	6.0							
45		AS	UC	FIN6705	Financial statement analysis	5	6	6	6	5/150	15	30		15	90					5.0			
46		AS	UC	FIN6719	Financial management	5	6	6	6	5/150	15	30		15	90					5.0			
47		AS	UC	FIN6708	Insurance	5	7	7	7	5/150	15	30		15	90						5.0		
48		AS	UC	FIN6707	Banking	4	8	8	8	4/120	15	30		15	60							4.0	
49		AS	UC	FIN6709	Financial risk management	4	8	8	8	4/120	15	30		15	60							4.0	
50		AS	UC	PP6704	Undergraduate practice	5	8	8	8	5/150			150	0	0								5.0
51		AS	ES	FIN6711	Financial modeling	5	6	6	6	5/150	15	30		15	90						5.0		
52		AS	ES	FIN6710	Financial investments	5	7	7	7	5/150	15	30		15	90							5.0	
53		AS	ES	FIN6712	Portfolio management	5	8	8	8	5/150	15	30		15	90								5.0
54		AS	ES	FIN6713	Derivatives	5	8	8	8	5/150	15	30		15	90								5.0
Weekly average workload at hours																							
1	General education subjects(GER)																						
	Core subjects(GER/CS)																						
	University component(GER/UC)																						
	Electives(GER/ES)																						
2	Base requirements(BS)																						
	Core subjects(BS/CS)																						
	University component(BS/UC)																						
	Electives(BS/ES)																						
3	Profession requirements(VRS)																						
	Core subjects(VRS/CS)																						
	University component(VRS/UC)																						
	Electives(VRS/ES)																						
4	Disciplines for the formation of professional competencies(BDFPC)																						

	Core subjects(BDFPC/CS)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	University component(BDFPC/UC) Electives(BDFPC/ES)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	Disciplines of personal development and the formation of leadership qualities(BDPPD) Core subjects(BDPPD/CS) University component(BDPPD/UC) Electives(BDPPD/ES)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Total on curriculum Additional courses	228	232	0	0	0	0	6480	615	0	1425	0	480	705	3735	28	32	27	33	31	29	29	29	29	29	29	29	29	
7	Module of final certification (MoFC) Total including FCS												8																

5. ADDITIONAL EDUCATIONAL PROGRAMS

Name of additional educational programs (Minor) with disciplines	Total number of credits	Recommended semesters of study	Documents based on the results of the development of additional educational programs (Minor)
Financial Engineering 1. Portfolio Management 2. Financial markets and intermediaries 3. Financial Modelling	15	5,6,7	

6. REQUIREMENTS FOR EVALUATING THE LEARNING OUTCOMES OF AN EDUCATIONAL PROGRAM

The scoring policy is based on the principles of objectivity, transparency, flexibility and high differentiation.

Monitoring and assessment of the learning outcomes of EP of university students is carried out according to the point-rating system (BRS) by conducting current, midterm and final control.

Current control is assessed on a 100-point scale (see Generalized criteria for assessing students' knowledge).

Generalized criteria for assessing the knowledge of students (monitoring)

95-100 points (A) deserve a student who has discovered a comprehensive, systematic and deep knowledge of the educational program material, who independently completed all the tasks provided for by the program, who has deeply assimilated the basic and additional literature recommended by the program, who actively worked in practical classes, who understands the basic scientific concepts of the studied discipline, who showed creativity and a scientific approach in understanding and presenting the educational program material, the answer is distinguished by the richness and accuracy of the terms used, the material is presented consistently and logically.

90-94 points (A-) are deserved by a student who has discovered a comprehensive, systematic knowledge of the educational program material, who independently completed all the tasks provided for by the program, who has deeply mastered the basic literature and is familiar with additional literature recommended by the program, who has actively worked in practical classes, has shown the systematic nature of knowledge on discipline, sufficient for further study, as well as the ability to independently replenish them, the answer is distinguished by the accuracy of the terms used, the material is presented consistently and logically..

85-89 points (B +) are deserved by a student who has discovered complete knowledge of the educational program material, who does not allow significant inaccuracies in the answer, who independently completed all the tasks provided for by the program, who mastered the basic literature recommended by the program, who actively worked in practical classes, who showed sy -thematic nature of knowledge in the discipline, sufficient for further study, as well as the ability to independently replenish them.

80-84 points (B) deserve a student who has discovered a sufficiently complete knowledge of the educational and program material, does not allow significant inaccuracies in the answer, who independently completed all the tasks provided for in the program, who has mastered the basic literature recommended by the program, who actively worked in practical classes, showed the systematic nature of knowledge in the discipline, sufficient for further study, as well as the ability to independently replenish them.

75-79 points (B-) are deserved by a student who has discovered a sufficiently complete knowledge of the educational and program material, does not admit significant inaccuracies in the answer, who independently completed the main tasks provided for by the program, who has mastered the basic

literature recommended by the program, who was distinguished by sufficient activity in practical studies, which showed the systematic nature of knowledge in the discipline, sufficient for further study.

60-74 (C) deserves a student who discovered knowledge of the basic educational and program material in the amount necessary for further study and future work in the profession, who was not distinguished by activity in practical classes, who independently completed the main tasks provided for by the program, who mastered the main literature, however, who made some errors in their implementation and in the answer to the exam, but having the necessary knowledge to eliminate them on their own.

60-64 points (C-) are deserved by a student who discovered knowledge of the main educational and program material, was not distinguished by activity in practical classes, who independently completed the main tasks provided for by the program, but made some errors in their implementation and in the answer on the exam, but possessing the necessary knowledge to eliminate errors made under the guidance of a teacher.

50-59 points (D) are deserved by a student who discovered knowledge of the main educational and program material, was not distinguished by activity in practical classes, who independently completed the main tasks provided for by the program, but made errors in their implementation and in the answer on the exam, but possessed the necessary knowledge to eliminate the most significant errors under the guidance of a teacher.

25-49 points (FX) are deserved by a student who discovered satisfactory knowledge of the basic educational and program material, was not distinguished by activity in practical classes, who independently completed the main tasks provided for by the program, however, made significant errors in their implementation (often with a delay deadlines) and in the answer on the exam, but has the basic knowledge necessary to eliminate the most significant errors under the guidance of a teacher.

0-24 points (F) are given to a student who has found gaps in knowledge or lack of knowledge in insignificant part of the main educational and program material, has not completed the main tasks provided by the program independently, has made fundamental mistakes in the implementation of the tasks provided for by the program, has not completed the main practical, seminar, laboratory studies, and who cannot continue their studies or start professional activities without additional classes in the relevant discipline.

The point-rating letter system for assessing the educational achievements of students with their interpretation in the traditional grading scale:

Letter Grade	Numerical equivalent	Points (%)	Traditional system assessment	General description of grading criteria
A	4,0	95-100	Excellent	The student has knowledge of the subject in the full scope of the curriculum, understands the discipline deeply enough; shows a high level of knowledge that exceeds the volume provided by the syllabus, gives an exhaustive answer
A-	3,67	90-94		The student has knowledge of the subject in the full scope of the curriculum, understands the discipline deeply enough; gives an exhaustive answer
B+	3,33	85-89	Good	The student shows a complete, well-founded knowledge of the subject, but the answers did not always highlight the main idea, rational methods of calculation
B	3,0	80-84		
B-	2,67	75-79		
C+	2,33	70-74		

				were not always used; the answers were mostly brief and sometimes unclear.
C	2,0	65-69	Satisfactory	The student demonstrates sufficient knowledge of the subject, but without proper depth and justification, the answers are unclear and without proper logical sequence.
C-	1,67	60-64		
D+	1,33	55-59		
D	1,0	50-54		
FX	0,5	25-49	Unsatisfactory	The student demonstrates insufficient knowledge of the subject, positive answers were not given to individual questions.
F	0	0-24		The student demonstrates a very low level of knowledge of the subject.

The procedure for accumulating points in the disciplines of OP "Financial engineering".

During the first 7 weeks of the semester on disciplines OP "Financial engineering" there would be given 7 tasks. The average score of the current control (Cc) is determined by the arithmetic mean of the obtained points (from 0 to 100).

In the next 8 weeks of the semester of the discipline, 8 tasks are provided.

Boundary control takes place in writing. Student need to answer questions and / or tests. By Landmark control allowed the student s who have completed SRSP tasks and CDS on schedule.

The first rating (also the second rating) is determined from the sum of all current control ratings divided by the number of ratings + the midterm control rating divided by 2 (arithmetic mean value).

The first rating will be $P_1 = (Tk_1 + Pk_1) / 2$

where: Tk_1 - arithmetic average of the first current control;

Rk_1 - assessment of the first milestone control.

The second rating will be $P_2 = (Tk_2 + Pk_2) / 2$

where: Tk_2 - arithmetic mean score for the second current control;

Pk_2 - assessment of the second midterm control.

The absence of lectures *without a valid reason* reduces the assessment of the assignments by 3 points, the absence of practical and laboratory classes leads to a decrease in the assessment of the assignments by 5 points.

When skipping classes *for good reason*, it is allowed to work out the material passed.

The average rating (R_{sr}) Is admission to the exam based on the results of the first rating and the second rating and is at least 50 points. The average rating (R_s) For an exam is determined as follows:

$$R_{av} = (P_1 + P_2) / 2$$

Calculation of the final grade.

After the discipline exam, the final grade for the discipline in percentage is displayed, which is determined by the formula:

$$\text{And } \% = \frac{(P_1 + P_2)}{2} \times 0.6 + E \times 0.4$$

where: P_1 - percentage of the rating of the first rating;

P_2 is the percentage of the second rating;

E is the percentage of the examination score.

The level of achievement on the course program is evaluated on the scale of final grades, accepted in credit technology training:

Score by literal the system	Digital equivalent points	% - content	Score by traditional the system
A	4,0	95-100	Excellent
A-	3,67	90-94	
B+	3,33	85-89	Good
B	3,0	80-84	Good
B-	2,67	75-79	
C+	2,33	70-74	Satisfactory
C	2,0	65-69	Satisfactory
C-	1,67	60-64	
D+	1,33	55-59	
D	1,0	50-54	Satisfactory
FX	1,0	25-49	Satisfactory
F	0	0-24	Failure