THE MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF KAZAKHSTAN
M.Auezov SOUTH KAZAKHSTAN UNIVERSITY

«APPROVED BY»
Chairman of the Board-Rector
_____
d.h.s., academician
Kozhamzharova D.P.
«___» _____ 2021y.

EDUCATION PROGRAMME

6B07220 - «Metallurgy»

Registration number	6B07200005
Code and classification of the field of education	6B07 - "Engineering, manufacturing and construction industries"
Code and classification of training areas	6B072 - Manufacturing and treatment industries"
Group of educational programs	B071 - Mining and production of useful minerals
Typeof EP	Acting
ISCE level	6
NQF level	6
SQF of education level	6
Language of learning	English
Typical duration of study	4 years
Form of study	Full-time, dual
The complexity of the EP, not less	240 credits
Distinctive features of EP	Dual education (DE)
University Partner (JEP)	-
University Partner (TDEP)	-
Social Partner (DE)	FerrumVtor LLP

Shymkent, 2021

Drafters:

Name	Position	Sign
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EP was considered by the Methodological Commission of the Faculty ____/
Considered by the Committee on Innovative Learning Technologies and Methodological Support of high school "ChE and BT", Protocol № 7 from 22 02 2021.

Chairman of MC (Committee) _____ Aitkulova R.

Considered and recommended for approval at the meeting of Educational and Methodical Council of M. Auezov SKU.
protocol № 5 from 23.02.21 y.

Approved by the decision of the Academic Council of the University
protocol № 5 from 25.02. 2021.

CONTENT

Introduction

1. Scope

Designed for the implementation of bachelors training by educational program (hereinafter - EP) code "6B07220 Metallurgy" in Non-profit Joint Stock Company "M.Auezov South Kazakhstan University" of the Ministry of Education and Science of the Republic of Kazakhstan of RK MES.

2. Regulatory documents

Education Act of the Republic of Kazakhstan (as amended and supplemented on 07/04/2018);

Standard rules for the operation of educational organizations implementing educational programs of higher and (or) postgraduate education, approved by order of the Minister of Education and Science of the Republic of Kazakhstan from October 30, 2018 No. 595 (registered with the Ministry of Justice of the Republic of Kazakhstan on October 31, 2018 No. 17657);

State obligatory standards of higher and postgraduate education, approved by order of the Minister of Education and Science of the Republic of Kazakhstan, October 31, 2018 No. 604;

The rules for the organization of educational process on credit technology education, approved by order of the Minister of Education and Science of the Republic of Kazakhstan on April 20, 2011 No. 152 as amended and supplemented of October 12, 2018 No. 563

Sectoral qualification frameworks "Mining and Metallurgical Industry" (Approved by the Minutes of the Session of the sectoral commissions on social partnership and regulation of social and labor relations for the mining and metallurgical, chemical, building industry and woodworking, light industry and mechanical engineering from August 16, 2016, No. 1).

3. Educational programs concept

The goal of the educational program is coordinated with the mission of university and is aimed at preparing the intellectual elite of the country with advanced entrepreneurial skills, fluent in three languages, demonstrating conceptual, analytical and logical thinking skills, creative approach in professional activities, being able to work in national and international teams obtaining the lifelong strategy. We are focused on generating new competencies, training a leader who translates research and entrepreneurial thinking and culture.

The educational program is harmonized with the 6th level of the National Qualifications Framework of the Republic of Kazakhstan, with Dublin descriptors, 1 cycle of the Framework for Qualification of the European Higher Education Area, also with Level 6 of the European Qualification Framework for Lifelong Learning.

The educational program is focused on professional and social order through the formation of professional competencies associated with the necessary types of research, practical and business activities, adjusted to meet the requirements of stakeholders.

The uniqueness of EP 6B07220 - Metallurgy are

EP 6B07220 - Metallurgy is accredited by the Independent Agency for Quality Assurance in Education (NAOCO), which makes it possible to recognize a bachelor's degree in engineering and technology on the international labor market. Provided for a dual form of training for the EP "Metallurgy" in accordance with the contract with the enterprise by the employer - FerrumVtor LLP. Students have the opportunity to combine theoretical training in the university and practical work at the advanced metallurgical enterprises of South Kazakhstan RK, including FerrumVtor LLP.

A well-known scientific school in Kazakhstan on complex processing of substandard natural and technogenic raw materials from ferrous and non-ferrous metallurgy, chemical industry, headed by Dr. tech. Sc., Professor of Metallurgy, Shevko V.M. has many years of experience in scientific work.

The educational program is aimed at training qualified competitive personnel for metallurgical enterprises through the organization of the educational process using the principles of the Bologna process, student-centered learning, accessibility and inclusion.

Program learning outcomes are achieved through the following training events:

- classroom training: lectures, seminars, practical and laboratory classes - held in view of innovative teaching technologies, the use of the latest achievements of science, technology and information systems;
- extra curricular training: the independent work of the student, including under the guidance of a teacher, individual counseling;
- conducting professional practices, implementation of course and diploma works (projects).

The university has taken measures to maintain academic integrity and academic freedom, protection from any kind of intolerance and discrimination against students.

The quality of EP is ensured by the involvement of stakeholders in its development and evaluation, systematic monitoring and review of its content.

4. Entry Requirements

Established according to the Model Rules for admission to studies in educational organizations that implement educational programs of higher and postgraduate education by order MES RK №600 on 10.31.2018

1. EDUCATION PROGRAMME PASSPORT

1.1The purpose and objectives of education program by specialty

EP objectives: We are focused on generating new competencies, training a leader who translates research and entrepreneurial thinking and culture.

EP tasks:

-the formation of socially responsible behavior in society, an understanding of the significance of professional ethical norms and adherence to these norms;

- providing basic undergraduate training that allows you to continue learning throughout life, to successfully adapt to changing conditions throughout their professional careers;

- ensuring the conditions for acquiring a high general intellectual level of development, mastering literate and developed speech, a culture of thinking and the skills of scientific organization of labor in the field of metallurgical production;

- creation of conditions for intellectual, physical, spiritual, aesthetic development to ensure the possibility of their employment in the specialty or continuing education at subsequent levels of education.

1.2 List of qualifications and positions

The graduate of this EP is awarded with degree of "Bachelor of engineering and technologies"

Bachelors by specialty 6B07220 - Metallurgy can hold primary positions metalmaker, laboratory inspector, production shift master, process engineer; Process Engineer; metallurgy technologist; design engineer; quality engineer; Production Shift Master; Junior Research Fellow in Industry Research and Design Organizations; laboratory assistant in factory laboratories without presenting requirements for work experience in accordance with the qualification requirements and the Qualification directory of positions for managers, specialists and other employees, approved by order of the Minister of Labor and Social Protection of the Population of the Republic of Kazakhstan dated May 16, 2012 No. 201 with 2 Annex 2 to the Mining and Metallurgy Industry Qualifications Framework approved on August 16, 2016 (Minutes No. 1).

1.3 Qualification characteristics of the educational program graduate

1.3.1 Scope of professional activity

The scope of professional activity of bachelorby EP 6B07220 - Metallurgy is a field of non-ferrous and ferrous metallurgy.

1.3.2 Objects of professional activity

The objects of professional activity of graduates are

- industrial enterprises of non-ferrous and ferrous metallurgy,
- industry research and design institutes;
- factory laboratories;
- secondary technical educational institutions

1.3.3 Subjects of professional activity

Subjects of professional activity of the bachelor by EP 6B07220 - Metallurgy are:

- providing modern innovative ways of processing raw materials and the production of metal products with enhanced consumer properties;
- technological processes in the metallurgical industry;
- enrichment of mineral ore raw materials;
- processing of mineral and secondary raw materials, production wastes;
- production and processing of metals and materials with the study of their structure and properties;
- equipment for metallurgical production;

- provision of automatic control system for metallurgical production and equipment with quality control of final products

1.3.4 Types of professional activity

A bachelor by EP 6B07220 - Metallurgy can do the following types of professional activity:

- production and technology;
- organizational and managerial;
- settlement and design;
- experimental research.

2. EP learning outcomes

LO1 To possess information and computational literacy, to be able to generalize, analyze information; communicate freely in a professional environment and society in Kazakh, Russian and English.

LO2 Use natural science, mathematical, social, socio-economic and engineering knowledge, regulatory documents and elements of economic analysis in professional activities.

LO3 To have knowledge of the laws governing the development of nature and society, the main stages in the development of Kazakh statehood, to possess elements of spiritual, aesthetic and ethical culture.

LO4 Critically evaluate the current state of metallurgical production, analyze and choose ways to improve existing and develop new technological processes based on modern achievements of science and technology.

LO5 Demonstrate knowledge of the theory, technology of preparation and processing of raw materials of pyrometallurgical and hydrometallurgical processes, as well as technologies and methods of examination of raw materials, products and waste in metallurgy

LO6 Owning the knowledge of the basic physical and chemical patterns of the flow of metallurgical processes, the sequence of technological operations and the optimal technological parameters and production modes of metals and alloys;

LO7 Develop material and heat balances of technological processes for the production of metals based on a systematic analysis of technological processes using fundamental laws;

LO8 Apply modern methods for the development of complex, energy-saving and environmentally friendly metallurgical technologies, with a rational use of raw materials, energy and other types of resources;

LO9 Possess basic principles and methods of designing objects in metallurgy using modern technical means and applying existing standards in the context of the fundamental principle of designing metallurgical production;

LO10 To determine the relationship between the quality of the raw materials used and the technical and economic indicators of metallurgical processes and production as a whole;

LO11 Use research and entrepreneurial skills and skills in the face of uncertainty; Continuing to improve their qualifications throughout their lives.

LO12 To work effectively individually and as a member of a team, correctly defend one's point of view, make independent decisions of production tasks, displaying analytical and logical thinking.

3 COMPETENCES OF EP GRADUATE

3.1 Successful completion of training in EP contribute to the formation of the following competences of a graduate:

–core competencies (CC)

–professioanalcompetencies(PC).

Core competencies:

CC1 *language*

ability to communicate freely in Russian, Kazakh and foreign languages in written and oral forms (listening, speaking, reading and writing) in society

CC2 *social*

- the ability to own social and ethical values based on public opinion, traditions, customs, norms and to be guided by them in their professional activities; know the cultures of the peoples of Kazakhstan and abide by their traditions; observe the basics of the legal system and legislation of Kazakhstan, know the trends of social development of society; be able to adequately navigate in various social situations; be able to find compromises, relate your opinion with the opinion of the team; own business ethics, ethical and legal standards of conduct; strive for professional and personal growth; work in a team, correctly defend their point of view, propose new solutions; demonstrate tolerance towards other individuals;

CC3 *fundamental scientific and technical training*

- the ability and willingness to apply educational potential, experience and personal qualities acquired during the study of mathematical, natural science, technical disciplines at the university, to determine ways of monitoring and evaluating the solution of professional problems, the development of mathematical and natural science thinking;

CC4 *informational*

- the ability to confidently use modern information and digital technologies for work, leisure and communications, to possess the skills of using, restoring, evaluating, storing, producing, presenting and exchanging information through a computer, communicating and participating in collaborating networks using the Internet in the field of professional activity;

CC5 *economic, managerial and entrepreneurial*

- the ability to know and understand the goals and methods of state regulation of the economy, the role of the public sector in the economy; master the basics of economic knowledge; possess the skills of critical thinking, interpretation, creativity analysis, drawing conclusions, evaluation; manage projects to achieve professional goals, manage staff, demonstrate entrepreneurial skills.

Professional competencies:

PC 1 –to describe the criteria for the quality of products and semi-products of metallurgical production at all its stages and methods of implementation, in accordance with the system of control and management of product quality;

PC 2 - to possess skills in areas related to metallurgy (chemical industry, building materials, silicate materials, ecology, mineral processing);

PC 3 – to use IT technologies to solve problems using automated design systems, to introduce high-tech processes and new areas of metallurgy, including composite materials, nanotechnologies in metallurgy, digital technologies and methods of mathematical modeling of processes, systems *and process* equipment;

3.2 Matrix of correlation of EP learning outcomes in general with modules formed by competencies

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12
CC1		+	+								+	
CC2	+		+								+	+
CC3	+	+		+	+	+	+	+	+	+	+	+
CC4	+		+	+			+		+			
CC5		+	+				+		+	+	+	
PC1				+	+	+				+		
PC2		+			+	+		+				+
PC3	+			+				+			+	

4. SUMMARY TABLE REFLECTING THE VOLUME ASSIMILATED CREDITS OF EDUCATION PROGRAM MODULES

Course of Study	Semester	The number of mastered modules	The number of studied disciplines			Numberofcredits KZ					Total hours	Total KZ credits	The number of	
			OC	IC	CCh	Theoretical training	Physical Training	Educational practice	Industrial practice	Final examination			exam	differentiatedcredit
1	1	4	4	2	-	28	2	-	-		900	30	6	1
	2	4	3	2	2	26	2	2	-		900	30	5	3
2	3	6	2	3	2	28	2	-	-		900	30	6	2
	4	5	-	2	4	24	2	-	4		900	30	5	2
3	5	6	-	1	5	30		-			900	30	6	1
	6	4	-	1	5	24		-	6		900	30	3	1
4	7	4	-	-	3	20		-	-		600	20	3	0
	8	3	-	-	4	20		-	-		600	20	3	1
	9	1		1				-	8	12	600	20		1
итого			9	11	25	200	8	2	18	12	7200	240	37	12

5.Information about disciplines

Module name	CYCLE	HSC / EC	ComponentName	Brief course description (in 30-50 words)	Number of credits	Formed LO (codes)
Module of Public Sciences	GED	OC	Contemporary History of Kazakhstan	Allows to classify the conceptual foundations of national history, to interpret the origins, continuity of the Kazakh state and the actual problems of the history of modern Kazakhstan. Analyzes the activities of the national intelligentsia in the formation of the ideology of the liberation movement and the stages of socio-economic modernization of Kazakhstan. Characterizes the creation of a democratic state governed by the rule of law. Evaluates the contribution of the First President to the theory and practice of public administration	5	LO1, LO2, LO3, LO12
	GED	OC	Phylosophy	Considers the fundamentals of philosophy, identifies the characteristics of a culture of thinking, concepts such as "philosophy," worldview, the nature and content of the concepts "existence", "consciousness", the relationship between the concepts "knowledge" and "creativity" reveals the essence and content of the category of the philosophy of liberty; develops the skills allocation of the essence of philosophical problems, critical thinking, and research skills philosophical aspects, problems and practices of knowledge.	5	LO2, LO3, LO12
Module of socio-political knowledge	GED	OC	Social and political science	Considers the theory of sociology, social structure and stratification of society, explains the role and place of politics in society. The main stages of formation and development of political science, including youth policy, the role of politics in the system of public life are studied. The essence of the state is revealed, the correlation between the state and civil society is revealed. The skills of sociological research, analysis of socio-political information are developing.	4	LO1, LO2, LO3
	GED	OC	Cultural studies and psychology	The article considers: social and ethical values of society as a product of integration processes in the systems of basic knowledge of the disciplines of the socio-cultural and psychological module; features of psychological institutions in the Kazakh society. The skills of solving conflict situations in society, including in professional	4	LO2, LO3, LO12

				society, are formed; the ability to correctly express and defend one's own opinion, which has social significance		
Module Socio-Ethnic Development	GED	HSC	Ecosystem and Law	The global environmental problems of our time, water resources and their protection, maximum permissible concentrations of harmful substances in reservoirs, soils and their rational use, life safety in industry, labor protection management system and fire safety at enterprises are considered. The skills for analyzing environ mental conditions and working conditions in industrial enterprises are developing.	5	PO4, PO5, PO8, PO12
	BD	EC	Abai Study	Examines the biography and works of Abay, creativity, his philosophical, aesthetic and social views; the history of the origin and formation of Abay studies, the main works of Abay scholars; Develops skills of analytical reading of works of art, involving the vision of issues and identification of the main artistic means of a text, instills a sense of patriotism and love for the country.	3	LO 1 LO2, LO3, LO 12
	BD	EC	Muhtar Study	Examines the history of the formation and development of the science "Mukhtarovedenie", the main dates of life and creative activity of M. Auezov, the role and significance of the works of M. Auezov in Kazakh literature. Instills the skills of searching for and using information about the life and work of M. Auezov; independent research of works, analytical reading of works of art, suggesting a vision of issues and identifying the main artistic means of a text		LO 1 LO2, LO3, LO 12
	BD	EC	Actual Problems and Modernization of Public Consciousness	Considers concepts, forms, features, features, meaning, and main directions of modernization of public consciousness; concepts of competitiveness, pragmatism, national identity, evolutionary development , and new ideology. It forms the skills of preserving national identity, selfless service to the Fatherland, openness of consciousness, readiness for change, openness and receptivity to the best world achievements.		LO 1 LO2, LO3, LO 12
Module of communicative and physical Education	GED	OC	Kazakh (russian) language	The development of communication skills and language skills, basic functions, functional styles of speech, the development of scientific and professional speech, structural and semantic analysis of scientific texts, annotation, and text review are considered. The following are formed: the development of cognitive, communicative activities in	10	LO1, LO3, LO12

				the Russian (Kazakh) language in the areas of interpersonal, social, intercultural communication; instilling the skills of discussing ethical, cultural, socially significant norms in discussions, the ability to work in a team; development of practical skills of text information interpretation, explanation of style and genre specifics in various spheres of communication.		
	GED	OC	Foreign language	The structure of the sentence; parts of speech, the temporal forms of verbs, vocabulary of common (household and General scientific), terminological and professional content, texts of General scientific and professional content are considered. The knowledge of grammar and vocabulary, history and culture of the country studied a foreign language, the rules of speech etiquette, and the ability to talk average complexity of the General character in a foreign language are formed. Skills of translation of foreign technical texts of medium complexity without a dictionary; letters required for the preparation of abstracts, annotations. A reasoned statement of one's own point of view.	10	LO1, LO2, LO12
	GED	OC	Physical training	The active classes in athletics: the technique of running short distances, long jump from a place; sports and ski training; cross-country and strength trainingare considered. The prevention of bad habits; control and evaluation of physical condition, physical development and preparedness; ability to perform individually selected complexes of health and medical physical cultureare formed. Skills of apply insurance and self-insurance techniques when performing physical exercises; independently set the daily load based on the physical condition of the person are formed.	8	LO1 LO2, LO3
	BD	HSC	Professional Kazakh (russian) language	The Kazakh (Russian) language in the communicative and discursive aspect is considered. The basics of the profession and specialty, culture of business communicationstudies. Formation: development of skills of extracting the necessary information from the text, its interpretation in educational and professional communication; development of the ability to establish contacts at a professional level, competently build communication based on the goals and situation of communication. Instilling the ability to creativity, innovation, collegiality in the process of building a program of	3	LO1, LO2, LO3, LO 12

				speech behavior in the Russian (Kazakh) language in the field of professional communication.		
	BD	HSC	Professionally-oriented foreign language	The distinctive features of technical English (lexical-grammatical and phonetic)are considered; develops skills of reading technical literature and mastering metallurgical terms, composing sentences of different types and translating scientific and technical literature in the field of metallurgy and metal production. It instills the skills of primary development of technical spoken English and the ability to discuss the provided topics on metallurgy.	3	LO 1 LO2 LO3 LO 12
	GED	OC	Information and communication technologies (in English)	The basics of computer systems, software, methods and means of information protection, design and creation of websites, multimedia presentations are considered. Skills in using information resources for searching and storing information, working with spreadsheets, databases, using e-government and e-textbooks, various cloud mobile technologies, and managing SMART technologies are taught.	5	LO1, LO2, LO11 LO12
Module of Engineering and Technical Sciences	BD	HSC	Higher mathematic	Elements of linear algebra and analytical geometry, mathematical analysis and probability theory are considered. Develops the ability of differential calculus of functions of one and several variables, integrals, and numerical characteristics of systems of two random variables. Skills in applying the law of large numbers, inequality, and correlation moment; effective use of formulas, definitions, and theorems in solving typical mathematical and professional problemsare acquired.	5	LO1, LO2, LO12
	BD	HSC	Physics	The kinematics, dynamics of a material point and a solid body, molecular physics, fundamentals of thermodynamics, the phenomenon of transport, real gasesare formed. Conservation laws, elements of special relativity, and elements of continuum mechanics are studied. The understanding of basic physical phenomena, molecular physics, thermodynamics, electrostatics, DC, magnetism, optics, quantum, atomic, nuclear physics are formed. Skills of the ability to analyze the physical situation and solve typical problems in physics; the use of synthesis, generalization and interpretation of experimental research resultsare acquired.	5	LO1, LO2, LO6
	BD	EC	Applied mechanics	The field of statics; conditions of equilibrium of bodies; kinematics, fundamentals of resistance of materials, the concepts of strength,		LO2, LO10,

				stiffness, fatigue, stability and deformation; the stress-strain state of the materialare considered. Demonstrating: knowledge of machine parts classification and requirements; performance and design criteria; mechanical transmission. The skills of calculating parts of detachable and non-detachable joints are acquired when designing metallurgical industrial enterprises.	4	LO12
	BD	EC	Mathematical modeling of metallurgical processes	The principles of mathematical modeling of metallurgical processes are considered, with the formation of ideas about modern trends in the development of methods, tools, systems of technological support for metallurgical production; knowledge of mathematical programs, complex devices that allow the most adequate description of typical tasks of metallurgical processing; skills in mathematical methods, software tools that make it possible to analyze, model devices, processes, phenomena of metallurgical production.		LO2, LO10, LO12
	BD	HSC	Engineering computer graphics	The computer systems, software with the development of skills in using information resources for searching and storing information; working with spreadsheets, working with databases are considered. Application of methods and means of information protection; design and creation of websites, multimedia presentations. Skills in using e-government and e-textbooks, various cloud-based mobile technologies, and SMART technology management are acquired.	4	LO1 LO2 LO9
	BD	HSC	Standartization, certification and metrology	The essence and content of the systems of standardization, certification and Metrology of the Republic of Kazakhstan are considered. Use of normative documents of the Customs Union and the Common economic space, regional and international standards to solve professional tasks. Argumentation of metrological norms and rules, certification schemes, Declaration of products at metallurgical enterprises. The skills of using and applying standards to determine the quality of products are acquired.	4	LO2 LO9 LO12
Module of Chemical Engineering	BD	HSC	Chemistry	The study of basic concepts and laws of chemistry is provided. Forms skills and abilities in the study of classes of inorganic substances of their structure. Demonstrates knowledge of the speed of chemical reactions and chemical equilibrium, redox processes that occur with substances. Demonstrate knowledge in the processes of obtaining metals by pyro- and hydrometallurgy methods. Forms	4	LO 2 LO 6 LO 11

				skills and abilities in setting and carrying out a chemical experiment, solving problems, skills in formulating conclusions on completed tasks.		
	BD	EC	Physical chemistry and physico-chemical methods of analysis	The physicochemical properties of binary systems, phase analysis studies. Thermal analysis. Composition-property diagram. Construction of cooling curves. Determines the composition of the metal-metal system. Eutectic points. Calculates the Gibbs, Helmholtz energy, process rate constants. Have concepts about liquidus and solidus. reversible, irreversible processes. The skills in physicochemical research methods (IR spectra, NMR spectra, derivatography) forms.	4	LO 5 LO 6 LO 11
	BD	EC	Chemical thermodynamics and electrochemistry	The study of thermodynamic equilibrium in electrolyte solutions, nonequilibrium phenomena and some of their laws is involved. The skills and abilities in studying the basics of electrochemical thermodynamics and electrochemical kinetics forms. Acquisition of skills in the interpretation of the concepts of electrode potential and the theory of delayed discharge. The results of the experiment in electrometallurgy and melts draw conclusions on completed tasks individually and as a team to analyze. The skills in creating progressive electrochemical technology for the fight against corrosion to form.		LO 5, LO 6, LO 11
	BD	EC	Processes and aggregates of Metallurgical Productions	The basic of typical processes occurring in the equipment of metallurgical industries considers. Formation: systematization of knowledge's on hydromechanical and heat-mass transfer processes of metallurgical technology; The ability to calculate equilibrium conditions, material balance and kinetics of typical processes of chemical and metallurgical technologies. The results of the experiment and draw conclusions, while completing tasks while working in a teamto analyze. The acquisition of skills consists in summarizing the theory and practice of the processes of chemical and metallurgical industries to identify their physico-chemical and hardware-technological community.	4	LO2, LO4, LO9
	BD	EC	Heat and mass transfer processes and apparatus in metallurgy	The laws of heat transfer under initial and boundary conditions; principles for compiling heat balances of metallurgical furnaces; technologies for selecting optimal refractory materialsare considered.		LO2, LO4, LO7

				The technological parameters of heating and firing processes, melting processes; skills of analysis and assessment of thermal efficiency of metallurgical plants;calculation of heat balances during the operation of metallurgical furnacesare effectively described.		
	ChD	EC	Heat-power engineering of metallurgical processes	The theoretical foundations of heat engineering, the mechanics of gas movement, heat and mass transfer in metallurgical furnaces in the production of agglomerates, pellets, cast iron in a blast furnace, steel converters, electric furnaces, as well as heat sources in these processes; study of the principle of operation of furnaces using secondary energy resourcesare considered. The skills in calculating the heat balance of the production of sinter, cast iron, steel and ferroalloys; energy balance of electric furnaces are acquired.	4	LO2 LO4, LO6, LO7
	ChD	EC	Energy Supply of Metallurgical Complex Enterprises	The issues of improving the energy efficiency of metallurgical production on the principle of using a systematic approach, the consideration of objects as elements of the energy economy of a metallurgical enterprise are considered. knowledge of the rules for the organization and use of power systems and energy sources, as well as power equipment at metallaurgical enterprises; skills in working with technical and regulatory documentation; the ability to compile accounting documentationare acquired.		LO2 LO4, LO6, LO8
	BD	EC	Engineering economics and entrepreneurship	The main resources of the enterprise, namely: fixed assets, valuation methods, depreciation, depreciation, leasingare considered. Planning and analysis of working capital, its composition and management. Argumentation of the competitiveness of engineering solutions. It provides for the study of the basics of business activity: the study of the theory of business planning in the market; types of business plans and the purpose of their development. Building skills: planning the costs and results of the company's activities. Conducting technical and economic analysis of engineering solutions. Preparation of a methodology for the development of standard sections of the business plan and business plan of a metallurgical enterprise.	4	LO2 LO7, LO8, LO11
	BD	EC	Production Management	The fundamental idea of the principles of effective functioning of the modern production management system, the development of enterprise management technology is considered. The theoretical foundations of the management of the production activity of the		LO2 LO7, LO8

				enterprise are studied. Skills are acquired: mastering the methods of making complex decisions in the field of production management; mastering the methods of analysis and synthesis of the production activity of the enterprise.		
Fundamentals of Specialty	BD	EC	Introduction to Specialty	The features of the credit system of education at the university for the chosen educational program in the aggregate of the studied disciplines and their relationship; the importance of metallurgy for the country's economy; characteristics of metallurgical raw materials of Kazakhstan, the use of metals in various industries; processing and enrichment methods, general information about metallurgical processes and methods for producing metals; the main technological equipment of metallurgical enterprises. Skills to work with educational and scientific literature are acquired.	3	LO5 LO6 LO12
	BD	EC	Fundamentals of Acadimic Writing	The genres and features of academic writing; the main types of scientific texts that are created in the academic environment; the norms and rules for creating academic texts: essays, reviews, reviews, term papers and theses, scientific articles, etc.; the features of scientific ethicsare considered. They acquire the skills to express their own thoughts in a scientific language, using logic, analysis, critical thinking, objectivity and respect for other ideas and other people's texts.		LO1, LO2, LO3
	BD	EC	Content and language In learning	The lexical stock of thematic terminology necessary for reading and translating texts of scientific and technical material in the field of metallurgy; students ' development of the skills of oral presentations and presentations in Englishareconsidered. They are trained in practical knowledge of spoken and special foreign languages for active use in the professional sphere. Skills of improvement and presentation of thoughts, understanding the content of texts and basic phrases and terms of the specialty in written and oral form in a foreign language are acquired	5	LO1, LO2, LO12
	BD	EC	Modern State of Ferrous and Non-Ferrous Metallurgy in Kazakhstan	The main directions of development of resource base of mining and metallurgical complex of Kazakhstan and structure of the steel industry, as a large national complex for the production of ferrous and nonferrous metals; national and regional development of the metallurgical enterprises of the sector, characterized by types and		LO2 LO4 LO8

				number of products, the availability of technological equipment, eliminating harmful emissions into the environmentare considered. Skills of working with technical literature and the development of scientific logical thinking of students are acquired.		
	BD	HSC	Educational practice	The use of knowledge in fundamental disciplines in professional activities; study of the educational program of the specialty, types, functions and tasks of future professional activity; characterizes cognitive activity associated with the conscious choice of the trajectory of individual learning; generates knowledge of the characteristic features of industrial enterprises of the metallurgical industryare considered.	2	LO1 LO2 LO12
	BD	EC	Theoretical foundations of metallurgical processes	The methods of thermodynamic analysis of chemical reactions, as applied to metallurgical processes; theoretical foundations of the physical and chemical processes occurring in metallurgical units: fuel combustion, dissociation of carbonates, oxides, sulfides, chlorides; metal recovery; refining and distillation, as well as the theoretical foundations of the arc discharge and the physicochemical properties of metal and slag meltsfollowing are considered. The skills of thermodynamic analysis of metallurgical reactions; determination of the laws of thermal behavior of substances; metal refining and distillation calculationsare acquired.	5	LO5 LO6 LO11
	BD	EC	Theory and Technology of Electroslag Remelting	The study of the theory and technology of electroslag remelting(ESR); the process of melting the consumable electrode in a layer of superheated slag in a metal water-cooled moldprovides. The influence of various parameters: the current and voltage values, the composition and amount of slag, the composition of the remelted metal, the type and polarity of the current on the conditions of crystallization of ingots is considered. Skills are acquired: analysis of existing ESP technologies, justification of the choice of main and auxiliary equipment during remelting; performing technological calculations of the ESP process, electricity consumption.		LO5 LO6 LO11
	BD	EC	Production Technology of Non-Ferrous Metals	The theoretical, technological foundations of processes for producing non-ferrous metals from ore and man-made materials; describes the characteristics and technologies of advanced domestic enterprises producing non-ferrous metals - lead, zinc, copper, aluminum,		LO 4 LO 5 LO 6 LO 7

				titanium, etc.are considered.Skills ofexisting technologies analysis in the production of non-ferrous metals; substantiation of the choice of the main and auxiliary equipment for technological processes; performing balance calculations of the processare acquired.	5	
	BD	EC	Production Technology of Ferrous Metals	The theoretical, technological foundations of processes for producing ferrous metals from ore and man-made materials; current state, development of ferrous metallurgy in Kazakhstanare considered. The characteristics and technologies of advanced blast furnace enterprises producing steel and ferroalloy products are described. Skills of existing technologiesanalysis in the production of cast iron, steel, chromium, ferroalloys; substantiation of the choice of the main and auxiliary equipment of technological processes; performing technological process calculationsare acquired.		LO 4 LO 5 LO 6 LO 7
	ChD	HSC	Industrial practice I	The knowledge of technology for the production of metals and alloysis deepened; safety measures for work in enterprises; types and characteristics of raw materials, auxiliary materials, energy, production waste; the requirements for the quality of products and the main methods of processing mineral raw materials, secondary materials and production waste; technological production scheduleare considered.	4	LO2 LO5 LO12
Metallurgical Processes and Recycling	BD	EC	Enrichment of minerals	Various methods and methods of enrichment of non-ferrous, complex, iron ores are considered; rationale for applying enrichment; types of ore preparation and equipment used; various methods of mineral processing: magnetic, gravitational, flotation, electricare considered. The knowledge of the physicochemical fundamentals of the processes of extracting components from mineral ore raw materials, the skills of drawing up the ore preparation scheme, mineral processing with the choice of method and the necessary technological calculation for various processing methods are acquired.	5	LO5 LO8 LO10
	BD	EC	Technology of mining and preparation of minerals	The study of the current state and the main promising areas of development of mining; technological properties of rocks as an object of development; various technologies for preparing rocks for excavation, dumping and reclamation; about methods and schemes of opening; development systems and the features of the development		LO5 LO8 LO10

				of horizontal, gentle, inclined and steeply dipping depositsare considered. Gets knowledge of the features and prospects of the development of the raw material base of production, evaluates its scientific significance.		
	BD	EC	Pyrometallurgical processes in non-ferrous metallurgy	The theoretical foundations and existing technologies for the production of basic non-ferrous metals (Cu, Pb, Zn, Ni, Sn), as well as the most common firing technologies in non-ferrous metallurgyare considered. The main pyrometallurgical equipment and its calculation, the preparation of technological schemes with hardware design. Skills to solve professional problems aimed at improving the calculation of the material and heat balance of pyrometallurgical processes and the modernization of technological processes and the introduction of new onesare acquired.	5	LO4 LO5 LO6 LO7
	BD	EC	Hydrometallurgical processes in non-ferrous metallurgy	The theoretical foundations and technologies of hydro-metallurgical processes leaching, liquid extraction, ion exchange, precipitation and crystallization of metal compounds, including radioactive from aqueous solutions; technological operations of hydrometallurgical production in non-ferrous metallurgyare considered. Skills in calculating the material balance of the production of non-ferrous, rare, radioactive metals; conducting hydrometallurgical processes aimed at improving and modernizing the existing equipment of hydrometallurgical processesare acquired.		LO4 LO5 LO6 LO7
	BD	EC	Materials Science in Metallurgy	The relationship between the composition, structure and properties of various materials used in metallurgy, methods of directed influence on the structure and structure of metals to give them the desired properties are considered. Regularities of the formation of the structure of metals and alloys, with the processes occurring at the deformation and destruction of metals; determination of the structure and properties of metals and alloys. The knowledge theoretical foundations of materials science, construction of the cell of the crystal lattice of metals; skills of metallographic analysis areacquired.	5	LO5 LO6 LO8 LO11
	BD	EC	Metal Science and Heat Treatment of Metals	The study of the relationship between the chemical and phase compositions, crystal structure, structural state and properties of metals and alloys, as well as their behavior under the influence of various external influences; the study of new technological processes		LO5 LO6 LO8 LO11

				of heat treatment of metals (annealing, quenching, tempering) is considered. Knowledge of the theoretical foundations and technology of heat treatment of metals; operating conditions and material selection; skills of metallographic analysis are acquired.		
	ChD	HSC	Industrial practice 2	The features of production technology; characteristics of raw materials, main and auxiliary technological equipment; norms of the technological regime of production; requirements for the quality of products; ecological problems; knowledge of safety measures, industrial sanitation; technical and economic indicators of production; provides for participation in commissioning, development of pilot industrial and industrial technological regulationsare considered.	6	LO2 LO4 LO6 LO7
	ChD	EC	Recycling-Technologies in Non-Ferrous Metallurgy	The problems of organizing waste-free technologies, classification, characteristics of waste in non-ferrous metallurgy, the technology of recycling the processing of slag, sludge, tailings, dust, cakes, scrap, other waste using chemical, physical, biological technologies; the possibility of using waste in related industries is being considered. Skills are acquired in the selection of equipment and technological modes for the complex processing of industrial waste and secondary raw materials.	7	LO5 LO6 LO7 LO8 LO10
	ChD	EC	Recycling-Technologies in Ferrous Metallurgy	The effective methods of the creation of technologies for processing technogenic and secondary raw materials of ferrous metallurgy (slag, dust, coal waste, cinder, sludge, etc.); analysis of the complex technologies used for the processing of secondary raw materials, including the scientific substantiation of its rational use are considered; determination of the composition of raw materials, finished products, industrial products are considered. Skills of equipment selection and engineering calculations for complex waste processing are acquired.		LO5 LO6 LO7 LO8 LO10
	ChD	EC	Metallurgical Examination of raw Materials, Products and Waste in Non-Ferrous Metallurgy	The complex of physical and chemical measures and studies is considered: the structure and properties of raw materials, products, waste; technological processes that allow monitoring at various stages of obtaining, processing and refining non-ferrous metals and alloys, ensuring the quality of metallurgical products. Product compliance with the requirements of regulatory documents (STST, ST RK, TU, standard of the enterprise SP) . Acquisition of skills in the use of various research methods (physico-chemical, mechanical).	5	LO4 LO5 LO8 LO11
	ChD	EC	Metallurgical	The complex of physical and chemical measures and studies is		LO4

			Examination of raw Materials, Products and Waste in Ferrous Metallurgy	considered: the structure and properties of raw materials, products, waste; technological processes that allow monitoring at various stages of obtaining, processing and refining ferrous metals and ferroalloys, ensuring the quality of metallurgical products. Product compliance with the requirements of regulatory documents (STST, ST RK, TU, standard of the enterprise SP) . Acquisition of skills in the use of various research methods (physico-chemical, mechanical)		LO5 LO8 LO11
Fundamentals of scientific research	BD	EC	Planning, conducting the Scientific Rresearch Works	The methods of organizing and carrying out research work; the effectiveness and scope of various research methods are determined: calorimetric, x-ray phase, IR-spectrometric, DTA method, thermodynamic and kineticare considered. Skills in carrying out thermodynamic modeling of kinetic and applied research of metallurgical processesare acquired.	5	LO6 LO7 LO10 LO12
	BD	EC	Basic research methods in metallurgy	The basic principles of conducting experimental research, the foundations of classification, physical and mathematical modeling, the methods of a scientific experiment using mathematical modeling based on the basic laws of natural science; experimental statistical methods for processing experimental data; methods for stochastic description and analysis of physical and chemical features of technological processesare considered. Skills in solving problems of optimizing the technological parameters of the metallurgical processare acquired.		LO6 LO7 LO10 LO12
	ChD	EC	Designing Preparatory and Main Shops in Non-Ferrous Metallurgy	The development of the following objects of the non-ferrous metallurgy plant: workshops, departments, sections, with the study of materials for the purpose and composition of the plant, the design capacity and productivity of production shops and auxiliary sites: the service for ensuring the current production and shop economyare considered. Skills of designing lifting and transport, thermal and mechanical equipment of metallurgical workshops and sites; structural calculations of furnaces and strength calculations of machines are acquired.	5	LO4 LO5 LO8 LO9
	ChD	EC	Designing Preparatory and Main Shops in Ferrous Metallurgy	The development and documentation of the main and auxiliary objects of ferrous metallurgy: blast furnace shop, electric furnace shop, converter department, continuous casting section of metal, rolling department are considered. The skills of designing hoisting-		LO4 LO5 LO8 LO9

				and-transport, thermal and mechanical equipment of metallurgical shops and sections, design calculations of furnaces, strength calculations of machines are acquired.		
Metallurgy of Non-Ferrous and Ferrous Metals	ChD	EC	Metallurgy of Precious and Heavy Non-Ferrous Metals	The stages of development of metallurgy of precious and heavy non-ferrous metals, the forms of their presence in the raw materials and the general principles of extraction of precious and heavy non-ferrous metals from ore and secondary raw materials are considered. Industrial technologies for producing gold, silver, zinc, lead, copper, and nickel. The students acquire skills in analyzing existing technologies for producing precious and heavy non-ferrous metals; skills in calculating and compiling material and thermal balances.	8	LO5 LO6 LO7 LO8
	ChD	EC	Technology of Converter Production and Continuous Casting of Steel	The theoretical foundations of metal oxidation in the converter process; mastering the technology of converter steel production: purge periods, bulk materials additive modes, slag formation in an oxygen-converter bath; study of the principle of operation and thermal mode of the converter; prospects for the technology of smelting various steels by continuous methodsare considered. The skills of calculations are acquired: on the conversion of metal and heat balance; design dimensions of the converter, continuous casting machines (CCM).		LO5 LO6 LO7 LO8
	ChD	EC	Metallurgy of Refractory and Radioactive Metals	Physical and chemical bases and technologies for the production of refractory metals (tungsten, molybdenum, rhenium, niobium, tantalum, titanium, zirconium, vanadium, tellurium); methods for the production of chemical compounds of refractory metals from ore and secondary raw materials; theoretical foundations and various industrial methods for the production of radioactive metals; methods for the enrichment, separation and purification of radioactive metals with an effective selection of methods and disposal of industrial waste. Prospective developments of the uranium industry in Kazakhstan; Skills of analysis and evaluation of the technology for obtaining refractory and radioactive metals from indigenous ores and industrial products; skills of technological calculations are acquired.	8	LO5 LO6 LO7 LO8
	ChD	EC	Metallurgy of Ferroalloys and Direct Iron Production	The theoretical foundations, regularities and technologies of electrothermal smelting of large and small ferroalloys: ferrosilicon, ferrochrome, ferrotitane, ferromanganese; fundamentals of		LO5 LO6 LO7

				metallurgy for direct production of iron (sponge iron from metallized pellets; iron in fluidized bed reactors; iron in rotating furnaces; high-temperature iron from cast iron.)are considered; Skills are acquired: calculation of the composition of the charge, material and thermal balances, calculation of electricity consumption; selection of basic equipment.		LO8
	BD	EC	Light Metal Metallurgy	The composition of natural raw materials for the production of light metals: aluminum, magnesium, titanium, beryllium, lithium, rubidium; technologies for the industrial production of light metals from various ores: electrolytic methods, chlorination and reduction of light metals, as well as alloying and refining of metals and alloys. The skills of analysis and evaluation of the technology of obtaining light metals from ores and industrial products are acquired; skills of technological calculations: material and thermal balances.		LO5 LO6 LO7 LO8
	BD	EC	Technology and Equipment for High-Grade Rolling and Foundry Production	The fundamentals of rolled products production technology; with the choice of rolling schemes, equipment, determination of processing modes and methods for calculating rolled products parameters; theoretical foundations of foundry production, mold-metal interaction, casting properties of alloys; technologies for the production of castings from gray and ductile iron, steel castings, non-ferrous metals; promising areas of special casting methodsare considered. Skills are acquired: calculation of the material balance of the technological process of rolling and casting of blanks; design calculations of rolling and casting equipment.	8	LO5 LO6 LO7 LO8
Equipment of non-ferrous metallurgy factories	BD	EC	Basic equipment of non-ferrous metallurgy processes	The materials on varieties and features of non-ferrous metallurgy equipment; general characteristics of metallurgical processes for various types of equipment necessary for the implementation of production processes in non-ferrous metallurgy: shaft furnaces, the main types of converters and their calculation principles, KIVCET, Vanyukov furnaces, electrolysis process equipmentare considered. The skills for calculating fuel consumption, the main overall dimensions of furnaces, devices and auxiliary equipmentare acquired.	5	LO5 LO6 LO9 LO10
	BD	EC	Metallurgical Equipment and Machinery	The study the structures, various characteristics and features of the main metallurgical equipment (melting and roasting furnaces, converters, hydro - and electrometallurgical units, continuous casting		LO5 LO6 LO9

				machines, rolling equipment, dust and gas cleaning systems, etc.)is planned. The basics of rational operation and modernization of metallurgical equipment and machines are considered. Skills are acquired: calculation of fuel consumption; calculation of the design dimensions of the main and auxiliary equipment, metallurgical units and machines.		LO10
	ChD	EC	Design of non-ferrous metallurgy furnaces	The thermal furnaces, pyrometallurgical units used in non-ferrous metallurgy; design and operating principle of shaft furnaces, operating principle and design of rotary rotary kilns, fluidized bed furnaces, design of an autogenous smelting furnace, design of a bathtub for aluminum anodic smeltingare considered. Skills of designing and calculating the geometric parameters of the main equipment, of the auxiliary furnace system; of calculations of electrical and thermal powerare acquired.	5	LO5 LO6 LO9 LO10
	ChD	EC	Construction of Converters	Considered: methods of steel production; technologies of the oxygen-converter process; designs of various types of converters with the study of the main and auxiliary components: a support ring with trunnions, support units and frames, a mechanism for turning the converter and lances with a system of attachment and movement. Skills are acquired in calculating: the design dimensions of the oxygen converter, the geometric parameters of the vertical and horizontal converters, the value of the thermal power.		LO5 LO6 LO9 LO10
Module of Acquisition of New Professional Competencies	BD	EC	Subjects on the Additional Educational Program	Additional educational program (Minor) (minor) - a set of disciplines and (or) modules and other types of educational work, determined by learners to study in order to form additional competencies.	12	LO5 LO6 LO7 LO8 LO12
Module of total certification	ChD	HSC	Pre-degree or Industrial Practice	Knowledge'sof production technology, characteristics of apparatuses and equipment; the norms of the technological mode, the consumption of raw materials and materials, energy, labor resourcesare being deepened. Production skills for independent work, data collection for graduation qualification work or basic data for research workare formed. Acquisition of skills for generalization, analysis, adjustment of the collected material necessary in the future when completing a thesis or project.	8	LO4 LO6 LO7 LO12

			Writing and Defending a Thesis, a Graduate Work or Preparing and Passing a Comprehensive Exam	Practical skills carrying out of analytical review and patent search; independent choice of ways to improve existing technologies and technological processes;carrying out calculation and graphic works in order to ensure high quality of products; selection of measures for labor protection, technical and economic assessment of the effectiveness and feasibility of the work (project), presentation and protection of the work (project) are formed.	12	LO4 LO5 LO7 LO9 LO11

AGREEMENT LIST

On educational "6B07220 - Metallurgy"

Director of the DAA _____ A. Naukenova

Director of the ASD _____ U. Nazarbek

Director of the DP and C _____ T. Bazhirov

РЕЦЕНЗИЯ
на образовательную программу
6В07220 - «Металлургия»
ЮКУ им. М. Ауэзова, г.Шымкент

Основная деятельность ТОО «Ferrum-Vtor» связана с производством мелкосортового металлопроката различного размера и назначения. Главным конкурентным преимуществом и визитной карточкой ТОО «Ferrum-Vtor» является высокое качество продукции, отвечающее требованиям межгосударственных стандартов. Компания состоит в реестре отечественных товаропроизводителей ФНБ «Самрук-Казына», а также является официальным поставщиком Государственного материального резерва МЧС Республики Казахстан. Компания имеет региональные представительства в гг. Алматы, Нур-Султан, в западном Казахстане, представительство в Туркменистане. Являясь одним из ведущих промышленных предприятий Туркестанской области, компания разрабатывает и реализует ряд инвестиционных проектов, способных значительно повысить производственный потенциал, как региона, так и Республики в целом.

Образовательная программа 6В07220 - «Металлургия» разработанная ППС кафедры «Металлургия», предназначена для обучения бакалавров по направлению подготовки - техники и технологий, на 2021-2022 учебный год. Данная программа направлена на подготовку востребованных, конкурентоспособных кадров для металлургической отрасли Республики Казахстан. В ЮКУ им.М.Ауэзова подготовка осуществляется в соответствии с потребностями рынка труда и ориентирована на приобретение обучающимися профессиональных компетенций, установленных с учетом перспективного развития металлургической отрасли. В значительной степени реализация программы ориентирована на обеспечение производственными кадрами в области металлургии. При формировании вариативной части программы в целях конкретизации и дополнения набора компетенций выпускника были учтены особенности рынка труда, запросы работодателей, мнения ведущих специалистов металлургической отрасли Казахстана.

Содержание образовательной программы описывает следующие разделы: паспорт, результаты обучения, компетенции выпускника, объем освоенных кредитов в разрезе модулей ОП в казахстанских кредитах KZ, компоненты модуля, сведения о дисциплинах.

В разделе «Сведения о дисциплинах», дисциплины описаны в соответствии с обновленным учебным планом образовательной программы 6В07220 - «Металлургия», где показаны наименование модуля, цикл, наименование компонента, краткое описание дисциплин, количество кредитов и формируемые результаты обучения.

Для качественной подготовки специалистов, способных организовать работу в области металлургии, связанной с применением средств и методов добычи и переработки минерального и вторичного сырья, с получением металлопродукции, для управления во всех сферах металлургического

производства, в учебные планы ОП 6В07220 - «Металлургия» (очной полной формы обучения) были внесены новые дисциплины.

По рекомендации МОН РК с выходом Атласа новых профессий и компетенций Казахстана в разделе Горно-металлургический комплекс в экономике Казахстана предлагаются новые профессии металлургии, одна из которых «Рециклинг-технолог» вносимая в учебный план. Таким образом в образовательной программе описаны новые дисциплины: «Рециклинг-технологии в цветной металлургии», «Рециклинг-технологии в черной металлургии».

По итогам рейтинга образовательных программ вузов 2020г рекомендации НПП «Атамекен» экспертами предложено ввести следующие дисциплины в учебный план 2021-2022 уч.года: «Производственный менеджмент», «Металлургическая экспертиза сырья, продуктов и отходов в цветной металлургии», «Металлургическая экспертиза сырья, продуктов и отходов в черной металлургии», «Энергообеспечение предприятий металлургического комплекса», «Металловедение и термическая обработка металлов», «Металлургическое оборудование и машины». Новые дисциплины введены в учебный план и описаны в данной образовательной программе на основании протокола обновления ОП академического комитета №5 от 26.02.2021г.

В целом данная образовательная программа охватывает все направления подготовки бакалавров металлургии и позволяет существенно углубить знания в УНПК, на практике. Рецензируемая программа предоставляет бакалаврам возможность приобрести компетенции по инновационным технологиям в области цветной и черной металлургии и в дальнейшем применить свои знания непосредственно при работе в различных организациях.

Главный технолог
ТОО «Ferrum-V[illegible]» Джункабаев К.А.

ЭКСПЕРТНОЕ ЗАКЛЮЧЕНИЕ
на образовательную программу
6В07220 – «Металлургия» ЮКУ им.М.Ауэзова

Подготовка востребованных, конкурентоспособных кадров для металлургической отрасли Республики Казахстан в НАО ЮКУ им.М.Ауэзова осуществляется в соответствии с потребностями рынка труда и ориентирована на приобретение обучающимися профессиональных компетенций, установленных с учетом перспективного развития металлургической отрасли.

Экспертиза явилась проверка соответствия структуры модульной образовательной программы по специальности 6В07220-Металлургия требованиям Государственного образовательного стандарта высшего образования. Образовательная программа бакалавриата разработана на основе компетентностного подхода, построена структура распределения модулей. Такой подход дает возможность для выделениякомпетенций по завершении каждого этапа обучения (курса, семестра). Разработчиками заданы обязательные и продвинутые уровни формирования результатов образования и компетенций студента по этапам освоения образовательной программы.

Целью ОП является подготовка высококвалифицированных бакалавров, обладающих качественной профессиональной подготовкой, способных анализировать, решать производственно-технологические, исследовательские задачи в области металлургии цветных и черных металлов.

Срок обучения пообразовательной программе6В07220 - "Металлургия" составляет 4 года, объемом 240 кредита (KZ).

Для достижения целей в образовательной программе запланировано изучение специальных дисциплин в сочетании с научной работой, производственной практикой и выполнением выпускной работы. Обязательная часть профессиональной образовательной программы направлена на формирование управленческих, коммуникативных компетенций, состоящих из умения планировать и организовывать работу коллектива, используя современный менеджмент и принципы делового общения; анализа и контроля производственной деятельности подразделения; обеспечения соблюдение требований безопасности и охраны труда, промышленной безопасности. Наряду с этим программа обеспечивает повышение образовательного уровня по иностранным языкам.

Вариативная часть образовательной программы дает возможность расширения и углубления подготовки будущих выпускников за счет формирования компетенций, обеспечивающих конкурентоспособность выпускника в соответствии с требованиями рынка труда.

Сформированные компетенции позволят выпускникам образовательной программы осуществлять профессиональную деятельность на предприятиях металлургической отрасли и смежных отраслях промышленности.

В ОП полностью описаны паспорт, результаты обучения, компетенции выпускника, объем освоенных кредитов в казахстанских KZ, сведения о дисциплинах. В паспорте раскрыты цель и задачи, перечень квалификаций и должностей, а также показана квалификационная характеристика выпускника. При формировании вариативной части программы в целях конкретизации и дополнения набора компетенций выпускника, были учтены особенности рынка труда, запросы работодателей, мнения ведущих специалистов металлургической отрасли Казахстана.

Программа ориентирована на приобретение обучающими практических навыков работы и на тесную связь процесса обучения с производственным опытом, для чего в ней предусмотрена производственная практика на соответствующим предприятии и научная стажировка.

На основании проведенной экспертизы считаем, что структура и содержание образовательной программы бакалавриата6В07220 - «Металлургия»имеет направленность на удовлетворение потребностей рынка труда и работодателей.

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