MINISTRY OF AGRICULTURE OF THE REPUBLIC OF KAZAKHSTAN
"NJSC "S. SEIFULLIN KAZAKH AGROTECHNICAL UNIVERSITY"

Approve
NJSC "Saken Seifullin Kazakh
Deputy Chairman of the Management
Board Academic Activity-Rector
_____ A.M Abdyrov.
«_____» _____ 2021.

CATALOG OF ELECTIVE COURSES

For students in groups of educational programs

6B07501- Standardization, certification and metrology (by industry)

Nur-Sultan, 2021

MINISTRY OF AGRICULTURE OF THE REPUBLIC OF KAZAKHSTAN
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Brief description of elective disciplines of the educational program

Internal diseases of animals

1	Name of course	Basics of economics and law
2	Code of course	OEP 2118
3	Cycle of course	GED
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	2
8	Prerequisites	Informatics, mathematics, physics, History of Kazakhstan, foreign, Kazakh (Russian) languages in volume of a school course
9	Postrequisites	Business economics and business
10	Course summary	Global trends in the world markets; international precepts of law and principles of standard legal support of the organization of various spheres and types of activity; economic categories and laws, forms of their manifestation in national and world economy; institutional and legal base of activity of economic entities and norm of business ethics; main environmental problems and ways of their decision; main acts, legal system, legislation of the Republic of Kazakhstan
11	Learning outcomes	Know the principles of studying social phenomena and processes, the basics of economic development of social systems, state structure and public organizations; the specifics and scientific foundations of the methodology, the logic of the learning process, the psychology of mastering knowledge on the basics of economics and law, the development of perception skills; Be able to use the methods of social and humanitarian sciences in various spheres of their professional activity; conduct teaching work, determine the degree of assimilation of program material by students, instill in them the skills of independent replenishment of knowledge and skills; develop effective methods of staff motivation, unite employees into effective working groups, activate innovative activities, establish a favorable psychological microclimate; professionally solve practical issues of economic and legal aspects of the company's activities.

1	Name of course	Enterprise Economics and Entrepreneurship
2	Code of course	EPP 3219
3	Cycle of course	BD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	3
8	Prerequisites	It is information – communication technologies, mathematics, physics
9	Postrequisites	Electronic schemes and systems, Materials in engineering design
10	Course summary	The concept of an enterprise as a subject and object of entrepreneurial activity; Enterprise operating environment; The products of the enterprise, its competitiveness; Production resources of the enterprise; Enterprise - an economic entity of the market; Joint Stock Companies; Small businesses; Small business taxation; Organization and registration of an entrepreneurial company; Competition in the business system; Commercial activity of the company; Business infrastructure; Marketing in the business system; Management in the activities of the enterprise; Motivation in management; Styles in the enterprise management system
11	Learning outcomes	Know the basics of agricultural economics, the economic nature of entrepreneurship; the principles and forms of social security; the regulatory framework and state regulation of entrepreneurial activity. Be able to apply the acquired theoretical knowledge in practical economic activity in the specialty; effectively manage the resources of enterprises of the socio-cultural sphere and tourism Master the conceptual concepts of entrepreneurship.

1	Name of course	Engineering mechanics
2	Code of course	IMSD 2216
3	Cycle of course	BD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	2
8	Prerequisites	It is information – communication technologies, mathematics, physics
9	Postrequisites	Computer graphics, Electronic schemes and systems, Materials in engineering design
10	Course summary	Theoretical mechanics as section of natural sciences. A role and the place of theoretical mechanics among natural and technical science. Main historical stages of development of mechanics. Structure of a course of theoretical mechanics. Statics subject. Basic concepts of a statics: a rigid body, a material point, force as a measure of mechanical interaction of material bodies, the systems of forces, calculation of a projection of a vector of force to the plane and on an axis of coordinates. Statics axioms. Communications and reactions of communications
11	Learning outcomes	To know the basic concepts of laws and models of mechanics; areas of application of the laws of mechanics and the methods of studying the equilibrium and motion of mechanical systems resulting from these laws, necessary for design and construction; special sections of mechanics used in design. Be able to apply the methods and laws of mechanics, using the basic algorithms of higher mathematics and the capabilities of modern information technologies in the design and construction, Apply the acquired knowledge in the study of other professional disciplines. Possess the skills of solving and using various calculation methods in the design

1	Name of course	Bases of the electronic and measuring equipment

2	Code of course	OEIT 2217
3	Cycle of course	BD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Radio Engineering, Electronics and Telecommunication
7	Year	2
8	Prerequisites	Physics, Mathematics, Engineering mechanics, Materials in engineering design
9	Postrequisites	Computer graphics, Expert systems and databases
10	Course summary	The Operational amplifiers Positive and negative feedback Feedback coupling on current and on tension. The main characteristics of the operational amplifiers Zero Bias Voltage Gain amount at the opened loop of feedback coupling the Difference of input currents. Circuitry methods of compensation bias voltage of zero and input currents of OU. Integrators, differentiators. IC circuit engineering options on switched capacitors.
11	Learning outcomes	Know the principle of operation of electronic components; mathematical models of electronic components, as well as the construction of equivalent circuits for various operating modes; - features of the calculation of the nodes of electronic devices. Be able to mathematically describe the physical processes occurring in electronic devices; based on the analysis of the features of microelectronic devices, correctly choose the element base for building equipment; Possess methods of analysis and synthesis of electronic devices, taking into account the peculiarities of the operation of semiconductor devices and microcircuits in various modes and frequency ranges of their application; skills of working with educational and scientific literature.

1	Name of course	Materials in engineering design
2	Code of course	MIP 2218
3	Cycle of course	BD
4	Amount of credits	5

5	Level of preparation	Undergraduate studies
6	Department	The Department of Technological Machines and Equipment
7	Year	2
8	Prerequisites	Maths, physics
9	Postrequisites	Test control and product safety
10	Course summary	The relationship between the composition, structure and properties of metals and alloys; patterns of change of these properties under the action of thermal, chemical and mechanical effects; the main technological processes of processing materials into finished products; based on the working conditions of the parts of technological machines, select the necessary structural material for their manufacture, and assign the necessary type of processing to obtain the required properties of the part; choose a rational way of turning the workpiece into a part.
11	Learning outcomes	Possess knowledge in the field of the structure composition and properties of various materials (metals and non-metals) to understand the technologies and methods of obtaining materials processing, using modern machines, machines and equipment to solve design, operational experimental research and design tasks. The obtained theoretical knowledge and practical training can be successfully used and applied in production for the creation and production of modern technological machines, machine tools and equipment using advanced computer technologies. Compare and argue the correctness and validity of the developed technologies and new materials for the production of advanced equipment and technology.

1	Name of course	Professionally-oriented foreign language
2	Code of course	POIYa 2214
3	Cycle of course	BD
4	Amount of credits	6
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	2
8	Prerequisites	Russian language, Kazakh language, foreign language
9	Postrequisites	degree design

10	Course summary	Standardization and Certification, What if standards did not exist? Measurement Standards.Eco-labeling, Standards, Labelling and Certification, Product certification, Management system standards,State standards of the Republic of Kazakhstan, The International System of Units,Units and dimensions.
11	Learning outcomes	Have an idea about the specifics of your specialty in English. Know the lexical and grammatical minimum of foreign language communication of a professional nature, terminology in English in the field of standardization, metrology and certification. Be able to organize speech activities in a foreign language, perform written and oral translation of texts within the professional sphere of communication; To acquire practical skills: perception and understanding by ear of business and professional messages; dialogic and monological speech within the professional activity in the field of standardization, metrology and certification. Express your thoughts and express yourself in English, ask questions and answer them, maintain a conversation in English in the scope of professional topics

1	Name of course	English for special purposes
2	Code of course	AYaDSC 2215
3	Cycle of course	BD
4	Amount of credits	6
5	Level of preparation	Undergraduate studies
6	Department	The Department of Foreign Languages
7	Year	2
8	Prerequisites	Foreign language in bachelor level B1-B2
9	Postrequisites	Disciplines in the specialty in a foreign language
10	Course summary	The course program is designed for the volume of teaching - 180 hours, of which: 54 hours - for classroom work and 108 hours - for independent work. The course ends with a comprehensive exam. The course is designed for 1 semester.
11	Learning outcomes	According to the results of the development of the program, the student, depending on the level of training, at the time of completion of the course, reaches the level B1-(IELTS 4.0-5.0) or B2-(IELTS5.5-6.0) and formed skills for solving problems of professional, interpersonal and intercultural interaction.

1	Name of course	Digital Marking and Traceability System
2	Code of course	SCMPT 2310
3	Cycle of course	MD
4	Amount of credits	4
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	2
8	Prerequisites	Standardization and Certification, Metrology.
9	Postrequisites	Degree design, quality systems
10	Course summary	The use of modern labeling technologies with control identification marks of food products; the formation and maintenance of a unified information system of traceability of food products; provide access to a unified information system of traceability of food products to consumers and public associations of consumers in order to inform them in a timely manner and minimize the risks of acquiring low-quality food products
11	Learning outcomes	Possess organizational, scientific, methodological foundations in the field of standardization, certification, metrology, quality management systems and products, processes and services.Demonstrate knowledge about the main stages of the product life cycle, technological processes of production. Practical use of knowledge in the field of measurement, technical regulation and quality infrastructure.

1	Name of course	Expert systems and database
2	Code of course	ESBD 2311
3	Cycle of course	MD
4	Amount of credits	4
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	2
8	Prerequisites	Standardization and certification, metrology, information systems
9	Postrequisites	Evaluation of the quality of products and processes, quality management system
10	Course summary	Introduction The subject, objectives and content of the discipline. The history of the development of databases and expert assessments. Expert systems. Expert system: the main provisions and concepts. Requirements for the expert system. Consideration of large-scale expert systems. Expert systems classification scheme. The basic concepts of building expert systems: the traditional approach is an alternative representation of classes, relations and rules. The sequence of building an expert system based on a statistical approach to processing results. Methods of expert assessments: methods and methods for applying expert assessments. Methods of group expertise. The method of analysis and synthesis of expert information. Database. The complex nature of the problem and the systematization and automation of information on product quality. The concept of a database, data bank and database. The composition and structure of the database, database properties: redundancy, integrity, data independence. Conceptual, logical and physical presentation of data. Classification of data types: according to the amount of information and the way to reflect relationships, the relational model of databases, the composition and structure of relational databases, the network model and their administration.
11	Learning outcomes	Possess organizational, scientific, methodological foundations in the field of standardization, certification, metrology, quality management systems and products, processes and services.Demonstrate knowledge about the main stages of the product life cycle, technological processes of production. Practical use of knowledge in the field of measurement, technical regulation and quality infrastructure.

1	Name of course	Draft execution automation.
2	Code of course	AVCh 4228
3	Cycle of course	BD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Technical Mechanics
7	Year	3
8	Prerequisites	It is information – communication technologies, mathematics, physics
9	Postrequisites	Electronic schemes and systems, Materials in engineering design
10	Course summary	Content of discipline: basic provisions of descriptive geometry, engineering graphics, enough attention is paid to implementation of all-technical and specialized drawings, including, with use of modern computer technologies among automated design of AutoCAD. Special attention is paid to development and execution of design documentation of electric circuits, printed circuit boards, types of connection of details, reading drawings of a general view, implementation of working drawings, work with reference books.
11	Learning outcomes	Demonstrate practical skills in building and reading drawings; solving various engineering and geometric problems, use the basic concepts and laws of mechanics, principles for studying the elements of machines, mechanisms, production equipment

1	Name of course	Professional Kazakh (Russian) language
2	Code of course	PKRYa 3214
3	Cycle of course	BD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	3
8	Prerequisites	Russian (Kazakh) language, foreign language (school program)
9	Postrequisites	Professionally-oriented foreign language, degree design
10	Course summary	Lexicon: derivational models, contextual meanings of multi-valued words, terms and lexical constructions of the sublanguage corresponding to the profile of the specialty studied. Grammar: the most frequent specific grammatical phenomena of the basic and natural-humanitarian and technical sublanguages. Writing and speaking skills, observing all the norms of the language; the meaning is the structural peculiarities of texts of various functional styles; correctness of speech and the system of norms of the literary language.
11	Learning outcomes	Possess knowledge of socio-humanitarian and economic disciplines, readiness to demonstrate the formed ideological, civil and moral position of a highly educated person with a broad outlook and a culture of thinking. Possess the skills of practical knowledge of the specialty language for the active use of Russian, state and foreign languages in professional communication.

1	Name of course	Standardization and certification of consumer services
2	Code of course	SSPU 3202
3	Cycle of course	BD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	3
8	Prerequisites	Standardization and certification
9	Postrequisites	Quality management system, Qualimetry, Testing and product quality control.
10	Course summary	The history of standardization as a science. History and current trends in the development of certification in Kazakhstan and abroad. Legal basis of certification. The structure and main provisions of the legislation of the Republic of Kazakhstan in the field of certification. Law of the Republic of Kazakhstan "On technical regulation". State regulation and management in the field of certification and standardization. Authority for standardization and conformity assessment. Standardization of services in various fields. Schemes of conformity assessment of services. Criteria for deciding on approval of the scheme. Consumer choice and standardization. Risk of producer and consumer. Marketing and standardization in various industries. Economic efficiency of standardization. Responsibility for violation of the legislative procedure of conformity assessment. Conformity assessment. The procedure of conformity assessment for products, services, processes and quality systems.
11	Learning outcomes	Demonstrate knowledge about the main stages of the product life cycle, technological processes of production. Practical use of knowledge in the field of measurement, technical regulation and quality infrastructure. Possess fundamental scientific and methodological knowledge in the field of technical regulation and metrology, practical aspects of activities in the field of standardization, metrology and certification.

1	Name of course	Standardization and conformity assessment of food and industrial products
2	Code of course	SPSPPT 3216

3	Cycle of course	BD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	3
8	Prerequisites	Mathematics, Physics, Standardization and certification, Qualimetry
9	Postrequisites	Thesis (project)
10	Course summary	Basic terms and definitions, principles, rules, needs, requirements and norms; normative and technical documents on standardization, conformity assessment and their application in practice; to be able to use the acquired knowledge for the development of normative and technological documents, conformity assessment of products and services of public catering, improving their quality, formation of commodity and price policy of the company.
11	Learning outcomes	Demonstrate knowledge about the main stages of the product life cycle, technological processes of production. Practical use of knowledge in the field of measurement, technical regulation and quality infrastructure. Possess the skills of practical knowledge of the specialty language for the active use of Russian, state and foreign languages in professional communication. Possess fundamental scientific and methodological knowledge in the field of technical regulation and metrology, practical aspects of activities in the field of standardization, metrology and certification. Demonstrate the skills of practical use of the issues of production technology, processing, standardization, quality and safety assurance, regulatory legal acts in the field of crop production, livestock products.

1	Name of course	Documentation support of management activities
2	Code of course	DOUD 3307
3	Cycle of course	MD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification

7	Year	2, 3
8	Prerequisites	Informatics, Kazakh (Russian) language, Foreign language, Standardization and certification
9	Postrequisites	Graduation projects, Quality systems, Accreditation in the field of conformity assessment
10	Course summary	Documents and value in their management. Grouping of document systems. Requirements for registration of organizational and administrative documents. Types and procedure for the preparation of organizational and administrative documents. Requirements for registration details of the document. Organization of document circulation. Technical documents and its types. Design and estimate documentation. Technological documentation. Manufacturing technology, design and reproduction of technical documentation.
11	Learning outcomes	Possess organizational, scientific, methodological foundations in the field of standardization, certification, metrology, quality management systems and products, processes and services. Possess fundamental scientific and methodological knowledge in the field of technical regulation and metrology, practical aspects of activities in the field of standardization, metrology and certification.

1	Name of course	Technology and methods of developing technical regulations and regulatory documents.
2	Code of course	TMRTRND 3308
3	Cycle of course	MD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	3
8	Prerequisites	Mathematics, metrology, standardization and certification, qualimetry
9	Postrequisites	graduation design

10	Course summary	Stages of development and harmonization of standards; Examination of draft national standards and prestandards; Update and cancel standards; The procedure for the development, approval and implementation of changes to national standards; Revision of national standards; Abolition of national standards; The procedure for amending the standards and technical regulations.
11	Learning outcomes	Possess organizational, scientific, methodological foundations in the field of standardization, certification, metrology, quality management systems and products, processes and services. Possess fundamental scientific and methodological knowledge in the field of technical regulation and metrology, practical aspects of activities in the field of standardization, metrology and certification.

1	Name of course	Interchangeability, standardization and technical measurements
2	Code of course	VSTI 3301
3	Cycle of course	MD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	3
8	Prerequisites	Physics, Mathematics, Descriptive geometry and engineering graphics, Engineering mechanics (Statics, Dynamics)
9	Postrequisites	Metrological assurance of production; Testing, control and security of production.
10	Course summary	General principles of interchangeability. Precision machining in the manufacture and restoration of machine parts. Unified system of tolerances and fits of smooth cylindrical joints. Calculation and choice of crops and qualityof of smooth cylindrical joints. Tolerances and landing bearings, keyways and splines. Calculation of dimensional chains. Basics of technical measurements and methods of selection of control and measuring instruments. The device and the principle of using universal and special measuring instruments.
11	Learning outcomes	Possess organizational, scientific, methodological foundations in the field of standardization, certification, metrology, quality management systems and products, processes and services. Possess fundamental scientific and methodological knowledge in the field of technical regulation and metrology, practical aspects of activities in the field of standardization, metrology and certification.

1	Name of course	Management
2	Code of course	Men 4229
3	Cycle of course	BD
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	The Department of Management
7	Year	4
8	Prerequisites	Bases of the economy and rights
9	Postrequisites	Thesis (project)
10	Course summary	Characteristics of the organization and management activities. The evolution of management thought. Internal and external environment of the organization. Business social responsibility and ethics manager. Communications. Making management decisions. Planning. Organization as a management function. Motivation. Control. Group dynamics. Leadership: Power and Influence. Leadership styles. Conflict and stress management. Change management.
11	Learning outcomes	Possess knowledge of socio-humanitarian and economic disciplines, readiness to demonstrate the formed ideological, civil and moral position of a highly educated person with a broad outlook and a culture of thinking. Demonstrate knowledge of natural science disciplines. The ability to explain, formulate and use basic indicators for solving tasks, communication with other sciences and its practical significance. Possess the basics of economic knowledge, have scientific ideas about management, marketing, finance, etc.; know and understand the goals and objectives of state regulation of the economy; plan and manage projects to achieve professional goals.

1	Name of course	Fundamentals of Patent Science and Professional Creativity
2	Code of course	OPPT 4230
3	Cycle of course	BD
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	The Department of Agrarian Technique and Technology
7	Year	4
8	Prerequisites	Descriptive geometry and engineering graphics, Fundamentals of wheeled and tracked vehicles.
9	Postrequisites	Graduate Design, Organization of Scientific Research and Patent Science (magistracy)
10	Course summary	Fundamentals of Professional Creativity. Methods for identifying inventions. The main methods for enhancing creative thinking. Patent Law of the Republic of Kazakhstan. Objects of patent law and conditions of their patentability. Utility models. Industrial designs. Registration of patent rights. Claim. Patent and license work in the Republic of Kazakhstan.
11	Learning outcomes	Formulate and solve problems that arise in the course of research and teaching activities and require in-depth professional knowledge; choose the necessary research methods, modify existing ones and develop new methods based on the tasks of a particular study;

1	Name of course	Metrological support of production
2	Code of course	MOP 4231
3	Cycle of course	BD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	4
8	Prerequisites	Statistical methods of product and process quality management, Metrology
9	Postrequisites	Thesis (project)
10	Course summary	Tasks of metrological support of the stages of the product life cycle. Methods and means of ensuring the uniformity of measurements. Organizational basis and structure of the metrological service. Development of measurement procedures. Methodical, technical, organizational support of quality systems "Quality loop". Metrological support of projected and operating production. Analysis of the state of the enterprise MO at the stages of the product life cycle. Verification (calibration) of measuring instruments. State metrological supervision and control. Economic efficiency of works on metrological support
11	Learning outcomes	Possess organizational, scientific, methodological foundations in the field of standardization, certification, metrology, quality management systems and products, processes and services. Possess fundamental scientific and methodological knowledge in the field of technical regulation and metrology, practical aspects of activities in the field of standardization, metrology and certification.

1	Name of course	Engineering management
2	Code of course	UI 4309
3	Cycle of course	MD
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	4
8	Prerequisites	Standardization and certification, Statistical methods for quality control of products and processes
9	Postrequisites	Thesis (project)
10	Course summary	Theoretical basis of engineering; international engineering; importance and development in modern conditions, development of engineering; types of engineering and their classification; engineering methods; organizational and management engineering; business engineering; quality system structuring systems and quality tools; benchmarking.
11	Learning outcomes	Demonstrate knowledge about the main stages of the product life cycle, technological processes of production. Practical use of knowledge in the field of measurement, technical regulation and quality infrastructure. Possess fundamental scientific and methodological knowledge in the field of technical regulation and metrology, practical aspects of activities in the field of standardization, metrology and certification.

1	Name of course	Technical regulation in standardization
2	Code of course	TRS 4310
3	Cycle of course	MD
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	4
8	Prerequisites	Standardization and certification, Control in the system of standardization, metrology and certification
9	Postrequisites	Thesis (project)
10	Course summary	Forms and methods of market regulation. Basic mechanisms of technical regulation. Basic principles of technical regulation. The structure of the state system of technical regulation. Basic technical regulation standards. Foreign experience of technical regulation and barriers to trade. Technical regulation within the CIS. Technical regulations. The structure and procedure for the development of technical regulations. Conformity assessment schemes
11	Learning outcomes	Demonstrate knowledge about the main stages of the product life cycle, technological processes of production. Practical use of knowledge in the field of measurement, technical regulation and quality infrastructure.

1	Name of course	Quality management systems based on HACCP principles
2	Code of course	SMKOPN 4311
3	Cycle of course	MD

4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	4
8	Prerequisites	Quality systems, Standardization and certification.
9	Postrequisites	Thesis (project)
10	Course summary	HACCP system and prospects for its application. Fundamentals and principles of HACCP. Development of the stages of the food quality and safety subsystem. Guidelines for the application of the HACCP standard and maintaining the system in working order. Food quality management based on HACCP principles. Development of a plan and organization of work on the implementation of the HACCP system. Drawing up a flow chart of risk analysis and determination of control critical points. Sources of food contamination. The order of development and implementation of the HACCP system. The procedure for certification of the quality management system based on the principles of risk analysis and critical control points.
11	Learning outcomes	Possess organizational, scientific, methodological foundations in the field of standardization, certification, metrology, quality management systems and products, processes and services. Possess fundamental scientific and methodological knowledge in the field of technical regulation and metrology, practical aspects of activities in the field of standardization, metrology and certification. Демонстрировать навыки практического использования вопросов технологии производства, переработки, стандартизации, обеспечения качества и безопасности, нормативно-правовых актов в области производства растениеводческой, животноводческой продукции.

1	Name of course	Certification and labeling of products and services
2	Code of course	SMPU 4312
3	Cycle of course	MD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	4
8	Prerequisites	Standardization and certification, Metrology

9	Postrequisites	Quality management system based on HACCP principles, Accreditation
10	Course summary	Packaging classification. Basic concepts and types of marking, basic requirements for its application to packaging. Shipping and transport markings. Special markings Manipulation markings. Ways of counterfeiting goods and combating them. Methods to prevent falsification. Certification in the consumer market of the Republic of Kazakhstan. Index "E" on food packaging. Excise marking of goods
11	Learning outcomes	Demonstrate knowledge about the main stages of the product life cycle, technological processes of production. Practical use of knowledge in the field of measurement, technical regulation and quality infrastructure. Possess fundamental scientific and methodological knowledge in the field of technical regulation and metrology, practical aspects of activities in the field of standardization, metrology and certification.

1	Name of course	Accreditation
2	Code of course	Akk 4313
3	Cycle of course	MD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	4
8	Prerequisites	Quality systems
9	Postrequisites	Thesis (project)
10	Course summary	Accreditation system in the Republic of Kazakhstan. Development history and international practice of accreditation. Normative documents for accreditation. General requirements for expert auditors, the procedure for their training and certification during the accreditation of conformity

11	Learning outcomes	Possess organizational, scientific, methodological foundations in the field of standardization, certification, metrology, quality management systems and products, processes and services. Demonstrate knowledge about the main stages of the product life cycle, technological processes of production. Practical use of knowledge in the field of measurement, technical regulation and quality infrastructure.

1	Name of course	Consulting services in the field of technical regulation and quality infrastructure
2	Code of course	KUOTRIK 3225
3	Cycle of course	BD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	3
8	Prerequisites	Standardization and certification, Metrology, Quality systems, Accreditation in the field of conformity assessment.
9	Postrequisites	Thesis (project)
10	Course summary	The purpose of teaching the discipline is to contribute to the formation of a system of theoretical knowledge and practical skills on the General methodology of the organization of quality management processes in the workplace, the acquisition of practical skills of management and quality assurance based on quality management methods, training of future professionals with knowledge in the field of consulting services in the field of technical regulation and Metrology.

11	Learning outcomes	Demonstrate knowledge about the main stages of the product life cycle, technological processes of production. Practical use of knowledge in the field of measurement, technical regulation and quality infrastructure. Possess fundamental scientific and methodological knowledge in the field of technical regulation and metrology, practical aspects of activities in the field of standardization, metrology and certification. Демонстрировать навыки практического использования вопросов технологии производства, переработки, стандартизации, обеспечения качества и безопасности, нормативно-правовых актов в области производства растениеводческой, животноводческой продукции.

1	Name of course	Technological control of products and production processes.
2	Code of course	TKPPP 3223
3	Cycle of course	BD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	3
8	Prerequisites	Technological control of products and production processes.
9	Postrequisites	degree design, quality systems
10	Course summary	Technological control of products and production processes. Objects of technical control. The concept and essence of control. Types of control. Organization of management control in the enterprise. Modern principles of organization and control in the enterprise. Current control. Control systems with feedback. Ensuring the functioning of the organization as a system with effective feedback. Final control. Organization of management control. Measurement results. Evaluation of information on the results obtained.
11	Learning outcomes	Possess organizational, scientific, methodological foundations in the field of standardization, certification, metrology, quality management systems and products, processes and services. Demonstrate knowledge about the main stages of the product life cycle, technological processes of production. Practical use of knowledge in the field of measurement, technical regulation and quality infrastructure.

1	Name of course	State and public control in the field of technical regulation and quality infrastructure
2	Code of course	GOKOTRIK 3224
3	Cycle of course	BD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	3
8	Prerequisites	Standardization and certification, Metrology, Quality systems
9	Postrequisites	Thesis (project)
10	Course summary	State metrological control; state control over the activities of licensees of the State symbols of the Republic of Kazakhstan; state and public control over the safety and quality of food and industrial goods; state and public control in the field of goods origin; state and public control when importing to the territory of the Republic of Kazakhstan from non-EAEU countries and export from the territory of the Republic of Kazakhstan to these countries of precious stones, jewelry made of precious metals and precious stones; the procedure for conducting inspections carried out by the bodies of control and supervision; the procedure for the interaction of control and supervision bodies during inspections; the rights and obligations of the inspected entities in the course of control and supervision, measures to protect their rights and legitimate interests; rights and obligations of control and supervision bodies and their officials during inspections
11	Learning outcomes	Possess organizational, scientific, methodological foundations in the field of standardization, certification, metrology, quality management systems and products, processes and services. Demonstrate knowledge about the main stages of the product life cycle, technological processes of production. Practical use of knowledge in the field of measurement, technical regulation and quality infrastructure.

1	Name of course	Standardization and conformity assessment of livestock products
2	Code of course	SPSPZh 3316
3	Cycle of course	BD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	3
8	Prerequisites	Standardization and certification, Statistical methods for quality control of products and processes.
9	Postrequisites	Thesis (project)
10	Course summary	Effective methods of production technology, processing quality management of livestock products; forms and methods of standardization and certification of agricultural products; modern methods of quality management of production of farm animals and standardization of product quality, in accordance with the requirements of normative documents of national, international and international level.
11	Learning outcomes	Demonstrate knowledge about the main stages of the product life cycle, technological processes of production. Practical use of knowledge in the field of measurement, technical regulation and quality infrastructure. Possess fundamental scientific and methodological knowledge in the field of technical regulation and metrology, practical aspects of activities in the field of standardization, metrology and certification. Demonstrate the skills of practical use of the issues of production technology, processing, standardization, quality and safety assurance, regulatory legal acts in the field of crop production, livestock products.

1	Name of course	Standardization and conformity assessment of crop production
2	Code of course	SPSPR 3315
3	Cycle of course	MD
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	The Department of Standardization, Metrology and Certification
7	Year	3
8	Prerequisites	Standardization and certification, Metrology, Quality systems
9	Postrequisites	Thesis (project)
10	Course summary	Bases of technical regulation and standardization; assessment and confirmation of compliance; quality and consumer properties of crop production; safety indicators of crop production; quality indicators, standardization and confirmation of compliance of grain; merchandising characteristic and features of standardization of grain crops; standardization and confirmation of compliance of potatoes, vegetables and fruits; standardization of industrial crops; standardization and confirmation of compliance of plant
11	Learning outcomes	Demonstrate the skills of practical use of the issues of production technology, processing, standardization, quality and safety assurance, regulatory legal acts in the field of crop production, livestock products.

1	Name of course	Academic writing
2	Code of course	AP 3318
3	Cycle of course	MD
4	Amount of credits	4
5	Level of preparation	Undergraduate studies
6	Department	The Department of Agrarian Technique and Technology
7	Year	3
8	Prerequisites	English for Specific Purposes English for Academic Purposes
9	Postrequisites	Disciplines on the specialty in English
10	Course summary	The program of the course "Academic Writing" is designed for the volume of teaching - 120 hours, of which: 36 hours - for in-class work and 84 hours - for self-study work. The course ends with a Final exam essay. The course lasts 1 semester. Students write 2 types of essay: a discursive essay (two in draft and a final version) and a problem-solution essay (two in draft and final version). SSA (Self-study assignments) - Students find, select and read eight academic articles (4 articles for each type of essay) to use in writing their essays, analyze them, write reviews and compile wordlists.
11	Learning outcomes	Possess the skills of practical knowledge of the specialty language for the active use of Russian, state and foreign languages in professional communication. Mastering and expanding the "academic" vocabulary: the vocabulary of a neutral and formal style, characteristic of such types of written speech as an essay, article, report, official letter, etc.