Ministry of Education and Science of the Republic of Kazakhstan
Non-commercial Joint Stock Company "Holding "Kasipkor"

EDUCATIONAL PROGRAM

Specialty: 1225000 "Productions of meat and meat products (by types)"

Qualifications: Farm animals processing specialist

Manufacturer of ready-to-cook (prefabricated) meat products

Technician-technologist
Junior production engineer

Astana – 2016

DEVELOPED

Non-profit Joint Stock Company «Holding «Kasipkor»

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SUBMITTED "Kasipkor" Holding Non-commercial Joint Stock Company

EXPERTS

- Bildungsinstitut PSCHERER gGmbH (Германия) ALE “Association of Kazakhstan food industry enterprises”
- Academic methodical association of “Productions of meat and meat products (by types)” on the basis of Technologic and economical college of Almaty Technological University

CONSIDERED, APPROVED AND RECOMMENDED

At a meeting of the Republican educational-methodical Council for Technical and Vocational Education of the MES RK, protocol No_4_ dated "_21__"__12__2016 year

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1. Description of the educational program

This educational program is based on modular competence-based approach in accordance with international modern requirements for mid-level professionals and skilled workers, with the participation of foreign partner Dreberis (Germany).

The educational program on a specialty 1225000 - "Production of meat and meat products" designed to meet the basic provisions:

˜ Law of the Republic of Kazakhstan "On Education" dated July 27, 2007 №319-III «On Education";

˜ State educational standards for technical and vocational education (basic provisions), RK Government Resolution №1080 from August 23, 2012;

˜ State Education Development Program of the Republic of Kazakhstan for 2011 - 2020 years (Decree of the President of Kazakhstan from December 7, 2010 №1118);

˜ Development Strategy Non-profit joint-stock company "Holding" Kasipkor "for 2012-2021 (Governmental Decree dated December 31, 2011 № 1751);

˜ State program on industrial-innovative development of Kazakhstan for 2015-2019 years (Decree of the President of the Republic of Kazakhstan dated March 19, 2010 № 957).

˜ National (sectoral) within the Republic of Kazakhstan qualifications (joint order of the Minister of Labour and Social Protection of Population of the Republic of Kazakhstan dated September 24, 2012 №373-o-m, and the Minister of Education and Science of the Republic of Kazakhstan dated September 28, 2012 №444).

˜ Plan of the nation "100 concrete steps" to implement the five institutional reforms N.A. Nazarbayev.

The educational program for the specialty 1225000- "Production of meat and meat products" designed for the preparation of highly skilled workers in the industry.

Programs provide students with the knowledge, understanding and skills that they need in preparation for employment, provide an opportunity to progress in the same similar or related fields of study at colleges and universities.

International practice shows that the most productive are those educational programs that are built on the principle of modular training. Modular training - is a modular structure of educational programs, the competence approach and credit system of education.

The required parameters include:

- a three-tier system of education;
- mobility of students, teachers;
- Monitoring the quality of education.

Recommendatory the parameters of the process is:

- active involvement of students;
- social support for disadvantaged students;
- Education during all life.

Optional parameters are of great importance in the planning and organization

of educational process taking into account the interests of the employers and the demands of society, it is - the harmonization of the content of education in areas of training and modular system.

Having studied a certain number of basic, obligatory, and specialized technical modules, also by a number of optional modules, students must score above the number of credits in order to pass from one level to another. Study of optional modules enables students to focus on their chosen area of interest.

There is the potential to qualify for the bachelor of applied preparation of students to the corresponding direct employment in the vocational sector. This is convenient for those who have already decided what exactly wants to work in a certain specialized field.

This program was designed to give students the basic knowledge and skills as are necessary to meet the functional requirements.

The program by this qualification has been designed in order to:

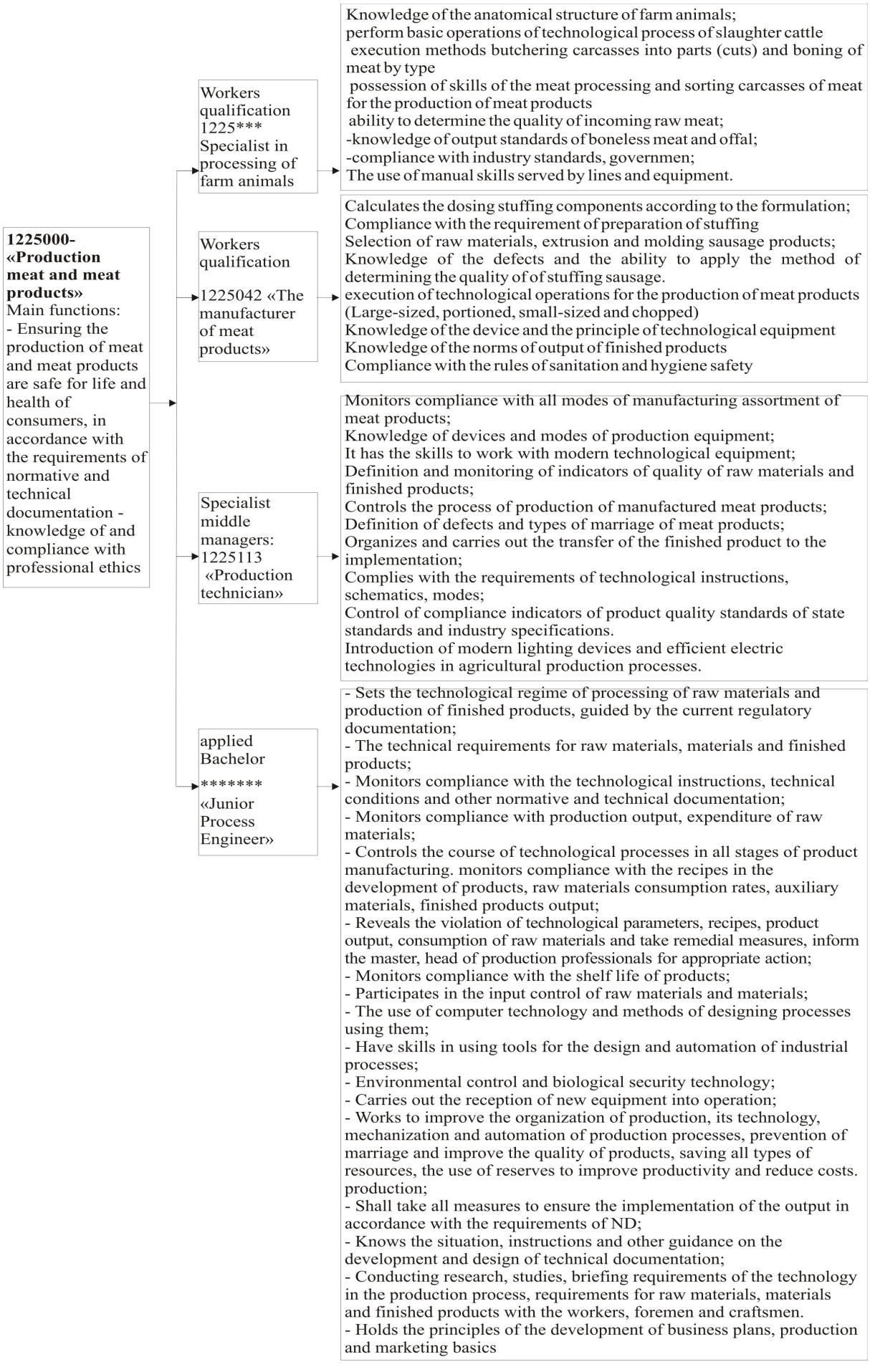
- Provide education and training for people working on the relevant qualifications;
- enable people working on a particular skill, so they can get a specially-recognized professional qualification Level 3;
- give students the opportunity to start to work or get a professional qualification;
- give students the opportunity to develop a set of skills and techniques, personal skills and explicit attributes for successful promotion in the work field.

<table>
<tr><td colspan="3">Code and profile of education:</td></tr>
<tr><td colspan="3">Code and specialty: 1225000 - "Production of meat and meat products"</td></tr>
<tr><td colspan="3">Code and name of qualification:
1225113 «Production technician»
******* «Junior Process Engineer»</td></tr>
<tr><td colspan="3">Qualification level</td></tr>
<tr><td colspan="3">1225*** «Specialist in processing of farm animals»
1225042 «The manufacturer of meat products»
1225113 «Production technician»
******* «Junior Process Engineer»</td></tr>
<tr><td colspan="3">Duration of training:</td></tr>
<tr><td>Educational base reception</td><td>Name of qualification, code</td><td>Standard term of development of educational training programs for skill levels</td></tr>
<tr><td>On the basis of general education</td><td>Elevated levels
1225*** Specialist in processing of farm animals
1225042 The manufacturer of meat products
Specialist middle managers
1225113 «Production technician»
1225*** «Junior Process Engineer»</td><td>Elevated levels
2 year 10 months

Specialist middle managers
+10 months
+10 months</td></tr>
</table>

2 Functional card

Qualifications qualification requirements


1225000- «Production meat and meat products»
Main functions:
- Ensuring the production of meat and meat products are safe for life and health of consumers, in accordance with the requirements of normative and technical documentation - knowledge of and compliance with professional ethics
Workers qualification 1225*** Specialist in processing of farm animals
Knowledge of the anatomical structure of farm animals;
perform basic operations of technological process of slaughter cattle
execution methods butchering carcasses into parts (cuts) and boning of meat by type
possession of skills of the meat processing and sorting carcasses of meat for the production of meat products
ability to determine the quality of incoming raw meat;
-knowledge of output standards of boneless meat and offal;
-compliance with industry standards, governmen;
The use of manual skills served by lines and equipment.
Workers qualification
1225042 «The manufacturer of meat products»
Calculates the dosing stuffing components according to the formulation;
Compliance with the requirement of preparation of stuffing
Selection of raw materials, extrusion and molding sausage products;
Knowledge of the defects and the ability to apply the method of determining the quality of of stuffing sausage.
execution of technological operations for the production of meat products (Large-sized, portioned, small-sized and chopped)
Knowledge of the device and the principle of technological equipment
Knowledge of the norms of output of finished products
Compliance with the rules of sanitation and hygiene safety
Specialist middle managers: 1225113 «Production technician»
Monitors compliance with all modes of manufacturing assortment of meat products;
Knowledge of devices and modes of production equipment;
It has the skills to work with modern technological equipment;
Definition and monitoring of indicators of quality of raw materials and finished products;
Controls the process of production of manufactured meat products;
Definition of defects and types of marriage of meat products;
Organizes and carries out the transfer of the finished product to the implementation;
Complies with the requirements of technological instructions, schematics, modes;
Control of compliance indicators of product quality standards of state standards and industry specifications.
Introduction of modern lighting devices and efficient electric technologies in agricultural production processes.
applied Bachelor
****
«Junior Process Engineer»
- Sets the technological regime of processing of raw materials and production of finished products, guided by the current regulatory documentation;
- The technical requirements for raw materials, materials and finished products;
- Monitors compliance with the technological instructions, technical conditions and other normative and technical documentation;
- Monitors compliance with production output, expenditure of raw materials;
- Controls the course of technological processes in all stages of product manufacturing. monitors compliance with the recipes in the development of products, raw materials consumption rates, auxiliary materials, finished products output;
- Reveals the violation of technological parameters, recipes, product output, consumption of raw materials and take remedial measures, inform the master, head of production professionals for appropriate action;
- Monitors compliance with the shelf life of products;
- Participates in the input control of raw materials and materials;
- The use of computer technology and methods of designing processes using them;
- Have skills in using tools for the design and automation of industrial processes;
- Environmental control and biological security technology;
- Carries out the reception of new equipment into operation;
- Works to improve the organization of production, its technology, mechanization and automation of production processes, prevention of marriage and improve the quality of products, saving all types of resources, the use of reserves to improve productivity and reduce costs. production;
- Shall take all measures to ensure the implementation of the output in accordance with the requirements of ND;
- Knows the situation, instructions and other guidance on the development and design of technical documentation;
- Conducting research, studies, briefing requirements of the technology in the production process, requirements for raw materials, materials and finished products with the workers, foremen and craftsmen.
- Holds the principles of the development of business plans, production and marketing basics

3.List of abbreviations and symbols

EP - educational program - a single set of basic characteristics of education, which includes objectives, outcomes and content of the training, the organization of the educational process, ways and methods of their implementation, the criteria for assessment of learning outcomes;

NQF-National Qualifications Framework defines a uniform scale of the levels of qualification of general competence for the development of sectoral qualifications frameworks and professional standards. NQF provides cross-industry comparability of qualifications and competences is the basis for a system of conformity assessment and awarding of qualifications of specialists;

SQF- sectoral Qualifications Framework - a structured description of qualification levels, recognized in the industry;

CMT-credit-modular training allows you to personalize the educational and cognitive activity of students on the content, methods and means of training activities and progress towards the specific regulations of the level and quality of training;

PC - professional competence

BC - basic competence

BM – basic moduls;

GEM-general educational module;

THM -Total humanitarian modules;

SEM - social and economic models;

PM – Professional Modules;

TPM -Total professional modules;

SM-special modules;

ME-modules defined by the organization of education;

IP-industrial training and professional practice;

IA - Intermediate attestation;

FA - final attestation;

ALPT - assessment of the level of professional training and qualification;

C - consultation;

E - elective classes.

4.Requirements to the levels of preparation of students

In the "requirements for the training of students" are defined the necessary basic competencies and professional competence on the levels of qualifications related specialty (Table 1) in accordance with the national qualifications framework, sectoral qualifications frameworks and professional standards

Table 1

Competence	industry / enterprise requirements for the training of students

Basic competence	Code and name of quail fication (Bachelor of Applied)	Code and name of qualify ication (Middle management specialist)	Code and name of quail fication (elevated levels)	1225*** Specialist in processing of farm animals 1225*** The manufacturer of meat products BC1. Observe the culture and ethics of communication with colleagues and customers. BC 2. Comply with safety requirements, fire safety, electrical safety, rules for occupational health and hygiene, internal labor regulations. BC 3. Recognize the social importance of their future profession, have a high motivation to carry out professional activities. BC 4. The ability in the conditions of the meat processing industry and changing social practice reassessment of experience, analysis of its features, the ability to acquire new knowledge, using modern information educational technologies. BC 5. Strive for self-development, enhance their skills and craftsmanship; BC 6. The value of the rational organization of labor in the workplace and the ability to accurately plan the work. BC 7. Know and apply the methods and techniques of safe work. BC 8. Features of the development of production in a market economy; BC 9. Observe instructions on the safe maintenance of the workplace; BC 10. Observe the requirements for the quality of work. BC 11. Rules of the first (pre-medical) assistance to victims of personal injury, poisoning, sudden illness. BC 12. To organize its own activities, collect and analyze information, identify goals and choose ways to achieve them. BC 13. Ability to communicate orally and in writing in Russian, national and foreign languages for solving interpersonal and cross-cultural interaction. BC 14. Methodological and psychological readiness to change the type and nature of their professional activities BC 15. The ability to use modern methods, tools and technologies in professional activity; to study special literature and other scientific technical information, achievements of domestic and foreign science and technology in the field of their professional activities; BC 16. Apply the knowledge gained by working in the industry; BC 17. To understand the nature and the social importance of their future profession, to show to her sustained interest. BC 18. To organize its own activities on the basis of goals and ways to achieve it, certain leader. BC 19. To analyze the work situation, to carry out monitoring, evaluation and correction of their own activities, be held responsible for their performance..

				BC 20. searches the information necessary for the effective performance of professional tasks. BC 21. Use information and communication technologies in professional activity
			1225*** Production technician BC 22. The ability to use information and communication technologies to improve the professional activity. BC 23. The ability to use a standard legal acts in the activity. BC 24. Know the basics of labor legislation, contractual regulation of labor relations, including in the field of payment and regulation of labor, to know the content of the collective agreement of the organization and procedure for conducting negotiations on its conclusion. BC 25. Know the bases of technology of meat production, nutrition foundations for organized contingents feeding, including medical and dietary, of the rules and techniques of customer service (in accordance with the position, taking into account the specifics of the enterprise). BC 26. Compliance with the requirements of sanitation, personal hygiene and hygiene in the workplace;	
		******* Junior Process Engineer BC 27. Design, implement and manage systems in enterprises, business and social environment. BC 28. Know and apply the fundamentals and forms of training, retraining and advanced training of workers in the workplace. BC 29. Finding organizational and managerial decisions in unusual situations and a willingness to take responsibility for them. BC 30. Have critical thinking, the ability to identify vulnerabilities and continuously improve production. BC31. To be able to lead the project activity on the basis of a systematic approach, to be able to build and use models to describe and predict various phenomena, to carry out their qualitative and quantitative analysis. BC32. Being able to professional ethics (responsibility, honesty engineer realized that his production project will be linked to the life and safety of people). BC 33. Being able to work alone and in a team, the ability to be a leader and to communicate effectively within the team. BC 34. To take responsibility for the work of the team members (subordinates), the result of the job. BC 35. Observe environmental regulations during the work; BC 36. Use the methods and means of physical training to ensure full social and professional activities.		
Basic competence	Code and name of qualification (Bachelor of Applied)	Code and name of qualification (Middle management specialist)	Code and name of qualification (elevated levels)	1225*** Specialist in processing of farm animals PC 1.1 - Perform the required standards of production of meat and meat products at high quality of work. PC 1.2 - Know the industry regulatory documents relating to the professional activity. PC 2.1- To know the anatomical structure of the processed livestock species and location of internal organs. PC 2.2 - To be able to prevent manufacturing defects at slaughter and processing of cattle. PC 2.3 - Perform operations on separate medium complexity at slaughter and processing of large, small ruminants and pigs.

				PC 2.4 - Stunning, build puts chains and raise stunned the animal with the help of lifting mechanisms on the path of bleeding. PC 2.5 - purged of cattle carcasses with compressed air. PC 2.6 - Remove the kidneys and kidney fat from the carcasses of cattle and pigs. PC 2.7 - Dismantling the viscera of cattle on the line in slaughter shop. PC 2.8 - chop or saw off the horns of cattle and small cattle. PC 2.9 - Be able to work on the equipment and conveyors for the slaughtering. PC 2.10 - Know and apply the technology to major bloodness carcasses of sheep and goats and pigs. PC 2.11 - Know the rules of marking of carcasses. PC 2.12 - Know and apply the rules of processing the sick and vaccinated animals. PC 3.1 - boning carcasses and parts of carcasses of cattle of all kinds: PC 3.2 butchering manual or mechanical saws carcases, sides, quarters into parts (cuts) for meat boning; PC 3.3 - Separation of muscle, fat and connective tissue from the bones at deboning hind legs, blades, loin, necks, boxes, including cutting intercostal meat. PC 3.4 - butchering carcasses and half-carcasses on the sausage by hand and disk knifes to shaping the individual parts according to the requirements established by the state standard. PC 3.5 - Know butchering, cooking assignment of individual parts of carcasses, rules and techniques deboned parts of carcasses of cattle and small cattle, joints of bones, the location of the muscle, fat and connective tissue in the meat. PC 3.6 - Know the norms of output of meat and bone during deboning meat. Know the basics of veterinary-sanitary assessment of meat and sanitary conditions of its deboning. PC 3.7 - Know the principles and rules of operation of mechanical saws, circular knives; rules sharpening knife, rules for using protective equipment when working with high-risk instruments. PC 3.8 - To have safe working methods for deboning meat. PC 3.9 - Compliance with safety requirements when working with the pathological material to avoid contamination of the employee and others. PC 3.10 - Implementation of all processing operations of corpses and carcasses of diseased animals admitted to veterinary supervision on the technical processing; PC 3.11 - Performing skin removal, recess of viscera, cutting into parts, loaded into trucks or wheelbarrows and feed for further processing.

				PC 3.12 - Conduct of the process of preservation of hides dead and sick animals. disinfection and preservation of hides given deadlines disinfect them with a variety of animal diseases. PC 3.13 - Preparation of disinfectant solutions or mixtures according to the established recipes; Chlorination of wastewater in the sump and the descent into the sewers. PC 4.1 - To know the anatomy of the muscle, connective and fatty tissue. PC 4.2 - Comply with the requirements of technological instructions for disassembly and trimming meat. PC 4.3 - To know the quality characteristics of meat from different parts of carcases and offal and production purposes. PC 4.4 - Know the rules and stripping and trimming offal. PC 4.5 - Know the locations of fat, muscle and connective tissue. PC 4.6 - Carry out trimming meat and offal of animals of all kinds, cutting into pieces the size of the set and dismantling of trimmed meat on grades in compliance with standards and outputs. PC 4.7 - Carry out the separation of tendons, films, large blood vessels, fat, bone and cartilage debris. PC 4.8 - Conduct Skin removed during trimming bacon with bacon and cutoffs. PC 4.9 – trimming of liver: disassembly, inspection and removal of residues of films, bile ducts, blood vessels and diseased parts of the liver blanched. PC 4.10 - Laying in the packaging of meat, trimmed of fat, cartilage, tendons, films and waste. PC 5.1 - Know the rules for the application of tools and equipment used in the manufacture of semi-finished, own safe methods of work. PC 5.2 - Know the device serviced equipment. PC 5.3 - Check the efficiency, control work, troubleshooting of the equipment used. PC 5.4 - Know the characteristics and properties of various types of meat cattle. PC 5.5 - Know the parts of the carcass for the production of natural semi-finished products. PC 5.6- Know the established norms and requirements technological instruction for the production of semi-finished products. PC 5.7 - Know the technological process of production of large-sized and small-sized semi-finished products. PC 5.8 - Know the range of semi-finished products produced from meat and poultry, methods of sensory evaluation and quality requirements for the quality of semi-finished products.

				PC 5.9 - Know the basic safety criteria of semi-finished and does not allow the use of raw materials and food products containing potentially hazardous substances of chemical and biological origin in quantities exceeding permissible levels (in accordance with the Medical-biological requirements and sanitary norms of quality). PC 5.10 - Know butchering carcasses and poultry, culinary appointment of parts of carcases and the rate of yield of semi-finished products. PC 5.11- know how cutting fish with bone and cartilage skeleton of all families, the norm of output of semi-finished. PC 5.12 - Know the management of technological process of production and semi-finished output norms of flour and cereals. PC 5.13 - Know the rules of packaging and transportation conditions and terms of storage and sale of semi-finished products. PC 5.14 - Be aware of the responsibility for the work..
				1225*** The manufacturer of meat products PC 6.1 - Conduct training process, preparation and forming sausages. PC 6.2 - Know the parts of the carcass for the production of sausages; PC 6.3 - Know the product range; technological process and process conditions. PC 6.4 - Know the technological scheme, technical requirements; standards and technical specifications of the finished product. PC 6.5 - Know the product range; technological process. PC 6.6 - Have the skills to use tools and equipment for forming sausages. PC 6.7 - Know the formulation, processing modes and qualitative characteristics of raw materials and components; technological modes; safety. PC 6.8 - To carry out technological operations of unloading and stacking of products prepared in the form. Laying product into the molds. Placing products in the frame. PC 6.9 - Know the technology of laying sausages on the frame and transport rules. PC 7.1 - Know the equipment for grinding of raw materials. PC 7.2 - Know the technological properties sausage products PC 7.3 - To know the quality of raw materials and auxiliary materials PC 7.4 - Know the raw material grinding technology. PC 7.5 - Know the classification and rules of operation of technological equipment for the preparation minced meat and for fine grinding and cooking meat.

				PC 7.6 - Know the technology of preparation of minced liver sausages and pates. PC 7.7 - Know the technology of preparation of minced blood sausage and brawn. PC 7.8 - Perform the preparation of minced meat stuffed and cooked sausages, frankfurters, sausages, meat bread (homogeneous meat emulsions), restructured (ham), sausages, smoked, semi smoked and raw sausages. PC 7.9 - Dosing mince components according to the formulation. PC 7.10 - Regulate and control the cooking modes stuffing. PC 7.11 - Calculation of the dosage mince ingredients according to the recipe PC 7.12- conduct progressive download stuffing ingredients. PC 7.13 - Overseeing the process of mixing mince. PC 7.14 - Determine the temperature of the finished meat. PC 7.15- determines the quality of mince.
			1225*** Production technician PC 8.1 - Have skills paperwork to launch a meat-packing plant, the construction of technological process. PC 8.2 - Control of the production cycle, from the selection of raw materials to finished products. PC 8.3 - Interact with other production areas and monitor them on the implementation of production standards. PC 8.4 - Carry out the selection and training of production personnel. PC 8.5 - Control the quality of products, processes and production modes. PC 8.6 – Control the implementation of workshops of the production plan in a timely manner. PC 8.7 - Control of compliance with the rules in accordance with the instructions, sanitary control PC 8.8 -working internal documentation and reporting. PC 8.9 -Be prepared to change technologies in professional work PC 8.10 - Be prepared to perform work on working professions.	
		******* Junior Process Engineer PC 9.1 - Being able to develop measures to improve the technological processes of production food for various purposes. PC 9.2 - to control all stages of the production process in the production of meat products. PC 9.3 - know the rules of the state standards and sanitary rules and regulations for the meat industry. PC 9.4 - to know the recipe of sausage, smoked meat products and semi-finished products, consumption rates of raw materials, and the output of finished products. PC 9.5 - control the quality of raw materials and finished products, including sausages, smoked products and semi-finished products. PC 9.6 - bear the responsibility for the quality of raw meat, and drawing of mince structure, packing density of sausages. It controls production quality at the stages of manufacturing and packaging of finished products.		

		PC 9.7 - organize the input quality control of raw and auxiliary materials. PC 9.8 - controls the course technological processes in all stages of product manufacturing. If necessary, make adjustments permitted by regulatory guidelines, change in the course of of technological process, while ensuring the release of the standard, quality products without allowing any kind of loss, deterioration of consumer properties of products. PC 9.9 - Justify raw material consumption norms and auxiliary materials in the production process. PC 9.10 - Monitor compliance of meat normative and technical documentation, technical regulations. PC 9.11 - carry out control compliance with environmental and biological safety of raw materials and finished products. PC 9.12 - Be ready to explore new types of process equipment when changing the schemes technological processes, develop new technology and new instrument methods. PC 9.13 - rationally organized according to the production plan workshops work to implement the plan. PC 9.14 - Be prepared to perform work on working professions. PC 9.15 - is also required to provide high quality products, as well as the reduction of losses and the level of of manufacturing defects. PC 9.16 - To be able to organize the work of a small group of performers, plan the work of staff, to analyze the performance of production units. PC 9.17 - Provides introduction of computer-aided design systems, organizational and computing machinery, equipment and automated process control systems. PC 9.18 - Know the requirements and procedures for the preparation stages of the produced types of meat products to demonstrate compliance and standardization. PC 9.19 - Be able to carry out organizational and ability planning calculations on the creation (reorganization) production sites. PC 9.20 -Know rules state standards and sanitary rules and norms, recipes of each variety of sausages, counting standards, the implementation of the planned development period. PC 9.21 - monitor compliance with technological discipline in the workshops and the correct exploitation of process equipment. PC 9.23 - Possession of the principles of developing a business plan production and marketing basics. PC 9.24 - Analyze the causes of defects and the issue of poor quality products, to take part in the development of activities to eliminate them, as well as in consideration of complaints received for manufactured products now. PC 9.25 - Provides technically correct use of equipment and other fixed assets, the implementation schedules of repair. PC 9.26 - Coordinates the work of masters and workshop services. PC 9.27 -Be ready to carry out the work on standardization and the preparation of the product to conduct conformity assessment procedures.

5.Program structure

Section "Program structure" contains a list of the training modules, learning objectives and procedure for establishing basic competences (Table 3)

Table 3 Form the structure of the educational program

Professional competence	Educational Module	Учебные цели			Code formed the basic competence
			Умения	Навыки	
Elevated levels					
Qualification: 1225*** Specialist in processing of farm animals					
General professional modules					
PC 1.1-PC 5.14	Introduction to specialty acquaintance with production and meat processing industries.	• the possibility of further education and training • basics of of sensory • laws and regulations on hygiene and food law, occupational safety, safety • fire protection, first aid, environmental and consumer protection • occupational diseases; information and communication tools	• Work with text books and tables; discuss the results as a team; educate coope ration skills of independent work and result-oriented; use professional terminology; develop a conscious attitude to the quality of the art product;	can describe the various processes; assign equipment; schedule basic steps when working on the equipment; follow safety rules when working in production; to know the conditions and rights of workers safety and sanitation (norms characters, work instructions); be able to work colleagues in a team.	BC 1.-BC 11.
	Отбор сырья	•determine the quality of incoming raw meat; • Comply with the requirements of state standards of the industry; • know the appearance, properties and storage conditions threaded raw materials, intermediate and end products; • be skilled in processing pieces of meat carcasses and meat sorting for the production of meat products; • remove abscesses, cutting or excision of the affected parts of carcasses, hides shooting from the embryos, of confiscated container cleaning and feeding hatches in (descents);	determine the delivered raw materials, intermediates and end products suitable storage methods.	• Determine the mass of supply and documentation of results; • prepare equipment, and transporting means for the primary processing of raw materials; • sensory control conduct; • Identify the different types of carcass; determine the parameters / conditions of storage facilities by the temperature measurement methods, humidity, air composition, to evaluate the results obtained in accordance with the product for storage;;	БК 1-6

	Cutting cattle and the category of quality	• know the anatomical structure of farm animals; perform methods of butchering carcasses into parts (cuts) and boning of meat on the form; • knows the guidelines outputs of boneless meat and bacon; • finish the muscle, fat and connective tissue from the bones at the boning of cuts; know the device and is able to work with mechanical saws and disk knifes; • know the procedures for determining the age of cattle meat	• able to determine the quality characteristics of meat from different parts of carcases and offal and production purposes, cutting to size pieces set in compliance with the standards and outputs; • able to to operate serviced lines and equipment; • able to to sharpen used for boning knives	• carry out the process of bloodness and blood collection; • conduct cutting meat, lard from carcasses and half-carcasses and trimming heads; identify the right tools; prepare tools; conduct boning mascara; apply the rules of hygiene and labor safety; select suitable mechanical means of transportation for raw materials and products; pieces of meat called the front and rear parts of the carcass; appoint meats mascara; explain terms when cutting mascara; identify the main parts of the carcasses of cattle; • describe the causes irregular ripening of meat, based on a sample	
	Cutting sheep, pork, goat, and the category of quality	• know the anatomical structure of farm animals; to know the regulations outputs of boneless meat and bacon; know the device and is able to work with mechanical saws and disk blades; • know and be able to put into practice the requirements of technological instructions for disassembly and trimming meat, offal, stripping products; • Know the signs of quality meat from different parts of carcases and offal and production purposes; • know the device and is able to work with the tools and serviced lines;	•practical skills able to prevent the production methods of defects at slaughter and processing of cattle; able to to sharpen used for boning knives; be able to explain the importance of meat for human nutrition; • able to to name the scum and give examples of their use; able to call the sex, age and weight of the different kinds of pigs; • be able to distinguish different classes	• Identify parts used in the company and nodes; • Organize your work area according to the requirements of companies; • to work in teams; • have an understanding of the meat as food; use professional language; • the need for the worker, according to the qualitative criteria; have practical skills of prevention methods • manufacturing defects at slaughter and processing of cattle; investigate the structure and operation of machines and equipment	

		• know the guidelines outputs boning of meat and offal; • know and adhere to the requirements of the industry of the state standards	of trade in pork and lamb meat; able to to classify the pieces of meat;	components; called chunks and know their purpose of qualitative analysis; to know the implications of production failures and malfunctions; apply the work safety rules and sanitary; explain the necessary activities of personal hygiene products and companies; explain how to butcher meat and organize workplace for dismantles the process; • purpose devices certain parts of carcasses	
	Cutting poultry, wildfowl, rabbit and semi-finished products	• know the anatomical structure of poultry, wildfowl, rabbit; • know the the technological process complex for processing agricultural poultry, wildfowl, rabbit; • Know rules for using safety devices; • know and be able to put into practice the requirements of technological inst ruction; know the device and is able to work with the tools and serviced lines; used to know the company's parts and equipment components; • Organize your work area according to the requirements of companies; • to work in teams; • have an unders tanding of poultry meat as a food; use professional language needs of the worker, according to the qualitative criteria	• able to exploit serviced lines and equipment; able to sharpens knives used in the slaughter; be able to work with the industry by the state standards	• Have practical experience of production methods to prevent defects at slaughter and processing of poultry, wildfowl, rabbit; investigate the structure and operation of machines and equipment components; to know the implications of production failures and malfunctions; Students can apply the work safety and health; • explain the necessary activities of personal hygiene products and companies; explain how to carve the meat of agricultural • poultry, game, rabbits, and to organize workplace for dismantles the process; • called chunks and know their purpose of qualitative analysis	

	production of minced meat. Semi-finished products (large-small chunks, natural, natural cooking cutlet mass)	• know the device and modes of production equipment; to know the types of defects and defect of meat products; • Be aware of the norm of output of finished goods; • have a basic knowledge about the structure of the legislative rules; Know the guide lines for protein content, fat levels; know Kazahstan, Eurasian and Halal standards and rules for production com panies; Know cutting shapes (large-small chunks, natural semi-finished products; known component com position cutlet and natural weight	• Organize your work area according to the requirements of companies; work in teams; have an idea of the large-small lump, natural semi-finished products, natural cooking cutlet mass; • Use profes sional language; • the need of working, according to the qualitative criteria	• have skills in the preparation of large-small lump, natural semi-finished products, natural cooking cutlet mass; to work with raw materials; show the effects of lack of hygienic operation of the product; care about environmentally friendly products; Students can develop - based on the work order information - flowcharts for meat production; pick up the necessary equipment; produce a variety of methods of cutting meat; perform calculations	
Professional practice					
	Teaching practice		to carry out the work in compliance with safety stan dards; conduct record book.	primary registration documentation	
	Production -technological practice		organize the production processes; calculate the needs for raw and auxiliary materials; work on one of the jobs of the leading indus trial enterprises of professions	maintenance of technological equipment; for the chemical composition of raw materials testing, finished product.	
Qualification: 1225042 The manufacturer of meat products					
General professional modules					
PC 6.1-PC 7.15	Production of raw and cooked meat ready for consumption	• classify the readyfor consumption meats and sausages; • discuss the use. nitrite and nitrate under environmental aspects; to show the	• know the machines, equi pment for the production of minced meat semi-finished products which	• to prepare the equipment for the production of semi-finished andminced meat, set operating parameters and manage them in	BC 12.-BC 21.

		origin of the raw ham, ham on the bone, low fat ham, a special ham, bacon; • Use professional terminology to explain the operation of machines mecha nisms; • justify the salting of meat cost; • explain the impor tance of accurate dosing of salt and other flavoring additives; use profes sional language	are used in the production; • know the technology of preparation of semi-finished products; • perform the quality assu rance measures in accordance with operating instructions	the process; run the machine for the processing of meat; • monitor and verify the processes; identify shortfallsin the production process, to take mea sures to eliminate them and document them; check for the definition of output of semi-finished and evaluate the results; taking work orders, check their feasibility, especially in terms of technological and economic aspects; • schedule tasks for the team and carry out and coordinate the results to determine the wor king stages;	
	Production of cooked and smoked sausage meat	grind bacon on Dicer; • prepare the stuffing for all types of cooked sausage and meat products, poultry meat; • mold and boiled sausage meat products of all kinds to meet the required density; • bandage the loaves in natural and artificial casings of all types of sausage products with the application of trade marks; • adjusted on indications of instru mentation pressure and vacuum in the vacuum syringes, stationary and smokehouse; • apply the shtrih code on the button and hang items on sticks and frames; prepare and expose the cooked meat and meat	• choose equip ment for proces sing of meat; • choosing Smo king equipment; make calcu lations for accu rate dispensing of salt and flavorings; • determine the readiness of cooked sausage and meat products, poultry meat after heat treatment; perform certain operations on heat treatment; • work together as a team	•choosing raw materials, coordinate the manu facturing process; • prepare the machinery and equipment; • Work on the equipment; • evaluate the results of the work; • Carry out the process of prepa ration, drafting and molding sausage; •Identify some of the parts of the carcass for the production of sausages; • Be aware of the range of products; techno logical process and process conditions; flow chart, the technical requirements of he instructions; stan dards and technical	

		products, meat poultry pellet for further imparting his heat treatment		speci fications of the finished product; product mix; technological process; have the skills to use used for forming sausage products tools and equipment; know the recipe, processing modes and qualitative charac teristics of raw materials and components; techno logical modes; safety; • carry out techno logical operations of unloading and stacking of products prepared in the form; laying a product shape; placement of products in the frame; know the technology of laying sausage products on the frame and the transport rules;	
	Sausage production requires heat treatment			• Prepare a mixture of semi-finished products for salting distinguish parts of the carcass and to cut them • receive pieces of meat, to cut them, name them, and know the appropriate oppor tunities to use to apply the measures for quality assurance and documentation of the observe particularly unde sirable changes of meat after slaughter perform weighing and pricing; distinguishes range of sausages; jointly cut up animal carcasses; • heat treatment makes manu facturing apparatus	

	Production of ready-to-eat foods	• knows the range of sausage and meat products, smoked pork meat, bacon, and products from poultry, national products of horse meat • technological pro cess of production of sausage and meat products • mince characteristics for all types of sausage and meat products, poultry, national products of horse meat • technological prope rties of the shell • technological pro cess of production of sausage and meat products, smoked pork meat, bacon, and products from poultry, national products of horse meat • molding techniques and bandaging loaves in natural and artificial casings • trade mark sausage products • the application of barcode, weighing sausages and national products of horse meat on sticks and frames • device and the rules of service and automatic syringes • requirements for the quality and density of the shell minced filling, depending on the denomination, shell size and variety of sausages • shell application rates and twine • safety regulations for operation of the equipment for molding	• molded sau sage and meat products of all kinds of poultry, d o m e s t i c products of horse meat in c o m p l i a n c e with the required density • bandage the loaves in natural and artificial casings of all types of sausage products with the application of trade marks • set bobbin and spend their replacement • adjusted on i n d i c a t i o n s control and m e a s u r i n g i n s t r u m e n t s pressure and vacuum in the vacuum syringe • apply the barcode on the button and hang items on a stick frame to prepare for work equipment, the tools, tools and keep them in the underlying order • prevent and e l i m i n a t e defects at work	• M a i n t a i n a technological process of preparation of cooked sausages • to prepare the machine to work properly and service it in compliance with safety regulations • refill the device shell, cellophane, marking tape, fill in the clip drive to control the operation of the machine, even feeding mince, packing density loaves, stacking loaves of sausage on a frame, hanging passports loaded frame indicating the type of product, date of production, sending it to the heat treatment	

		• types of product defects, their causes and ways to generating warnings and eliminate them • requirements for the quality of work performed;			
	Reception of raw materials, production of food and branded meats and sausages	the main problems of scientific and techno logical development of the resource base and the industry in the production of meat products; problems of improving the quality of raw materials and finished products; problems of impro ving the quality of raw materials and finished products; problems of rational use of raw materials, energy and other resources. know and use; methods of analysis of the properties of the composition and nutritional value of meat and meat products; physico-chemical, biochemical and micro biological processes and requirements for product safety; basic technological processes of a given quality and properties of the products; design methodology biologically high-grade products based on raw meat supply	methods of organization of process control; standard test methods to determine the physico-chemical, bioc hemical and structural and mechanical properties of raw materials, fini shed products; Knowledge of technological processes of processing of meat, which provide output that meets the quality requi rements; methods of impro vement and optimi zation of existing production processes based on system analysis and analysis of the quality of raw materials and the requirements of the final product;	organization of control of raw materials and production process, the finished product; testing; efficient use of raw materials and materials, preparation of material balances, the development of standards-based raw material consumption; analysis of the causes of marriage and the ways of their elimination; creation of theoretical models to predict the properties of combined products; development of new technologies and products; development of regulatory documents;	
	Information on meat products	processing of raw materials; preparation of semi-finished and dishes of meat and poultry;	organoleptic quality check process meat and poultry and compliance technological requirements to simple dishes	classification, the nutritional value, the quality of the raw material requirements, semi-finished products and ready meals of meat and poultry;	

			of meat and poultry; choose production equipment and equipment for the preparation of semi-finished products and dishes of meat and poultry; use a variety of cooking techniques;	rules for the selection of basic products, and other ingredients to them in the preparation of meat and poultry; sequence of process steps in the preparation of raw materials and preparation of meat and poultry; rules for storage and quality requirements; temperature and cooling rules, freezing and storage of semi-finished meat and poultry and ready meals; kinds of necessary technological equipment and production equipment,the rules for their safe use.	
Professional practice					
	Teaching practice		to carry out the work in compliance with safety stan dards; conduct observations of the log.	execute primary documentation	
	Production -technological practice		organize the production pro cesses; expect demand for raw materials and auxiliary mate rials; work on one of the jobs of the leading indu strial enterprises of professions	maintenance of technological equipment; carrying out the chemical composition of raw materials testing, finished product.	
Specialist middle managers					
Qualification: 1225113 Production technician					
Special modules					
PC 8.1-PC 8.10	Technology of production of meat and meat products	• be able to develop measures to improve the technological processes of production food for various purposes; know the rules of	• monitors the progress of technological processes at all stages of product manu facturing. If	- Preparation of recipes and techno logical schemes of production of a balanced compo sition of biologically high-grade meat products;	BC 22.-BC 26.

		the state standards and sanitary rules and regulations on the meat processing industry; • know the requirements and procedures for the preparation stages of produced types of meat products for conformity assessment and standardization; • know the recipe sausage, smoked meat products and semi-finished products, raw materials consumption rates, and the output of finished products; -To know the norms of the state standards and sanitary rules and norms, the formulation of each variety of sausages, counting standards, the implementation of the planned development period; current trends and priorities of industry development in the organization of production processes and the rational use of resources; primary sector resources and modern approaches to their management; -Design methodology biologically valuable food based on raw meat; -Basic technological processes of a given quality and properties of the products; -methods of calculation of basic technological processes of production of meat products	necessary, make adjustments permitted by regulatory documentation, change in the course of the technological process, while ensuring the release of the standard, quality product s w i t h o u t allowing any kind of loss, deterioration of consumer properties of the products; • Control of compliance of meat normative and technical documentation, t e c h n i c a l regulations; • carry out the control of c o m p l i a n c e w i t h environmental and biological safety of raw m a t e r i a l s and finished products; • be prepared to develop new types of process e q u i p m e n t when changing the schemes technological processes, to develop new i n s t r u m e n t technology and new methods of research; • It is also obliged to provide the highest quality	-Design of meat-based products and systems combined with food additives; -The use of drawing up plans for equipment placement methods, technical equipment and organization of workplaces, the calculation of production capacity and loading equipment; -Calculation and d e v e l o p m e n t of technically based standards the technological process and standards of equip ment maintenance; -Calculation of material cost specifications (raw material consum ption norms, etc.); -The ability to organize the input quality control of raw and auxiliary materials, semi-finished production control, process parameters and quality control of the finished product; - - Ability to handle current production data, analyze the data and use it in product quality control; the ability justify the norms of consumption of raw and auxiliary materials in the production process.	

			products, as well as the reduction of losses and the level of of manufacturing defects; • analyze the causes of defects and the issue of poor quality products, to take part in the development of measures to eliminate them, as well as in consideration of incoming advertising for manufactured products now; • provides techni cally correct use of equipment and other fixed assets, the implementation schedules; • be prepared to carry out the work on standardization and the prepa ration of the product to conduct conformity assessment procedures; • justify the consumption of raw and auxiliary materials norms in the production process		
	Consultation of clients, event planning and packaging products	-about food regula tory principles, environ mental, sensory aspects of meat production to advise the customer psychology of customers, staff and management; Psychological properties of the person, their role	• be able to develop measures to improve the technological processes of production food of various purpose; know the rules of the state	-To create the image, a beneficial effect on the professional activity; maintain business reputation; give psychological characteristics of the individual to own methods of business communication skills and cultural	

		in professional activities; psychology of work and professional activity -The basic rules of professional ethics and methods of business communication in the team; -Rules for the organization and conducting business communications; -The basic norms and rules of modern etiquette; -Causes and methods of conflict resolution; -the basics and features of business communication; -Characteristics of the national culture in approaches to business -International Etiquette. -methods of consultation and taking orders; -Production technology of meat dishes and design an appropriate type of buffet table -Microbiological, technological, environmental, economic and legal aspects of product packaging -Packaging evaluation criteria; production quality control criteria at the stage of packaging products according to the relevant specifications; method of checking the calculations of production costs	standards and sanitary rules and regulations on the meat processing industry; know the requirements and stages of the preparation procedures of produced types of meat products for confirmation of conformity and standardization; principles of the development of business plans, production and marketing basics	behavior; prevent and manage conflicts; resolve conflicts in groups and teams; psychologically competently build conversation; -Anticipate the discontent of the interlocutor; manipulate the direction of emotional communication; used in professional work methods of business communication; -To establish interpersonal relationships in communications of any kind; competently organize business communications; comply with ethical norms of behavior; -Use knowledge of psychology and ethics in professional activity; determination by means of appropriate methods of questioning of customers and product sales; planning and organizing events, taking into account the place, time, event, theme and special customer requirements create checklists for planning, organizing and conducting the event; arrange meat products on the counter in accordance with the principles of merchandising advise clients taking into account their capabilities and expectations	

				-Formulate the points of sale and advice on sales; respond appropriately to customer objections and complaints to calculate the costs and evaluate them in accordance with commercial principles make up the menu for different occasions and to choose the buffet table assortment of hot and cold dishes to carry out measures to prevent the defects of packaging and labeling; -Interaction in the collective; -Interpersonal and intergroup commu nication, resolution of conflicts within and between groups; -apply the know ledge gained in the educational, professional and social activities	
	Design of technological line of the enterprises of the meat industry	• Know the recipe sausage, smoked meat products and semi-finished products, raw materials consumption rates, and the output of finished products. • Know the norms of the state standards and sanitary rules and norms, the formulation of each variety of sausages, timing standards, date for executing planned development;	-Problems of improving the quality of raw materials, fini shed products and the rational use of raw mate rials, energy and other resources. -Technological processes of a given quality and properties of products -bases of designing and technical support of the order of project development and approval, the composition of design	- Formulate project goals, solve problems, define the criteria and indicators of achievement of objectives, structure their relationship; -Carry out the work field of scientific and technical work on the design; calculate the production capacity and loading equipment; -Calculate the norms of material costs; use of the achievements of new technologies; ability to develop the order of execution of works, equipment	

			-and estimate documentation; Norms and rules of desig ning of techno logical lines of industrial enter prises; espec ially design of technological lines of meat produc tion the basics compu ter-aided design	placement plans, technical equipment and organization of workplaces; skills development of technically based norms of the time; -methods of calculation of the material in the production of	
Professional practice					
	Teaching practice		execution of documents in the enterprise, device with jobs and housing; collection of materials for the overall performance of the enterprise	technology research, technology and organization production and other issues in accordance with the theme of the task, collecting and copying the necessary documents; Work with the normative documents; prepare a report on the practice; execution of documents, preparing for departure	
	Production -technological practice		execution of documents in the enterprise, device with jobs and housing; study tours; collection of materials for the overall performance of the enterprise;	Work with the normative docu ments; study, updating and copying drawings; learning technological processes and their technical equipment, organization and other issues in accordance with the theme of the task, to collect the necessary materials; prepare a report on the practice; execution of documents, preparing for departure;	
Qualification: ******* Junior Process Engineer					
Special modules					
PC 9.1-PC 9.27	Fundamentals of Business Admi nistra tion	• be able to develop measures to improve the technological processes of	• justify the norms of con sumption of raw and auxiliary	-To assess the importance of the accounts in terms of corporate	BC 27.-BC 36.

		production food of various purpose. • be able to organize the work of a small group of performers, plan the work of staff, to analyze the performance of production units. -Possession of the principles of the development of business plans, production and marketing basics; functional areas of the enterprise; basic accounting principles; -evaluate business problems	materials in the production process; • rationally organized according to the production plan of workshop work to implement the plan; monitor compliance with technological discipline in the workshops and the correct exploitation of process equipment; coordinates the work of masters and workshops services	governance; acquire a systemic and strategic business vision; to be able to highlight the problems and solve them in the conditions of uncertainty; -Form communication skills and leadership qualities; Students can perform simple accounting operations independently of each other; -Develop a strategy and planning process to improve operational efficiency; -focus efforts on key organizational components.	
	Financial control	• be able to organize the work of a small group of performers, plan the work of staff, to analyze the performance of manufacturing • subdivisions. -Possession of the principles of the development of business plans, production and marketing basics; understanding of the scope, sub-limits and controls; -Laws and regulations governing the financial control system; -Status, functions and powers of financial control subjects; -Types of financial control, how to use the ain methods of financial control; Features of financial control in different spheres and levels of the financial system ;	• to control all stages of the production process in the production of meat products; • rationally organized according to the production plan of workshop work to implement the plan; monitor compliance with technological discipline in the workshops and the correct exploitation of process equipment; coordinates the work of masters and workshops services;	-The ability to plan and control objectives with targeted management tools; review of management and are able to apply it to solve operational problems ; justification and acceptance within the job-making, as well as acts related to the implementation of the norms of financial law; advising on financial control and implementation of the examination of documents necessary for carrying out his;	

	The study of consumer demand and market conditions	• know the rules of the state standards and sanitary rules and norms, the formulation of each variety of sausages, counting norms, the implementation of the planned development period; possession of the principles of the development of business plans, production and marketing basics; basic knowledge in certain areas of consumer behavior, the questionnaire design and simple statistical analysis; • principles of market research, and methods of data collection and analysis of external and internal environment of the enterprise; various methods for collecting, analyzing and monitoring information on market conditions; • the concept of market conditions, the methods of evaluation and analysis, the range of enterprise and consumer demand; methods of economic-statistical forecasting market conditions	analyze the causes of defects and the issue of poor quality products, to take part in the development of measures to eliminate them, as well as in consideration of complaints received for manufactured products now; to provide high quality products, as well as the reduction of losses and the level of of manufacturing defects;	--Analyze the market situation, to assess the performance of the market situation; to conduct quantitative and qualitative information gathering; podgotovlivat statistical data and perform statistical analysis; -Conducting market research; -Identify the problem in the field of marketing research of food independently of each other and set the research hypothesis; to develop a coordinated research project on the development of the statistical analysis of the questionnaire prior to the submission of the results;	
Professional practice					
	Production-technological practice	functional areas of the enterprise; basic principles of accounting; understanding of the scope, sub-limits and controls; the status, functions and powers of financial control subjects;	to assess the importance of the accounts in terms of corporate governance; form communication skills and leadership qualities	Students can perform simple accounting operations independently of each other; focus efforts on key organizational components. podgotovlivat statistical data and perform statistical	

		types of financial control, how to use the basic methods of financial control; methods of economic-statistical forecasting market conditions. principles of market research, and methods of data collection and analysis of external and internal environment of the enterprise	ability to plan and control objectives with targeted management tools; • analyze the market situation, to assess the perfor mance of the market situation; to conduct quantitative and qualitative information gathering.	analysis; • conducting market research; • identify the problem in the field of marketing research of food independently of each other and set the research hypothesis;	
	Undergraduate practice	legislative and normative acts of governing the system of financial control; Features of financial control in different spheres and levels of the financial system. • various methods of collecting, analyzing and monitoring information on market conditions; • the concept of market conditions, methods of assessment and analysis of the enterprise and the range of consumer demand;	evaluate business problems. acquire a systemic and strategic business vision; to be able to highlight the problems and solve them in the conditions of uncertainty to review the management and are able to apply it to solve operational problems.	develop a strategy and plan the process of increasing ope rational efficiency; advising on financial control and implementation of the examination of documents necessary for its holding. • Develop a coor dinated research project on the development of the statistical analysis of the questionnaire prior to the submission of the results.	

6.Explanatory memorandum

Results of the project have been received by the German Society for International Cooperation Dreberis using the following conclusions:

A. analysis of the development of Kazakhstan's vocational training

More than 15 years Dreberis carries out activities in Kazakhstan. One of the main tasks of the company is an active advisory support in the field of technical and vocational education and training (TiPO), including the Ministry of Education of the Republic of Kazakhstan in the framework of the EU project. The findings and conclusions on various projects within the framework of this cooperation have been taken into account in the implementation of the current project.

• At the same time the results of the international stakeholders and institutions analyzing sector modernization capabilities of TVE were used in Kazakhstan,

which contain, among other things, the recommendation to expand the description of the characteristics of professions.

• Dreberis cooperates with the NAO "Holding "Kasipkor" for more than 3 years. During this time the company has acquired a deep understanding of the operational level of professional education sector, for example, by carrying out methodological training for Kazakhstan teachers and special discussions with the Kazakh colleges.

In this regard, developed to describe the characteristics of the profession have been expanded and supplemented by information that has not yet been discussed, but have significance sector and extend the capabilities of their application in the enterprise by persons who have undergone training.

B. Dreberis experience in introducing food safety standards

Dreberis as one of the largest in the field of foreign development assistance institutions (Overseas Development Assistance, ODA) has a worldwide extensive information in the implementation of food safety projects and the implementation of food standards in a variety of specific sectors (industry for processing of fruits, vegetables, grain, meat, etc.) and countries (developing countries, countries with economies in transition, the EU accession candidate countries).

• If this were obtained extensive information on the impact of the institutional framework conditions (for example, membership in the World Trade Organization and other supranational organizations, such as the Eurasian Economic Union) in the sector of food production. These data were considered in this project.

• In the course of these consultations through sectoral actors posts information on standards and quality requirements have been worked out a lot of practical skills in the field of development and capacity building. Integration of new and enhanced quality requirements and quality management systems in primary professional education is represented in this context, an important tool for ensuring the stability of the qualification.

Therefore, one of the innovations is the inclusion in the curricula of international standards set both at the legislative level (for example, the EU requirements for imported food products), and individual stakeholders (eg international food standards of European retail chains).

The objective sought - promoted through educational programs formation perspective of the education system, which is ahead of the subsequent development processes, and in addition to compliance with national requirements geared to international standards. Thus, the planned formation of the composition of specialized personnel, which will strengthen the international competitiveness of the Kazakhstan sector of enterprises and will thus contribute to the development of this key sector of the economy of the Republic of Kazakhstan.

C. Analysis of international trends in the modernization of vocational education

• The central element is the dual nature of education with equal participation of colleges and enterprises. The training center - the acquisition of practical skills of business. During the entire study, the company gradually transformed from a place of passing a professional practice in an integrated and permanent place of learning.

• In the process of analyzing the international development of the processes in the course of the modernization of vocational education training programs they were not classified for separate disciplines, and for training modules. Detailed

explanation of the approach, built on the basis of training modules contained in these explanatory notes. Built on the use of the training modules approach is a proven and used in Germany in the next 10-15 years the model of dual vocational education, which focuses on the needs of enterprises and the development of which the latter took an active part

- Training programs contain clearly formulated components of the internationalization of education, which, in addition to the above aspects are of great importance for the employment of graduates, as in this case, expanding their opportunities in the labor market.

D. Analysis results of modernization professions in the production of food in Germany

- Both professions have been modernized in Germany during the last few years, and focused on the concept of training modules. The main components of modernization in terms of content:
- Development of environmental and economic competencies (for example, careful use of resources, effective working methods, understanding the environmental impacts of their own professional activity)
- Internationalization
- Automation
- IT-integration
- Anticipation and integration of new trends in the field of nutrition

7.Academic plan

Section "The curriculum" is one of the most important parts of the educational program and includes a curriculum and an explanatory note.

When developing the curriculum, the base should take into account the implementation of educational programs in accordance with the respective periods of study.

The curriculum is developed taking into account the continuity of skill levels (high level Specialist, middle management, bachelor of applied).

The curriculum regulates the structural content (list) for training modules and practice programs; forms of control; the amount of teaching time (hours, loans), including semesters (Table 2).

The curriculum
technical and vocational education

Specialty: 1225***- Specialist in processing of farm animals
Qualifications: 1225042- The manufacturer of meat products
1225113- Production technician
******* Junior Process Engineer

Form of education: full-time
Duration of training: 4 years 6 months
on the basis of basic secondary education

Index	Name of modules and practices	form of control			The amount of teaching time					Distribution by semesters
		Exam	Credit	Course project / work	TOTAL	Theoretical training	Practical training*	ndustrial Training	Coursework	
CM	Compulsory modules				1448					
CSM.00	Secondary modules				1448	824	624			
	Total mandatory modules				1448	824	624			1-2
GHM.00	general humanitarian modules				360	144	216			3-5
PHM.01	Professional Kazakh (Russian) language				72	72				
PFM.02	Professional foreign language				72	72				
PHM.03	Physical Culture				216		216			
	Socio-economic models				180	180	0			3-4
Qualification : 1225***- Specialist in processing of farm animals										
PM.00	Professional modules									
GPM.00	General professional modules				468	164	70	234		3-5
GPM.01	Introduction to specialty acquaintance with production and meat processing industries .	1	+		144	44	28	72		
GPM.02	The selection of raw materials	1	+		180	72	18	90		
GPM.03	Cutting cattle and the category of quality	1	+		144	48	24	72		

SM.00	Special modules				686	187	125	349	25	3-5
SM.01	Cutting lamb, pork, goat, and the category of quality	1	+		164	66	16	82		
SM.02	Cutting poultry, wildfowl , rabbit and semi-finished products	1	+		250	86	39	125		
SM.03	production of minced meat. Semi-finished products (large-small chunks, natural, natural cooking cutlet mass)	1	+	+	272	35	70	142	25	
	Total professional modules				1154	351	195	583	25	
Qualification : 1225*** The manufacturer of meat products										
GPM.00	General professional modules				468	164	70	234		3-5
GPM.01	Production of raw and cooked meat ready for consumption	1	+		108	44	10	54		
GPM.02	Production of cooked and smoked sausage meat	1	+		144	48	24	72		
GPM.04	Sausage production requires heat treatment	1	+		216	72	36	108		
SM	Special modules				686	211	101	349	25	3-5
SM.01	Production of ready-to-eat foods	1	+		184	64	28	92		
SM.02	Extraction of raw materials, production of cuisines and branded meats and sausages	1	+		246	92	31	123		
SM.03	Information on meat products	1	+	+	256	55	42	134	25	
	Total professional modules				1154	375	171	583	25	
Qualification : 1225*** Production technician										
SM	Special modules									
SM.01	Technology of production of meat and meat products	1	+		140	56	14	70		
SM.02	Consultation of clients, event planning and packaging products	1	+		240	96	24	120		
SM.03	Design of technological line of the enterprises of the meat industry	1	+	+	248	67	26	130	25	
	Total professional modules				628	219	64	320	25	6-7
Qualification : ******* Junior Process Engineer										
SM	Special modules									
SM.01	Fundamentals of Business Administration	1	+		260	104	26	130		

SM.02	Financial control	1	+		326	86	23	217		
SM.03	The study of consumer demand and market conditions	1	+	+	238	71	23	119	25	
	Total professional modules				824	261	72	466	25	8-9
GPM.00	Modules defined education organization with the employer				48					
GPM. 01	Technology of production of meat and meat products				48					
GPM. 01	Technology of production of meat and meat products				48					
IP.00	Industrial Training and Professional Practice				2240					
TP.01	Technological practice				1952					
UP.02	Undergraduate practice				288					
DP. 00	designing of diploma				216					
IC.00	Interim certification				216					
FE.00	Final examination				108					
FE.01	Final examination				60					
FE.02 (RLPQ)	Rate the level of professional readiness and assignment of qualification				48					
	Total for compulsory education				6624					
C	consultations	Not more than 100 hours for the academic year								
F	facultative classes	Not more than 4 hours per week during the period of theoretical training								
	Total :				7240					

Note:

1) * to practical training include practical (laboratory) work, term papers (projects), tests and other.

2) In the development and implementation of job training plans and programs of the organization of technical and vocational education may:

~ change of up to 30% of the training time devoted to the development of educational material for cycles and up to 30% in each subject (module) and up to 50% of the production of learning and professional practice while maintaining the total number of hours for compulsory education;

~ select different training techniques, forms, methods of organization and control of the educational process;

~ in accordance with the needs of employers to change the curriculum content to 30% in humanities and socio-economic modules and up to 50% on professional modules, apprenticeship training and professional practice. Introducing additional modules in vocational modules for employers demand while maintaining the total number of hours / credits for compulsory education;

3) select the form, procedure and frequency of ongoing monitoring of progress of students and interim assessment of students;

4) 3) The distribution rates may vary depending on the learning technologies, the specifics of the specialty, and other regional specificities.

EXPLANATORY NOTE

to the structure and content of the educational program in the specialty 1225000-Production of meat and meat products

The curriculum and training plan consists of various modules. The term "module" explains the model of "learning areas" that are taught in a combination of theoretical and practical units.

Using the modular structure of competence in the educational process provides the flexibility to build the course, the ability to better meet the needs of students in the individualization of the educational process. Each module provides the appropriate competencies and evaluation criteria. At the same time training sessions are practice oriented form.

Developers (school) job training programs tailored to the customer's requirements - the employer can review the structure and the number of modules in the direction of decreasing, ie by grouping a number of competences for employment of certain types of posts on related qualifications.

Thus, given the flexibility of a modular-competence structure of the educational program, all the modules of competence, when needed, can be sgruppiravat in separate modules for qualifications. After successful study of each module and confirm the relevant qualifications of workers possible qualification "Production technician".

After final examination on assignment of qualification "Junior Process Engineer" will be held after the completion of applied bachelor degree programs.

7. Explanatory note to the curriculum

The educational program contains a description of the curriculum in accordance with the state mandatory standards of respective levels of education.

The curriculum reveal structural content of training, the amount of teaching time per module, the sequence of study modules.

All modules will include a "learning by doing" and all the modules will be located in the context of mechanical engineering (automotive industry).

Each module and each qualification structure will have the loan amount. The amount of credits the module indicates the number of credits that will be awarded to the learner who has achieved learning outcomes in the module.

The amount of credit is based on the module:

- One credit for learning outcomes achievable in 10 hours of training, including Managed Hours Learning (UCHO).

- The learning curve is defined as the time taken by students at the module level, on average, to complete the learning outcomes to specific standard criteria for assessing

- The amount of credits the module will remain constant in all situations, regardless of the method used, the qualification evaluation (th), to which it belongs.

raining time must consider all learning (including assessment) related to the evaluation results, regardless of where, when and how the training was held.

General education courses (modules) up 1448 hours.

The cycle of social and economic disciplines is realized in the preparation of mid-level specialists with the amount of training time is not more than 180 hours.

The most important component of the program is the emphasis on practical training of students. To this end, developed special educational programs and job training modules should be combined. That is, if in the model curricula (TUP) allocated to job training alone, and relates to professional practice, the programs developed - is distributed to the professional modules.

The curriculum is aimed at the professional training include:

1) the study of general subjects and modules;

2) performance of laboratory and practical classes on general subjects and modules;

3) the passage of industrial training and professional practice;

4) the implementation of the course and diploma projects (work).

The educational process in educational institutions implementing educational programs of technical and vocational, post-secondary education includes theoretical classes and job training to be performed in the training workshops, educational farms and training grounds under the guidance of the master of inservice training, as well as directly on the production and organization of the appropriate profile.

Professional practice is carried out in the respective organizations, in the workplace, provided by employers on the basis of the contract, and is aimed at the formation of professional competencies.

The practical training (laboratory and practical classes on general subjects, modules, disciplines (modules), defined by the organization of education; job training and professional practice, course and diploma design) should be at least

40% of the total school compulsory education period (excluding secondary and socio-economic disciplines).

Educational programs of technical and vocational education with the dual training include theoretical training in educational institutions and at least sixty percent (60%), industrial training, practice on the basis of the enterprise.

Course projects (works) are regarded as one of the types of training activities on general and special subjects / modules and carried out within the school time devoted to their study. Number of course projects (works) in the semester is less than one. Additionally allowed to plan a course work (project).

The time allowed for diploma projects should not exceed 6 weeks. The duration of pre-diploma (qualification) practices is planned, depending on the complexity of the specialty.

To take into account regional characteristics and requirements of employers to the training provided by the specialty study courses / modules, defined by educational organizations.

To determine the quality of development by students of educational programs in the curriculum provides for the intermediate and final certification.

Conducting interim assessment is provided in all subjects / modules, which are the main forms: exam, test, test.

Interim certification in general educational disciplines provides for examinations in: language, literature, history of Kazakhstan, mathematics and the choice of the organization of technical and vocational education.

Number of examinations, tests and examinations on the humanities, social and economic, general professional disciplines, modules is determined based on the requirements to the level of knowledge, skills and competences, which should have the student.

Examinations and tests are carried out at the expense of teaching time allocated to the study of this discipline (module), exams - in the time allocated to the intermediate certification.

As a result of interim certification for a modular curriculum and passing the qualification exam for working professions which includes professional readiness level assessment and award students are assigned to the achieved vocational qualification level (category, class, category).

Final certification of students of technical and vocational education institutions includes:

- assessment of students in educational institutions;
- assessment of the level of professional training and qualification (for the set and advanced training levels).

Final certification of students in educational institutions is carried out to determine the level of development of educational programs on the basis of studying the full course of study.

Possible forms of final certification in educational institutions on the basis of completion of training educational programs: handing on general subjects of examinations (modules) and special modules, or performance and protection of the degree project, or the performance and protection of the thesis with one of the

special subjects passing an examination of final certification (modules).

Assessment of the level of professional readiness and assignment of qualification (hereinafter - OUPPK) by function consists of two phases:

1) a theoretical test on disciplines (modules), defining training;

2) implementation of practical tasks by skill level.

The amount of training time to carry out the final certification is determined by no more than 2 weeks. Of these, the organization and conduct of OUPPK is given at least 48 hours per group (depending on the specifics of the specialty and the organization of educational process may vary upwards).

Consultation and extracurricular activities aimed at ensuring the individual abilities of students and requests.

Extracurricular activities are provided for the entire period of study of the rate of not more than 4 hours a week and are not required to study students.

˜ Consultations are provided in the amount of up to 100 hours per academic year depending on the specialty and training period for a study group.

˜ The amount of time and form of consultation (group, individual, written, etc.) are determined by educational organizations in the preparation of the working curriculum.

˜ must be considered in the development of model curricula that:

˜ academic year begins on September 1 and ends according to the educational process related to the specifics of the specialty;

˜ vacation time is 11 weeks per year, including the winter - not less than 2 weeks, except for military specialties. Students who have concluded an agreement on dual training now, during the holidays can be an internship in enterprises;

˜ the maximum volume of an academic load of students is not more than 54 hours a week, including the compulsory teaching load at the internal form of training - at least 36 hours a week (with the specified amount does not include classes in optional subjects and consultations).

8.List of Recommended Equipment

No.	Name	Technical specifi cation	Purpose of equipment/ Topics covered	Module (s) in which equipment is used	Item of equipment/ for a group of students	Total num ber	Notes	Picture (if possible)
“Meat and Meat Products Technology” laboratory Each laboratory can accommodate 12 students.								
1	pH- meter	Recommended measu rement range: 0-14 pH	For measurement of the activity of hydrogen ions pH (acidity) in various food and water extracts.	- Selection of raw materials; - Dressing of beef and quality class; - Dressing of lamb, pork, goat meat and quality class; - Dressing of poultry, game meat, rabbits, and semi-finished products; - Production of minced meat. Semi-finished products (large-small sized, natural, preparation of natural cutlet mass); - Production of raw and cooked meat ready for consumption; - Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; - Production of food ready for consumption; - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production	3	5	Availability of the combined electrode designed for rapid measurement ofpH value in meat and meat products without prior sample preparation	
2	Temperatu re sen sor of	Re commen ded ran ge of temperature	Temperature control of meat and meat products during hot:	- Selection of raw materials; - Production of minced meat. Semi-finished products (large-small sized, ;	3	5		

	meat products	measured, °C -50…+180	or cold treatment or storage-temperature control inside of sausage stick during smoking or boiling, - temperature control during production of meat products, temperature control of frozen meat products.	natural, preparation of natural cutlet mass) - Production of raw and cooked meat ready for consumption; Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; - Production of food ready for consumption - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production				
3	Moisture analyzer or multi-purpose moisture meter	Recommended range of moisture measured 0 – 100%; absolute limit of deviation of the analyzer not more than ± 0,2 %	used for moisture control of the raw materials and ready products	Selection of raw materials; - Production of minced meat. Semi-finished products (large-small sized, natural, preparation of natural cutlet mass); - Production of raw and cooked meat ready for consumption; - Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; - Production of food ready for consumption - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production	3	5		
4	Centrifuge	Digital time indication of operation. Rotor speed:	Used to determine water binding capacity by Vartanyan method	- Production of minced meat. Semi-finished products (large-small sized, natural, preparation of natural cutlet mass); - Production of raw and cooked meat	3	5		

		not less than 2700 r/min		ready for consumption; - Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; - Production of food ready for consumption - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production				
5	Salimeter	Measurement range: 0…100 Resolution: 1 Deviation under 25° C: ± 1 Working environment: + 10…+ 40° C	Used for measurement of salt content level in sausage, meat and meat products	- Production of minced meat. Semi-finished products (large-small sized, natural, preparation of natural cutlet mass); - Production of raw and cooked meat ready for consumption; - Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; - Production of food ready for consumption - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production	3	5		
The list of equipment in the training-scientific workshop (for the production of sausage and meat delicacies) Each workshop can accommodate 12 students								
6	Low temperature refrigerator	Operating temperature not more than -15° C, capacity not less than 280 l	Designed for storage of pre-cooled raw meat or ready meat products at low (-20…-15 °C) temperature	Selection of raw materials; - Dressing of beef and quality class; - Dressing of lamb, pork, goat meat and quality class; - Dressing of poultry, game meat, rabbits, and semi-finished products;	1	1		

				- Production of minced meat. Semi-finished products (large-small sized, natural, preparation of natural cutlet mass); - Production of raw and cooked meat ready for consumption; - Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; - Production of food ready for consumption - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production				
7	Butcher's block	Not less than1m width and the work front not less than 1,5m.	Designed for deboning and trimming of raw meat	- Dressing of beef and quality class; - Dressing of lamb, pork, goat meat and quality class; - Dressing of poultry, game meat, rabbits, and semi-finished products;	1	1		
8	Set of knives for deboning and trimming	Preferred length of the knife for deboning - 13-15 cm, the knife for trimming - — 23-30 cm.	for deboning, cutting and trimming of meat, for hide removal	- Dressing of beef and quality class; - Dressing of lamb, pork, goat meat and quality class; - Dressing of poultry, game meat, rabbits, and semi-finished products	1	1	Should meet safety requirements when using (grungy material of the handle, safe ledge on the border of the handle with a blade)	
9	Scales	Maximum measured weight is not less than 60 kg,	for weighing meat cuts, carcasses and half-carcasses	Selection of raw materials; - Dressing of beef and quality class; - Dressing of lamb, pork, goat meat and quality class;	1	1		

				- Dressing of poultry, game meat, rabbits, and semi-finished products; Production of minced meat. Semi-finished products (large-small sized, natural, preparation of natural cutlet mass); - Production of raw and cooked meat ready for consumption; Production of cooked and smoked sausage; Production of sausage requiring the heat treatment; - Production of food ready for consumption - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production				
10	Meat mincer	Productivity is not less than 350 kg/h, rotational speed is not less than 185 r/min	For mincing of frozen trimmed blocks of meat for minced meat	Production of minced meat. Semi-finished products (large-small sized, natural, preparation of natural cutlet mass); - Production of raw and cooked meat ready for consumption; - Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; - Production of food ready for consumption - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production	1	1		

11	Cutter	Number of knives is 2-10, the bowl capacity is not less than 50 l, the cycle length is not more than 10 min	Designed for fine cutting of all types of meat in production of cooked sausage, sausages and wieners.	Production of minced meat. Semi-finished products (large-small sized, natural, preparation of natural cutlet mass); - Production of raw and cooked meat ready for consumption; - Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; - Production of food ready for consumption; Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production	1	1		
12	Ice freezer	Grain size is 5-10 mm, Ice temperature is not more than 6 ÷ (-7)°C;	For prevention of excessive heating of minced meat during cutting and temperature regulation	Production of minced meat. Semi-finished products (large-small sized, natural, preparation of natural cutlet mass); - Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production	1	1		
13	Cube fat cutter	Cutting into cubes from 4 to 32 (possibility of combination with each other)	For cutting of fat into cubes used for sausage meat.	Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production	1	1		

14	Minced meat mixer	Bowl capacity is not less than 60 l, rotational speed of the mixer is not less than 35 r/min	Designed for mixing of minced meat	- Production of minced meat. Semi-finished products (large-small sized, natural, preparation of natural cutlet mass); - Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production	1	1		
15	Vacuum filler	Productivity is not less than 800 kg/h. Regulative doze weight is from 5000 g, dozing move is not more than 5 g.	Designed for filling of variable sausage casings with minced meat in production of all types of cooked and semi-smoked sausage, sausages and wieners	Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; Extraction of raw materials, production of food, branded meat and sausage products; Technology of meat and meat products production	1	1	Preferably to be equipped with a built casing twisting system (manual and automatic modes) and product dosing system	
16	Injector	Number of needles not less than 27 pcs; number of cycles per min – 56	Designed for injection of meat with salt brine in production of smoked products.	Production of raw and cooked meat ready for consumption, treatment; - Production of food ready for consumption; - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production	1	1		

17	Meat tumbler	Chamber capacity is not less than 200 dm3; maximum loading of the chamber with raw meat is not less than 100 kg	Ensures gentle raw meat massaging, thereby the process of salting is accelerated	Production of raw and cooked meat ready for consumption, treatment; - Production of food ready for consumption; - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production	1	1		
18	Steam cooking chamber	Nominal loading – not less than 150 kg. Pressure range of stem is 1- 8 Bar	Purpose: production of meat products without smoking (sausages, wieners, pork steak, sausage).	Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production	1	1	Preferably to be equipped with moisture sensor	
19	Smoking chamber of hot and cold smoking	Capacity is not less than 50 kg, the chamber temperature is 40-125 °C, Temperature in the chamber with refrigerant is 18-125°C	For hot and cold meat smoking, production of sausage, meat delicacies.	Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production	1	1	Monitoring of the following parameters shall be carried out: Temperature inside the chamber; temperature inside the product; moisture; time of operation	
20	Medium temperature refrigerating chamber	Cooled internal volume is not less than 3 cub./m, Recommended	Designed for storage of cooled raw meat or ready meat products.	Selection of raw materials; - Dressing of beef and quality class; - Dressing of lamb, pork, goat meat and quality class; - Dressing of poultry, game meat, rabbits, and semi-finished products;	1	1		

		ran ge of ope rating tem perature is +8-10		- Production of minced meat. Semi-finished products (large-small sized, natural, preparation of natural cutlet mass); - Production of raw and cooked meat ready for consumption; - Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; - Production of food ready for consumption; - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production				
21	Multi-purpose boiling and frying chamber	Number of smoking frames contained– not less than 1; nominal load is not less than 300 kg	for hot and cold smoking of meat, production of sausage, meat delicacies.	Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production	1	1		
22	Clipper	Two-clipped, clipping of casings of the diameter from 20 to 115 mm	used for sealing of fillers into special measuring casings	Production of cooked and smoked sausage; - Production of sausage requiring the heat treatment; - Extraction of raw materials, production of food, branded meat and sausage products; - Technology of meat and meat products production	1	1	Preferably the possibility of setting the parameters of clipping and cutting	

List of equipment in the training-scientific workshop (for the production of canned products) Each workshop can accommodate 13 students								
23	Can-filling machine	Productivity is up to 10 cans/min	for filling and dosing of meat into cans	- Technology of meat and meat products production				
24	Semi-automatic can-sealing machine	Productivity is not less than 10 cans/min. Diameter setting range is up to 105 mm; Height setting range is up to 125 mm	For sealing of meat under vacuum (and it is important for ensuring appropriate shelf life of canned meat) into cans	- Technology of meat and meat products production	1	1	the machine can be of a bench type	
25	Auto clave	Minimum operating pressure is 2 Bar, capacity is not less than 22 l	Machine for sterilization, heating of canned meat up to 110-115 degrees at above atmospheric pressure	- Technology of meat and meat products production	1	1		
26	Mechanism of auto clave dis charge	Rotation angle of the boom not less than 170°,	allows loading and unloading of baskets from the autoclave	- Technology of meat and meat products production	1	1		

9.The list of recommended literature

№	Title and number of edition	Author	Publishing House	Year and place of edition	Module(s), where it is used
1	Occupational health	Devisilov VB.A.	Forum	M: 2010	1-15
2	Economics and organization of production. Textbook	Franovskaya G.N.	Infra-M	2014	12-15
3	Basics of standardization, certification and metrology	Krylova G.D.	M.: UNITY-DANA,	1999	
4	Correspondence adminis tration	Schevchuk D.A	EXMO	2013	12-15
5	Informational technologies: textbook	V.V. Trophimova	Uright	2011	12-15
6	Basics of drawing	Professional education	Academia	2016	12-15
7	Basic professional education	G.M. Shelamova	Academia	2013	1-5
8	State regulation of market economy	V.I. Kushlin	RAGS	2005	13-15
9	Technology of meat and meat products	Винникова Л.Г	“INCOS”	2006	1-12
10	Technology of meat processing. German practice	Kaim G.	S P b . : Profession	2008	1-12
11	Technological equipment of meat producing enterprises	V. Sharshunov, I. Kirik	Misanta	Minsk, 2012	1-12
12	Anatomy and physiology of agricultural animals	Golytsina L.A., Lenchenko Ye.M., Pismenskaya V.N.	Colos	2007	1-12
13	Microbiology of meat and meat products	Luzina N.I.	KemTIPP	2004	1-12
14	Microbiology of meat and meat products : Textbook	Sidorov M.A. Kornelayeva R. P.	Colos	2000	1-12
15	Basics of physiology of nutrition, hygiene and sanitary	Matyukhina, Z.P	IC Academy,	2013	1-8
16	Technochemical control of meat and meat products production	Zhuravskaya N.K	M. : Colos	1999	8-13
17	Biochemistry of meat and meat products	Rozantseva E.G.	DeLi Print	2006	8-12
18	Merchandising and expertise of meat and meat products	Kosnireva L.M., Krishtafovich V.I., Poznyakovskiy V.M.	M.: Publishing C e n t e r "Academy",	2005	
19	Equipment and automation of processing productions	A.A. Kurochkin, G.V. Shaburova, A.S. Gordeyev, A.I. Zavrazhnov	M.: Colos	2007	8-13
20	Theoretic basics of heat and cold technics	V. A. Grigoryeva, V. M. Zorina	E n e r g o atomizdat	1988	1-12
21	Automation of technological processes	V. Yu. Shishmaryov	M o s c o w “Academy”	2005	7-12
22	Equipment of enterprises of the meat production	M. K.Alimardanova, R. Sh. Hakimova	Foliant	Astana2009	1-12
23	Technology of meat and meat products processing	M. K.Alimardanova, R. Sh. Hakimova	Foliant	Astana 2009	1-8
24	Companies of meat sector (term and diploma designing)	M. K.Alimardanova, R. Sh. Hakimova	Foliant	Astana 2010	13-15

25	Training course “Sausages. Sausage products. Meat products”	V.P. Statsko	Phoenix	Rostov na Donu, 2000	8-11
26	Collection of receipts of meat items and sausages.	K.P. Yukhnevich	Gydrometeoizdat	Saint-Petersburg, 2000г	7-12
27	Technology of pashtete production	Bezzubova A.V	Printing Center Mart	Rostov na Donu , 2004	11
28	Metrology, standardization and certification of meat products	textbook, Bessonova L.P., Antipova L.V., .	GIORD	Saint-Petersburg :2013	8-12
29	Production of meat semi-ready products and fast-frozen dishes	I. A. Rogov, A. G. Zabashta, R. M. Ibragimov , D. D. Zabashta.	Colos	Moscow, 1997	1-12