

Annotation of optional educational component

Academic discipline	Basics of refrigeration technologies
Tutor	Bezpalyy Ivan, candidate of agricultural sciences, associate professor
Courses and semesters, when the discipline is planning to study	3 course, 5 semester
Faculties whose students are invited to study discipline	Biological-technological faculty
List of competencies and learning-related outcomes that discipline provides	<p>According to the requirements of the educational-professional program "Technology of production and processing of livestock products" applicants must acquire the ability to obtain the following competencies:</p> <p>GC 3. Ability to apply knowledge in practical situations.</p> <p>GC 4. Knowledge and understanding of the subject area and understanding of professional activity.</p> <p>GC 7. Ability to evaluate and ensure the quality of work performed.</p> <p>PC 13. The ability to use special knowledge to carry out sanitary-hygienic and preventive measures on farms and other facilities for the production and processing of livestock products.</p> <p>The result of studying the discipline is the students' acquisition of such knowledge and skills:</p> <ul style="list-style-type: none"> • to know the qualitative composition of different food groups. • to know what changes raw materials undergo as a result of low temperature treatment. • to know software tools and methods of data processing related to refrigeration processing of food products. • to know and be able to apply basic methods of laboratory research of the quality and technological properties of individual food products, food raw materials. • to know the methods of detection of falsification of food products. • to know the main domestic national and regulatory documents regarding the management of quality and safety of food products. • to know the main directions and prospects for the development of refrigeration processing of food products in Ukraine and in the world.
Description of the discipline	
Preconditions necessary for the study of discipline	The optional educational component "Basics of refrigeration technologies" is based on knowledge of such disciplines as "Chemistry", "Biochemistry in animal husbandry", "Mechanization in animal husbandry", "Design and construction of enterprises for the production and processing of livestock products" and "Microbiology in animal husbandry", which were. Studied in previous semesters.

Maximum number of students who can study simultaneously	55 students
Lesson plans	<p>Lectures</p> <ol style="list-style-type: none"> 1. Theoretical foundations of refrigeration preservation of food products. 2. Chemical composition and main properties of food products. 3. Cooling media and their properties. 4. Basic methods of low and ultralow temperatures. 5. Auxiliary means for refrigeration processing and storage. 6. Technology of cooling, freezing and freezing of food products. 7. Technology of food products. 8. Freezing products in a flow of cold air. 9. Technology of freezing in a liquid environment. 10. Regimes of refrigerated storage of food products. 11. Cold processing of meat, meat products, poultry and eggs. 12. Cold processing of milk and dairy products. 13. Use of artificial cold in food production. 14. Refrigerated transportation of food products. <p>Practical classes</p> <ol style="list-style-type: none"> 1. Chemical, biochemical and microbiological changes in products during cold storage. 2. Research of quality indicators of chilled and frozen products. 3. Thermal calculation of the cooling process. 4. Calculation of the thermal load of the cooling chamber. 5. Technical means for cooling products. 6. Measurement and control of parameters of cooled environments. 7. Technological schemes of sublimation drying. 8. Factors affecting the storage of nutritional qualities of products. 9. Preparation of cameras for receiving products. 10. Ways of placing products in chambers during refrigeration. 11. Types of containers for packaging chilled and frozen products. 12. Norms of drying of products during storage. 13. Placing products in chambers during refrigeration. 14. Requirements for refrigerated transport when transporting products.
Teaching language	Ukrainian