SULAWE LLL course description

Code	Title of the course
	Livestock production waste and by-products. Their processing and use. (15 hours)

1. Learning Objectives of the course.

Qualification objectives

overall objectives of the course

The general objectives of the course of the discipline "Livestock production waste and by-products. Their processing and use." provides systematic knowledge of modern mastery of theoretical and practical skills and knowledge for the skillful solution of the main organizational, technological, veterinary and sanitary issues related to the receipt and processing of additional raw materials obtained from the slaughter of animals, primary processing and processing of by-products, the life of farm animals and poultry of various species.

Which knowledge, skills, competences should be acquired disciplinary and interdisciplinary?

Formation of students' modern vision of the patterns of waste processing, production of livestock products, farm animals;
Providing future specialists with innovative knowledge on the technological bases of processing waste from livestock production, the basic requirements of state standards and technical specifications of Ukraine on the assessment of secondary material resources obtained in the manufacture of basic products, waste processing; physical and technological processes that take place in raw materials during preparation for processing and during the processes of production of secondary products; parameters of technological processes of processing secondary resources obtained during the slaughter of animals and poultry with the manufacture of various types of products: production of feed, technical fats and lubricants; products from down and feather raw materials, consumer goods parameters of technological processes of excrement processing (production of biofuels and organic and organic mineral fertilizers, processing of livestock products, assessment of the quality of animal raw materials and products of its processing);

Mastering the basic approaches, parameters, skills, and ability to carry out incoming quality control of raw materials and finished products; perform all technological operations and carry out quality control over their performance by operators; to select the optimal technological lines of different capacities for enterprises for the processing of livestock waste in farms and enterprises with different forms of ownership, which are aimed at intensification and rationalization of technological processes.

Summary of the Content

Which professional, methodological, practical and interdisciplinary contents will be delivered?

The purpose of studying the discipline is to train highly qualified specialists with general knowledge and competencies in technological control and management of the technological process of processing livestock waste, which allow them to carry out at the modern level the acceptance, storage, processing of livestock raw materials, to implement their quality control.

Objectives of the discipline: Providing knowledge on modern mastery of theoretical and practical skills and knowledge for the skillful solution of the main organizational-technological and veterinary-sanitary issues related to the receipt and processing of additional raw materials obtained from the slaughter of animals, primary processing and processing of by-products, the life of farm animals and poultry of various species. Instilling in students certain practical skills in technologies for processing waste from livestock products of farm animals and poultry of various species;

Target group

Who is the intended target group of the course?

the target group is:

- Farmers
- Agricultural processing technologists
- Personal peasant farms
- Postgraduate students and applicants for higher education of the second master's degree in the specialty 204 "Technology of production and processing of livestock products"
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Teaching/learning forms (summary)

e.g., online, hybride, problem lecture, lecture-dialogue, binary lecture, lecture-consultation, seminar (- with exercise), lab work, workshop etc.

Problem binary lecture, seminar with exercises, case method.

2. Preconditions for participation

Knowledge, skills, competences	Which knowledge, skills, competences are required for successful participation?
Integral competence	Ability to solve complex problems of research and/or innovation nature in the field of technology of production and processing of livestock products, which involves the application of theories and methods of animal engineering and research and implementation of innovations in production.

General competences	1 Ability to abstract thinking, analysis and synthesis. 2. Skills in the use of information and communication technologies 3. Ability to communicate in a foreign language. 4. Ability to search, process and analyze information obtained from various sources.
Special competences	1. Ability to develop, organize and implement measures to increase the productivity of animals, control the safety and quality of products of their processing and the efficiency of its production 2. Ability to simulate and design technological processes for the production and processing of products of animal origin. 3. Ability to create and apply systems and methods for processing animal products.

Program learning outcomes	1. Assess and ensure the quality and safety of technologies for the production of livestock products, feed and feed products, animal nutrition levels and animal products. 2. Develop, implement and modernize effective technologies and processes in the field of production and processing of livestock products. 3. To build and study models of technological processes of production and processing of livestock products, to assess their adequacy, to determine the limits of applicability. 4. Make effective decisions on the production and processing of livestock products, including in difficult and unpredictable conditions, predict their development, identify factors influencing the achievement of goals, analyze and compare alternatives, assess risks and likely consequences of decisions.

3. Recognition of participation

e.g., Certificate of participation issued by XX university or other recognition possibilities e.g Recognised as a training course for Veterinarians

1. Course participants will receive a certificate of professional development for 0,5 credit.
2. The course is approved as a discipline chosen by the students of specialty 204 "Technology of production and processing of livestock products"

4. Organisation of the course

Responsible for the course

Prof. Dr. please insert the name
candidate of veterinary sciences, associate professor pHD Tatiana Stryzhak

Duration e.g., 1 or 2 days or 6-15 hours	Max. number of participants	Preparation/ follow up/ self-study Preparation/control/self-study

5. Structure of the course content

Title of training section	Duration and % of the entire program	Methods/Formats used	Responsible person
TOPIC 1. Waste-free technology for the production of products from raw materials of animal origin. Characteristics of secondary raw materials for the slaughter of animals and poultry The role of the integrated use of raw materials for the production of meat and meat products. Increasing the efficiency of the use of secondary material resources Efficiency of the use of secondary meat resources and food additives of plant and animal origin. **Use of water and its disinfection.**	2	Problem binary lecture	Stryzak T.A. Ermakovich I.A.
TOPIC 2. Bone and collagen-containing raw materials. Non-food raw materials for the slaughter of farm animals, poultry Characteristics and uses of bone raw materials Characteristics of keratin-containing raw materials and their uses.	2	Problem binary lecture	Stryzak T.A.

Characteristics of horn-hoofed raw materials.			
TOPIC 3. Topic 3. Technology processing of bristles, animal hair, feathers and down raw materials. Bristle-scalding technology Cattle hair processing technology Feathers-down raw materials, processing technology Technology for the preparation of feather flour	3	Problem binary lecture	Stryzak T.A.
TOPIC 4. Manure and bird droppings Classification and characteristics of manure of cattle and pig breeding enterprises. Classification and characteristics of bird droppings. Basic requirements for obtaining high-quality organic fertilizer **Disinfection, disposal of animal corpses, sanitary and veterinary measures**.	3	Problem binary lecture	Stryzak T.A., Zhukovska A.V.
TOPIC 5. Vermiculture of animal excrement Vermicomposting technology Rearing the larvae of synanthropic flies (maggots) Features of growing yeast on animal waste	3	Problem binary lecture	Stryzak T.A.
TOPIC 6. Biofuel Production Technology **Methods of disinfection of**	2	Problem binary lecture	Stryzak T.A.

manure waste for biogas production **Environmental Assessment of Products of Anaerobic Processing of Organic Waste**			

Additional literature:

1. Goncharov G.I. Technology of primary processing of livestock and slaughter products - Textbook - Kyiv: NUFT, 2003. 157 p.
2. Pelikh V.G., Smorochynsky O.M., Nazarenko I.V. Technology of animal slaughter products: Study guide. - Kherson: "Oldie-plus", 2008. - 264 p.
3. Poultry farming and technology of eggs and poultry meat production / V.I.Besulin, V.I.Guzhva, S.M.Kutsak, V.P.Kovalenko, V.P.Borodai. Edited by V.I. Besulin. Bila Tserkva, 2003. - 448 pp.
4. Technology of meat and meat products: Textbook / M. Klymenko, L.G. Vinnikova, I.G. Bereza and others; edited by M.M. Klymenko. - K.: Higher Education, 2006. - C.7-229.
5. Technology of animal slaughter products: Textbook / Mankovskyi A.Y., Antoniuk T.A. - Kyiv: Agroosvita, 2014. 336 p.
6. Kovbasenko VM. Veterinary and sanitary examination with the basics of technology and standardization of livestock products. Odesa, 2013. - 301 p.
7. Cherevko O.I., Safonova O.M., Bogomolov O.V. Processing of raw materials of animal origin - Kharkiv: KhDATOK, 2002. 260 p.