Ministry of Education and Science of Ukraine
Sumy National Agrarian University
Faculty of Veterinary Medicine
Department of Obstetrics and Surgery

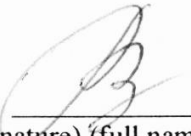# Work program (syllabus) of the educational component
(required)

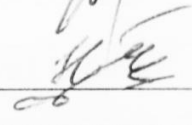| Specialty	211 " Veterinary Medicine
Educational program	**Veterinary surgical technologies**
Level of education	second (master's) level of higher education

Sumy - 2023
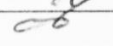
Author: _____ Chekan O.N., Associate Professor
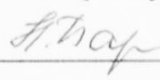
Module syllabus agreed at the Obstetrics and Surgery Department meeting	Minutes No _14___ dated June_30__ 2023
	Head of Obstetrics and Surgery Department _____ (Shkromada O.I.)

Approved by:

Guarantor of the educational program _____ Ulko L.G.
(signature) (full name)

Dean of the faculty _____ Nechiporenko O.L.

Syllabus review (attached) is provided by : _____ (Sklyar O.I.)
_____ (Pluta L.V.)

Representative of the Department of Education Quality assurance,

licensing and accreditation _____ (_____)

Registered in electronic data base _____ 19.07. _____ 2023

Author: _____ **Chekan O.N., Associate Professor**

Module syllabus agreed at the _____ Department meeting	Minutes No _____ dated June____ 2021
	Head of Obstetrics and Surgery Department _____ (**Shkromada O.I.**)

Approved by:

Guarantor of the educational program _____   <u>Ulko L.G.</u>
                                      (signature) (full name)

Dean of the faculty   _____   <u>Nechiporenko O.L.</u>

Syllabus review (attached) is provided by : _____ (Shkromada O.I.)
                                            _____ (Musienko Y.V.)

Representative of the Department of Education Quality assurance,

licensing and accreditation   _____   (_____)

Registered in electronic data base _____2021

Syllabus review data:

The academic year in which changes are made	The Academic program attachment number with changes description	Changes revised and approved		
		Minutes No and date of the department meeting	Head of Department	Guarantor of the Academic program

1. MODULE OVERVIEW

1.	Title	Veterinary surgical technologies
2.	Faculty/Department	Faculty of Veterinary Medicine, Department of Obstetrics and Surgery
3.	Type (compulsory or optional)	Obligatory
4.	Program(s) to which module is attached (to be filled in for compulsory types)	211- Veterinary medicine
5.	Module can be suggested for (to be filled in for optional types)	
6.	Level of the National Qualifications Framework	(2 master's) 7
7.	Semester and duration of module	II semester 1-18 III semester 1-18
8.	ECTS credits number	VI semester: 5 credits total : 150 hours, aud . 60, incl. 16 hours lectures, 44 hours labs, Self-directed : 90 hours , credit VII semester: 3 credits total: 90 hours, aud . 16, incl. 16 hours labs, Self-directed : 74 hours , credit

9.	Total workload and time allotment	Directed study			Self-directed study
		Lectures	Practicals	Labs	
	VI semester	**16**		**44**	**90**
	VII semester			**16**	**74**

10.	Language of instruction	English
11.	Module leader	Chekan Alexander Nikolaevich
12.	Module leader contact information	oleksandr.chekan@snau.edu.ua
13.	Module description	OP Veterinary surgical technologies is part of the educational process related and with common goals to train highly qualified veterinarians . Provides mastery of methods of surgical intervention in various emergencies of the animal , prepares students to master the OP of clinical disciplines by studying the pathological processes of all body systems and the existence of the body as a whole. Assimilation of material from this OP forms the basis of surgical knowledge of the student and the future veterinarian, contributes to the professional development of the student.
14.	Module aim	The purpose of the educational component OK at Veterinary surgical technologies has the purpose of students' special competences on theoretical foundations, rules, methods and application techniques of anesthesia and perform surgical procedures in animals . It is a component of the learning process that ensures the achievement of goals, competencies and significant results in the learning process.

15.	Module Dependencies (prerequisites, co-requisites, incompatible modules)	1. Normative discipline " Veterinary surgical technologies " is based on knowledge of such disciplines as "Animal Anatomy", "Cytology, Histology, Embryology", "Chemistry", "Animal Physiology", "Pathological Physiology", "Veterinary Microbiology", "Clinical diagnosis and diagnostic imaging", "Pharmacology and pharmacotherapy", studied in previous semesters . 2. writing a master's thesis
16.	The policy of academic integrity	Assimilation of OK in compliance with academic integrity, plagiarism is prohibited. In case of systematic violation of these requirements, it is recommended to re-study the OK. In case of plagiarism in the performance of tasks - they are performed repeatedly
17	Link in Moodle	https://cdn.snau.edu.ua/moodle/course/view.php?id=4005

1.2 INFORMATION ABOUT THE TEACHER / TEACHERS .

1. Chekan Alexander Nikolaevich - Candidate of Veterinary Sciences, Associate Professor of Obstetrics and Surgery, Sumy NAU

2. LEARNING OUTCOMES FOR THE EDUCATIONAL COMPONENT AND THEIR RELATIONSHIP WITH SOFTWARE LEARNING OUTCOMES

MLOs: On successful completion of the module the learner will be able to:	PLOs 1. Know and use the terminology of veterinary medicine.	PLOs 2. Use information from domestic and foreign sources to develop diagnostic, treatment and business strategies	PLOs 4. Collect anamnestic data during registration and examination of animals, make decisions on the choice of effective methods of diagnosis, treatment and prevention of animal diseases.	PLOs 7. To formulate conclusions on the effectiveness of selected methods and means of keeping, feeding and treatment of animals, prevention of infectious and non-communicable diseases, as well as production and technological processes at enterprises for keeping, breeding or operation of animals of different classes and species.	PLOs 8. Monitor the causes of the spread of diseases of various etiologies and biological pollution of livestock waste, as well as materials and veterinary products.	PLOs 15. Know the rules of storage of various pharmaceuticals and biologicals, ways of their enteral or parenteral use, understand the mechanism of their action, interaction and complex action on the body of animals.	PLOs 17. Know the rules and requirements of biosafety, bioethics and animal welfare.	PLOs 18. Carry out accounting reporting during professional activities.	How assessed
MLO1. Know and use the terminology of special surgery. Use information from domestic and foreign sources to develop diagnostic, treatment strategies for surgery	X								1. Survey in laboratory-practical classes.
MLO2. Collect anamnestic data during registration and examination of animals, make decisions on the choice of effective methods of operations	X	X							1. Computer survey and analysis of kahoot students' knowledge
MLO3. Formulate conclusions about			X						1. Written survey, solving situational

the effectiveness of selected methods of surgery and prevention of infectious and non-communicable diseases.									problems
MLO4. Monitor causes of the spread of diseases of surgical pathology, pollution of the environment with waste from operations, as well as materials and veterinary products.			**X**						1. Registration of the abstract
MLO5. Know the rules of storage various pharmaceuticals and biologicals, drugs and ways of their enteral or parenteral use, to understand the mechanism of their action, interaction and complex action on the body of animals.					**X**				1. Survey in laboratory-practical classes, notebook design
MLO6 Know the rules and requirements of biosafety , bioethics and animal welfare.						**X**			2. Computer survey and analysis of students' knowledge (certification)
MLO7 Carry out accounting reporting of sick animals, operations, use of drugs and potent drugs.							X	X	3. Multiple choice test (exam)

3. MODULE INDICATIVE CONTENT
Spring semester (II)

Topic.	Distribution of hours				Learning resources
	Directed study			Self-directed study	
	Lectures	Prac-ticals	Labs		
Topic 1 . *Principles of surgery*	2		22	40	1, 2, 3, 4,
1. Wound healing, current concepts of inflammation and management, wound infections, antimicrobial therapy, principles of surgical asepsis, sterilization and disinfection.			8	8	1
2. Systemic effects of surgical stress, haemorrhage and haemostasis, metabolism of the surgical patient, fluid therapy in surgical patients, acid-base balance, shock. Hyperalimentation. Blood transfusion. Host defense mechanism.	2		6	8	1,3-7
3 Biomaterials, surgical immunity, pre-operative assessment of the surgical patient, post-operative care of the surgical patient. Chemotherapy of tumors.			2	8	8-10
4. Operating room emergencies, cardio-pulmonary embarrassment and resuscitation, monitoring of surgical patient.			4	8	10-12
5. Principles of laser surgery, cryosurgery, electrosurgery, lithotripsy and endoscopy, physiotherapy, stem cell therapy etc.			4	8	14-16
Topic 2 *Animal anaesthesia*	2		10	20	11-16
6. General considerations for anaesthesia, peri-operative and post-operative pain and its management.	2		2	6	11-16
7. Anaesthetic techniques, anaesthetic equipments, artificial ventilation			2	6	16
8. Anaesthesia of small animals, pediatric and geriatric patients, birds.			4	6	15

Topic.	Lectures	Practicals	Labs	Self-directed study	Learning resources
9. Monitoring of anaesthesia, anaesthetic emergencies, complications and their management, euthanasia			2	2	15
Topic 3. *Diagnostic imaging techniques*			12	20	1, 2, 3, 4, 6, 7, 10, 13, 14, 16
10. Principles of radiographic interpretation, plain and contrast radiographic techniques of small and large animals, image intensification.			2	6	15
11. Principles of radiation therapy, medical radioisotope curves, radiation laws and regulations.			2	6	16
12. Principles of ultrasound, basic physics, transducers, equipment controls, display models, terminology of echotexture and artifacts, application of ultrasound in small and large animals.			2	6	16
13. Doppler techniques echocardiography and its application, introduction to MRI, CT scan, nuclear medicine, xeroradiography, positron emission tomography technique and other imaging techniques.			4	6	1, 2, 3, 4, 6, 7, 10, 13, 14
14. Electromagnetic radiations, hazards of electromagnetic radiations and protection and bio-safety			2	6	16
Total	16		44	90	

Autumn semester (III)

Topic.	Distribution of hours				Learning resources
	Directed study			Self-directed study	
	Lectures	Prac-ticals	Labs		
Topic 1 . *Veterinary ophthalmology and dentistry*			6	30	1, 2, 3, 4, 16
1. General Anatomical and physiological considerations for ophthalmic surgery			2	6	1,2
2. Ophthalmic examination and diagnosis, local anaesthesia of eye, ocular therapeutics, diagnostic instruments.			2	6	1.3-7
3 General consideration for eye surgery, diseases and surgery of eye lids, lacrimal apparatus, naso-lacrimal duct.			2	6	8-12
4. Diseases of conjuctiva, cornea, sclera, iris, orbit, lens, vitreous and aqueous humor, retina and optic nerve.				6	10-15
5. Ocular manifestation of systemic diseases.				6	14-16
Topic 2 *Small animal soft tissue surgery*			10	44	11-16
6. Skin and adnexa- the integument, management of skin wounds, principles of plastic and reconstructive surgery, pedicle grafts, skin grafts, burns, electrical chemical and cold injuries.			2	4	11-16
7. Surgical approaches/ affections of ear, oral cavity and pharynx, abdomen, thorax, the salivary glands, oesophagus, stomach, intestines, rectum and anus, liver and biliary system, pancreas			2	6	26
8. Hernias- abdominal hernia,				4	15

diaphragmatic hernia, perineal hernia, inguinal, scrotal, and umbilical hernia etc. Surgical approaches to thoracic wall, Pleura.					
9. Respiratory system- functional anatomy, diseases of upper respiratory system and lower respiratory system.			2	6	15
10. Surgical anatomy of the cardiovascular system, cardiovascular physiology, diagnostic methods, cardiac disorders, principles of vascular surgery, basic cardiac procedures, hypothermia, basic peripheral vascular procedures, peripheral vascular disorders, portacaval shunts and anomalies. Haemolymphatic system, bone marrow, spleen, tonsils, lymph nodes and lymphatics, thymus.				6	15
11. Male reproductive system- anatomy of the male genital organs, diagnostic and biopsy techniques, surgical affections of male genital organs; female reproductive system-anatomy, diagnostic techniques, surgical affections of female genital organs.			2	6	16
12. Urinary system- anatomy of the urinary tract, principles of urinary tract surgery, kidneys, ureters, surgery of the bladder, surgical diseases of the urethra, medical dissolution and prevention of canine uroliths, feline urologic syndrome.			2	6	14
13. Endocrine system- pituitary, adrenals, thyroid, parathyroid, surgical affections of mammary glands and tail. Surgical affections of nervous system, special sense organs.				6	1, 2, 3, 4, 6, 7, 10, 13, 14, 16
Total			16	74	

4. METHODS OF TEACHING AND TEACHING

MLO	Teaching methods (directed study)	hours	Learning methods (self-directed study)	hours
MLO 1. Know and use the terminology of veterinary medicine . Using information from local and f oreign sources for the development of diagnostic , therapeutic strategies	- presentation of lecture material according to the plan; - proposals for literature on each topic of lectures; - use Moodle , Zoom	2 hours	- mastering research methods; - independent work during research - fixation of research results; - analysis of research results ;	2 hours

MLO 2 . Collect anamnestic data during registration and examination of animals, make decisions on the choice of effective methods of diagnosis, treatment and prevention of animal diseases	- consultations of students in the process of mastering OK - methodical registration of all types of students' works; - control of the educational process	2 hours	- registration of the journal of sick animals ; - fixation of lecture material - mandatory preparation for the hospital, mastering the lecture material for the hospital.	2 hours
MLO 3 . Formulate conclusions on the effectiveness of selected methods and means of treatment of animals, prevention of infectious and non-communicable diseases, as well as production and technological processes in enterprises for keeping, breeding or operation of animals of different classes and species.	presentation of lecture material according to the plan; - proposals for literature on each topic of lectures; - use Moodle , Zoom	2 hours	registration of the journal of sick animals, medical history ; - fixation of lecture material - mandatory preparation for the hospital, mastering the lecture material for the hospital.	2 hours
MLO 4 . Monitor the causes of the spread of diseases of various etiologies and biological pollution of livestock waste, as well as materials and veterinary products.	presentation of lecture material according to the plan; - proposals for literature on each topic of lectures; - use Moodle, Zoom	2 hours	drawing conclusions from the received data; - fixation of lecture material - mandatory preparation for the hospital, mastering the lecture material for the hospital.	2 hours
MLO 5. Know the rules of storage of various pharmaceuticals and biological products, ways of their enteral or parenteral use, understand the mechanism of their action, interaction and complex action on the body of animals.	consultations of students in the process of mastering OK - methodical registration of all types of students' works; - control of the educational process	2 hours	drawing up a journal of class A and B medicines ; - fixation of lecture material - obligatory preparation for LPZ, mastering of lecture	2 hours
MLO 6 Know the rules and requirements of biosafety , bioethics and animal welfare .	presentation of lecture material according to the plan; - proposals for literature on each topic of lectures; - use Moodle, Zoom	2 hours	drawing conclusions from the received data; - fixation of lecture material - mandatory preparation for the hospital,	2 hours
MLO 7 Carry out accounting reporting during professional activities.	consultations of students in the process of mastering OK - methodical registration of all	2 hours	drawing up logs of the work of the enterprise or clinic - fixation of lecture material - mandatory preparation	2 hours

	types of students' works; - control of the educational process		for the hospital, mastering the lecture material for the hospital.	

5. ASSESSMENT
5.1. Diagnostic assessment
5.2. Summative assessment
5.2.1. Intended learning outcomes methods:

No	Summative assessment methods	Grades	Deadline
	Spring semester		
1.	Survey in laboratory-practical classes, notebook design	15/ 15%	3, 8, 12.15 weeks
2.	Design Abstract	15/15%	15 weeks
3.	Computer survey and analysis of students' knowledge (testing , current control)	45/ 45%	Week 17
4.	T ect multiple choice (exam)	25/ 25%	Week 18
	Autumn semester		
1.	Survey in laboratory-practical classes, notebook design	15/ 15%	3, 8, 12.15 weeks
2.	Design Abstract	15/15%	15 weeks
3.	Computer survey and analysis of students' knowledge (testing , current control)	45/ 45%	Week 17
4.	T ect multiple choice (exam)	25/ 25%	Week 18

5.3. Evaluation criteria
Spring semester

Summative assessment method	Unsatisfactory	Satisfactory	Good	Excellent
Survey in laboratory-practical classes	< 6 points	6 - 8 points	9 - 12 points	13- 1 5 points
	The student has only some concepts, can not draw conclusions	Has a general concept of the topic, makes a significant amount of mistakes	Has all the questions, makes a small number of unprincipled mistakes	Fully masters all questions, does not make mistakes
Design Abstract	< 8 points	9-11 points	12-14 points	15 points
	Task not performed	The abstract is designed without understanding the relationship between the tasks to be solved, not able to critically evaluate information from the literature	The abstract at a good level of analysis, synthesis, generalization and critical evaluation of data from literature sources cited in the Abstract , able to critically evaluate information from literature sources	The abstract is designed flawlessly, logically arranged material with an understanding of the relationships of the processes disclosed on this topic, demonstrates a highly developed ability to critical academic literature and other sources of information
Computer survey and analysis of students' knowledge (certification)	< 20 points	20 - 34 points	35 - 44 points	4 5 points
	Task not performed	The computer survey was performed without understanding the relationship	Computer survey performed at a good level analysis, synthesis,	The computer survey is performed flawlessly, logically arranged material with an understanding of

		between the tasks to be solved, unable to critically evaluate information from the literature	generalization and critical evaluation of data from literature sources , able to critically evaluate information from literature sources	the relationships of the processes disclosed on this topic, demonstrates a highly developed ability to critical academic literature and other sources of information
Tect multiple choice (test)	< 10 points	10-14 points	15-24 points	2 5 points
	Task not performed	Task done by 50%	Task 75% completed	Task 100% done

Autumn semester

Summative assessment method	Unsatisfactory	Satisfactory	Good	Excellent
Survey in laboratory-practical classes	< 6 points	6 - 8 points	9 - 12 points	13- 1 5 points
	The student has only some concepts, can not draw conclusions	Has a general concept of the topic, makes a significant amount of mistakes	Has all the questions, makes a small number of unprincipled mistakes	Fully masters all questions, does not make mistakes
Design Abstract	< 8 points	9-11 points	12-14 points	15 points
	Task not performed	The abstract is designed without understanding the relationship between the tasks to be solved, not able to critically evaluate information from the literature	The abstract at a good level of analysis, synthesis, generalization and critical evaluation of data from literature sources cited in the Abstract , able to critically evaluate information from literature sources	The abstract is designed flawlessly, logically arranged material with an understanding of the relationships of the processes disclosed on this topic, demonstrates a highly developed ability to critical academic literature and other sources of information
Computer survey and analysis of students' knowledge (certification)	< 20 points	20 - 34 points	35 - 44 points	4 5 points
	Task not performed	The computer survey was performed without understanding the relationship between the tasks to be solved, unable to critically evaluate information from the literature	Computer survey performed at a good level analysis, synthesis, generalization and critical evaluation of data from literature sources , able to critically evaluate information from literature sources	The computer survey is performed flawlessly, logically arranged material with an understanding of the relationships of the processes disclosed on this topic, demonstrates a highly developed ability to critical academic literature and other sources of information
Tect multiple choice (test)	< 10 points	10-14 points	15-24 points	2 5 points
	Task not performed	Task done by 50%	Task 75% completed	Task 100% done

5.2. Formative assessment

Formative exercises are designed to enable students to develop particular aspects of their learning, prior to summative assessments. Formative exercises are designed to help students use feedback and self-reflection to manage and develop their learning so that they can see how to improve their work.

№	Formative Assessment elements	Date
1	Survey in laboratory-practical classes, notebook design	According to the schedule
2	Design Abstract in	Within a week until the end of the educational process
3	Computer survey and analysis of students' knowledge (certification)	The last week of classes
4	Offset and sleep - multiple choice test	According to the exam schedule

6. LEARNING RESOURCES

6.1. Key resources

1. Bojrab, M. J., Waldron, D. R., & Toombs, J. P. (2014). *Current techniques in small animal surgery*.

2. Stoy, W. A. P. D. (2007). *Small animal surgery*. Place of publication not identified: Elsevier Mosby.

3. In Raftery, A. T., In Delbridge, M. S., & In Bridge, K. I. (2017). *Surgery*.

4. In King, L. G., & In Boag, A. (2018). *BSAVA manual of canine and feline emergency and critical care*.

5. Tutt, C., Deeprose, J., Crossley, D. A., & British Small Animal Veterinary Association. (2007). *BSAVA manual of canine and feline dentistry*. Quedgeley: British Small Animal Veterinary Association.

6. Baines, S. J., Lipscomb, V., Hutchinson, T., & British Small Animal Veterinary Association. (2012). *BSAVA manual of canine and feline surgical principles: A foundation manual*. Quedgeley, Gloucester: British Small Animal Veterinary Association

7. *BSAVA Manual of Canine and Feline Advanced Veterinary Nursing, 2nd Edition*. (2014). BSAVA (British Small Animal Veterinary Association.

8. Fuller, J. R. (2017). *Surgical technology + workbook + surgical instrumentation, 2nd ed*. Place of publication not identified: Elsevier Saunders.

9. Fuller, J. R. (2017). *Surgical technology + workbook + surgical instrumentation, 2nd ed*. Place of publication not identified: Elsevier Saunders.

10. Lewis, D., & Langley-Hobbs, S. J. (2014). *Small Animal Orthopedics, Rheumatology and Musculoskeletal Disorders: Self-Assessment Color Review 2nd Edition*. Hoboken: CRC Press.

6.2. Guidelines

11. OCULOPLASTIC SURGERY ATLAS: Cosmetic facial surgery. (2019). Place of publication not identified: SPRINGER NATURE.

12. FAOSTAT, Food and Agriculture Organization of the United Nation. 2014. Accessed May 15, 2016. http://www.fao.org/faostat/en/#data/QA

13. Zicarelli L. Influence of seasonality on buffalo production In: Presicce GA, Editor. The Buffalo (Bubalus bubalis)–Production and Research. Ed. Bentham Books; 2017. pp. 196–224.

14. Giuffrida-Mendoza M, de Moreno A, Huerta-Leidenz N, Uzcátegui-Bracho S, Valero-Leal K, Romero S et al. Cholesterol and fatty acid composition of longissimus thoracis from water buffalo (Bubalus bubalis) and Brahman-influenced cattle raised under savannah conditions. Meat Science. 2015; 106: 44–9. doi: 10.1016/j.meatsci.2015.03.024 - DOI - PubMed

15. Voloski FL, Tonello L, Ramires T, Reta GG, Dewes C, Iglesias M et al. Influence of cutting and deboning operations on the microbiological quality and shelf life of buffalo meat. Meat Science. 2016; 116: 207–12. doi: 10.1016/j.meatsci.2016.02.020 - DOI - PubMed

16. Repenning PE, Ahola JK, Callan RJ, Fox JT, French JT, Giles RL et al. Effects of pain mitigation and method of castration on behavior and feedlot performance in cull beef bulls. Journal of Animal Science. 2013; 91(10): 4975–83. doi: 10.2527/jas.2012-6061 - DOI - PubMed