

MINISTRY OF HEALTH PROTECTION OF UKRAINE

ODESSA NATIONAL MEDICAL UNIVERSITY

Department of general, pediatric and military surgery with a course of urology

I APPROVE

Vice-rector for scientific and pedagogical work

Eduard BURYACHKIVSKY



CURRICULUM ON EDUCATIONAL DISCIPLINE

" Gunshot wounds of soft tissues. Wound ballistics."

Level of higher education: second (master's degree)

Field of knowledge: 22 "Health care"

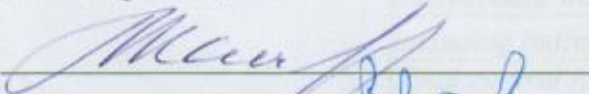
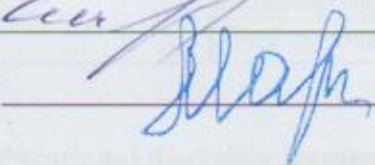
Specialty: 222 "Medicine"

Educational and professional program : Medicine

The curriculum is compiled on the basis of the educational and professional program "Medicine" for the training of specialists of the second (master's) level of higher education in the specialty 222 "Medicine" of the field of knowledge 22 "Health care", approved by the Scientific Council of ONMedU (protocol No. 10 of June 27, 2024).

Developers: MD, Prof. M.A. Kashtalyan, MD, Assoc. Gerasimenko O.S., MD , Prof. V. E. Vansovich , Ph.D. Assoc. Davydov D.M., Ph.D. , Assoc. S. V. Tsypovyaz , Ph.D. , Assoc. E.A. Kvasnevskiyi , Ph.D. , Assoc. Kvasnevsky O.A., Ph.D., Assoc. Ilyina-Stognienko V.Yu., assistant Bilash O.V.

The program was discussed at a meeting of the department of general, pediatric and military surgery with a urology course
Protocol No. 1 dated August 27, 2024.

Head of the department  Mykhailo KASHTALYAN
Agreed with the guarantor of the EPP  Valery MARICHEREDA

The program was approved at the meeting of the subject cycle commission for surgical disciplines of the ONMedU
Protocol No. 1 dated August 30, 2024.

The head of the subject cycle methodical Committee on Surgical Disciplines  Vasyl MISHCHENKO

Reviewed and approved at the meeting of the department *of general, pediatric and military surgery with a course of urology and ophthalmology*
Protocol No. 1 of "4" September 2024

Head of the department  Mykhailo KASHTALYAN
(signature) (First Name Surname)

Reviewed and approved at the meeting of the department

Protocol No. ___ of "___" _____ 20__

General (GC):

GC1 Ability to extract, linking, analysis and synthesis

GC2 Ability to use and integrate modern knowledge

GC3 Ability to apply knowledge in practical situations

GC4 Knowledge and understanding of the subject area and understanding of professional activity

GC5 Ability to adapt and work in a new situation

GC6 Ability to make informed decisions

GC7 Ability to work in a team

GC8 Ability to evaluate and ensure the quality of performed works

Special (SC):

SC1 Ability to follow medical legislation about the period and use the clinical data

1. Description of the academic discipline :

Name of indicators	Field of knowledge, specialty, specialization, level of higher education	Characteristics of the academic discipline
Total number:	Discipline 22 "Health care"	<i>Full-time education</i>
Credits: 3		<i>Elective discipline</i>
Hours: 90	Specialty 222 "Medicine"	<i>Year of training: 3</i>
Content modules: 4	Level of higher education second (master's)	<i>Semesters V-VI</i>
		<i>Lectures (0 hours)</i>
		<i>Seminars (0 hours)</i>
		<i>Practical (30 hours)</i>
		<i>Laboratory (0 hours)</i>
		<i>Independent work (60 hours)</i>
		<i>including individual tasks (0 hours)</i>
		<i>Final control form - test</i>

2. The purpose and tasks of the educational discipline, competences, program learning outcomes.

Purpose : Mastering by the student of education knowledge and formation of elements of professional competences in the field of surgery, and improvement of skills and competences acquired during the study of previous disciplines.

Task:

1. Formation of skills and abilities: on diagnosis and treatment of wounds, wound complications, including in cases of gunshot wounds of soft tissues, taking into account the ballistic component.

2. Mastering the skills of performing primary and secondary surgical treatment in cases of gunshot wounds of soft tissues, taking into account the ballistic component

3. Mastering the ability to determine tactics treatment in cases of gunshot wounds of soft tissues, taking into account the ballistic component and prevention of wound complications.

The process of studying the discipline is aimed at forming elements of the following competencies:

- **Integral competence:** The ability to solve typical and complex problems, including those of a research and innovation nature in the field of medicine. Ability to continue learning with a high degree of autonomy.
- **General (GC):**
 - GC1 Ability to abstract thinking, analysis and synthesis
 - GC2 Ability to learn and master modern knowledge
 - GC3 Ability to apply knowledge in practical situations
 - GC4 Knowledge and understanding of the subject area and understanding of professional activity.
 - GC5 Ability to adapt and act in a new situation
 - GC6 Ability to make informed decisions
 - GC7 Ability to work in a team
 - GC16 Ability to evaluate and ensure the quality of performed works.
- **Special (SC):**
 - SC1 Ability to collect medical information about the patient and analyze clinical data

- SC6 Ability to determine the principles and nature of treatment and prevention of diseases.
- SC8 Ability to determine tactics and provide emergency medical care.
- SC10 Ability to perform medical manipulations
- SC16 Ability to maintain medical documentation, including electronic forms
- SC24 Compliance with ethical principles when working with patients and laboratory animals

Program learning outcomes (PRO):

PRO1 To have thorough knowledge of the structure of professional activity. To be able to carry out professional activities that require updating and integration of knowledge. To be responsible for professional development, the ability for further professional training with a high level of autonomy.

PRO5 Collect complaints, anamnesis of life and diseases, evaluate the psychomotor and physical development of the patient, the state of organs and systems of the body, based on the results of laboratory and instrumental studies, evaluate information about the diagnosis (according to list 4), taking into account the age of the patient.

PRO17 Perform medical manipulations (according to list 5) in the conditions of a medical institution, at home or at work based on a previous clinical diagnosis and/or indicators of the patient's condition by making a reasoned decision, observing the relevant ethical and legal norms.

PRO24 To organize the necessary level of individual safety (own and the persons they care about) in case of typical dangerous situations in the individual field of activity.

As a result of studying the academic discipline, the student of higher education must:

Know: clinical signs of a wound, wound complications, features of surgical treatment, ballistic properties of firearms.

Be able:

- Communicate with the patient, collect complaints, anamnesis of life and illness.
- Perform medical manipulations (according to list 5) in the conditions of a medical institution, at home or at work based on a previous clinical diagnosis and/or indicators of the patient's condition by making a reasoned decision, observing the relevant ethical and legal norms.
- To organize the necessary level of individual safety (own and the persons he cares for) in case of typical dangerous situations in the individual field of activity.

3. Content of the academic discipline

FIRE INJURIES OF SOFT TISSUES. WOUND BALLISTICS.

Content module 1. The concept of wounds, including gunshot wounds

Topic 1. Definition, signs of a wound. Classification of wounds. Phases of the wound process. Features of a gunshot wound.

Modern gunshot wound . Definition. Wound. Wound. Fire wound. Clinical gunshot signs of a gunshot wound. Components of the wound. Early process, its phases. Classification of wounds: by origin; according to the nature of the wounded object; according to the degree of infection. Types of healing and phases of the wound process. Features of a gunshot wound.

Topic 2. Wound complications as consequences of a gunshot wound.

Wound complications: development of wound infection, wound bleeding, wound failure, hypertrophic scars and keloids. General principles of wound treatment and prevention of complications of the wound process after a gunshot wound.

Content module 2. First aid for gunshot wounds

Topic 3. The problem of the organization of medical care . The concept of asepsis and antiseptics. Rules for providing first aid for injuries. The concept of dressing and dressing. Individual dressing package. Applying bandages. Definition and classification of bandages.

Covering and compression bandages. Bandages for immobilization and support. Bandaging methods.

Topic 4. Temporary stoppage of bleeding. Applying the harness and twisting. Types of bleeding. Signs of internal bleeding. Applying a tight bandage. Arterial pinch points to stop bleeding. Stoppage of blood with heavy bleeding. Applying a tourniquet. Superimposing a twist. Limb fixation with severe bleeding.

Topic 5. Evacuation-staged system of treatment of the wounded. Battlefield (first aid). The battalion medical center (pre-medical aid) complements the first medical aid. Regimental medical center (first aid). A separate medical battalion (qualified medical care) for the wounded in soft tissues. Specialized hospitals.

Content module 3. Surgical wound treatment.

Topic 6. Primary surgical treatment of a gunshot wound

Definition. Indications and contraindications for primary surgical wound treatment. The main types of primary surgical wound treatment. Stages of primary surgical wound treatment. Primary and primary-delayed sutures.

Topic 7. Peculiarities of surgical treatment of a gunshot wound.

General principles of surgical treatment of a gunshot wound. Stages of primary surgical treatment of a gunshot wound. Methods of closing a gunshot wound.

Topic 8. Secondary surgical treatment of a wound.

Infected wounds. Local and general signs of the inflammatory process. Classification of wound infection. Tetanus Emergency prevention of tetanus. Clostridial and putrefactive wound infection, features of surgical treatment. Indications and contraindications for secondary surgical wound treatment. Wound drainage techniques.

Topic 9. Traumatic shock. Development of the doctrine of traumatic shock. Etiology and pathogenesis of traumatic shock. Classification and clinic of traumatic shock. Diagnosis of traumatic shock. Treatment of traumatic shock.

Content module 4. Modern pathomorphological features of a gunshot wound

Topic 10. Wound ballistics.

Factors of formation of a gunshot wound. Phases of the temporary pulsating cavity. Design features and ballistic properties of modern projectiles. Morphology of a gunshot wound. Dependence of the morphology of the wound channel on the initial w. The main tactical and technical and ballistic characteristics of standard and special types of firearms. Tactical-technical and ballistic characteristics of listed types of firearms. Tactical-technical and ballistic characteristics of special types of firearms. The course of the wound process in gunshot wounds. Zones of impaired microcirculation in the wound channel. Factors contributing to the development of infection. Surgical treatment of gunshot wounds.

Topic 11. Wound ballistics and morphofunctional changes in tissues with gunshot wounds.

Wound ballistics. The theory of wound poisoning with gunpowder. Care theory. Theory of hydraulic action. The mechanism of a gunshot wound.

Topic 12. The structure of a gunshot wound.

Morphological and functional changes. Primary wound channel. Zone of contusion. Earthquake zone. The course of the wound process and wound healing. Clinical signs of a gunshot wound.

Topic 13. Pathogenesis of a gunshot wound.

Processes of membrane pathology. Morphofunctional changes in soft tissues of a gunshot wound. Endogenous intoxication syndrome. Phases of the wound process.

Topic 14. Pathogenetic bases of modern gunshot wound treatment.

Treatment of gunshot wounds of various localization. Zone of primary tissue destruction (necrosis). Characteristics of gunshot wounds. Surgical treatment. Indications for primary surgical treatment.

Topic 15. Control of learning practical skills.

4. The structure of the academic discipline

Names of topics	Number of hours					
	In total	Including				
		Lectures	Seminars	Practical	Laboratory	IWS
Content module 1. The concept of wounds, including gunshot wounds.						
Topic 1. Definition, signs of a wound. Classification of wounds. Phases of the wound process. Features of a gunshot wound Modern gunshot wound . Definition. Wound. Wound. Fire wound. Clinical gunshot signs of a gunshot wound. Components of the wound. Early process, its phases. Classification of wounds: by origin; according to the nature of the wounded object; according to the degree of infection. Types of healing and phases of the wound process. Features of a gunshot wound.	6	0	0	2	0	4
Topic 2. Wound complications as consequences of a gunshot wound. Wound complications: development of infection in the wound, bleeding from the wound, wound failure, hypertrophic scars and keloids. General principles of	6	0	0	2	0	4

wound treatment and prevention of complications of the wound process after a gunshot wound.						
<i>Together according to content module 1</i>	12	0	0	4	0	8
Content module 2. First aid for gunshot wounds .						
Topic 3. The problem of the organization of medical care. The concept of asepsis and antiseptics. Rules for providing first aid for injuries. The concept of dressing and dressing. Individual dressing package. Applying bandages. Definition and classification of bandages. Covering and compression bandages. Bandages for immobilization and support. Bandaging methods.	6	0	0	2	0	4
Topic 4. Temporary stoppage of bleeding. Applying the harness and twisting. Types of bleeding. Signs of internal bleeding. Applying a tight bandage. Arterial pinch points to stop bleeding. Stoppage of blood with heavy bleeding. Applying a tourniquet. Superimposing a twist. Limb fixation with severe bleeding.	6	0	0	2	0	4
Topic 5. Evacuation-staged system of treatment of the wounded. Battlefield (first aid). The battalion medical center (pre-medical aid) complements the first medical aid. Regimental medical center (first aid). A separate medical battalion (qualified medical care) for the wounded in soft tissues. Specialized hospitals.	6	0	0	2	0	4

<i>Together according to content module 2</i>	18	0	0	6	0	12
Content module 3. Surgical wound treatment.						
Topic 6. Primary surgical treatment of a gunshot wound Definition. Indications and contraindications for primary surgical wound treatment. The main types of primary surgical wound treatment. Stages of primary surgical wound treatment. Primary and primary-delayed sutures.	6	0	0	2	0	4
Topic 7. Peculiarities of surgical treatment of a gunshot wound. General principles of surgical treatment of a gunshot wound. Stages of primary surgical treatment of a gunshot wound. Methods of closing a gunshot wound.	6	0	0	2	0	4
Topic 8. Secondary surgical treatment of a wound. Infected wounds. Local and general signs of the inflammatory process. Classification of wound infection. Tetanus Emergency prevention of tetanus. Clostridial and putrefactive wound infection, features of surgical treatment. Indications and contraindications for secondary surgical wound treatment. Wound drainage techniques. Stages of primary surgical wound treatment. Primary and primary-delayed sutures.	6	0	0	2	0	4
Topic 9. Traumatic shock. Development of the doctrine of traumatic shock. Etiology and pathogenesis of traumatic shock. Classification and clinic of traumatic shock. Diagnosis of traumatic shock. Treatment of traumatic shock.	6	0	0	2	0	4
Topic 10. Wound ballistics.	6	0	0	2	0	4

Factors of formation of a gunshot wound. Phases of the temporary pulsating cavity. Design features and ballistic properties of modern projectiles. Morphology of a gunshot wound. Dependence of the morphology of the wound channel on the initial w. The main tactical and technical and ballistic characteristics of standard and special types of firearms. Tactical-technical and ballistic characteristics of listed types of firearms. Tactical-technical and ballistic characteristics of special types of firearms. The course of the wound process in gunshot wounds. Zones of impaired microcirculation in the wound channel. Factors contributing to the development of infection. Surgical treatment of gunshot wounds.						
<i>Together according to content module 3</i>	30	0	0	10	0	20
Content module 4. Modern pathomorphological features of a gunshot wound.						
Topic 11. Wound ballistics and morphofunctional changes in tissues during gunshot wounds. Wound ballistics. The theory of wound poisoning with gunpowder. Care theory. Theory of hydraulic action. The mechanism of a gunshot wound.	6	0	0	2	0	4
Topic 12. The structure of a gunshot wound. Morphological and functional changes. Primary wound channel. Zone of contusion. Earthquake zone. The course of the wound process and wound healing. Clinical signs of a gunshot wound.	6	0	0	2	0	4

Topic 13. Pathogenesis of a gunshot wound. Processes of membrane pathology. Morphofunctional changes in soft tissues of a gunshot wound. Endogenous intoxication syndrome. Phases of the wound process.	6	0	0	2	0	4
Topic 14. Pathogenetic bases of modern gunshot wound treatment. Treatment of gunshot wounds of various localization. Zone of primary tissue destruction (necrosis). Characteristics of gunshot wounds. Surgical treatment. Indications for primary surgical treatment.	6	0	0	2	0	4
Topic 15. Control of learning practical skills.	6	0	0	2	0	4
<i>Together according to content module 4</i>	30	0	0	10	0	20
Test.	0	0	0	0	0	0
Together:	90	0	0	30	0	60

5. Topics of lectures / seminars / practical / laboratory classes

5.1. Topics of lectures

Lectures are not provided.

5.2. Topics of seminar classes

Seminar classes are not provided.

5.3. Topics of practical classes

No	Topic name	Number of hours
1	Topic 1. Practical class 1 Definition, signs of a wound. Classification of wounds. Phases of the wound process. Features of a gunshot wound Modern gunshot wound . Definition. Wound. Wound. Fire wound. Clinical gunshot signs of a gunshot wound. Components of the wound. Early process, its phases. Classification of wounds: by origin; according to the nature of the wounded object; according to the degree of infection. Types of healing and phases of the wound process. Features of a gunshot wound.	2
2	Topic 2. Practical class 2. Wound complications, as consequences of a gunshot wound. Wound complications: development of infection in the wound, bleeding from the wound, wound failure, hypertrophic scars and keloids. General	2

	principles of wound treatment and prevention of complications of the wound process after a gunshot wound.	
3	Topic 3. Practical class 3. The concept of asepsis and antiseptics. Rules for providing first aid for injuries. The concept of dressing and dressing. Individual dressing package. Applying bandages. Definition and classification of bandages. Covering and compression bandages. Bandages for immobilization and support. Bandaging methods.	2
4	Topic 4. Practical class 4. Temporary stoppage of bleeding. Applying the harness and twisting. Types of bleeding. Signs of internal bleeding. Applying a tight bandage. Arterial pinch points to stop bleeding. Stoppage of blood with heavy bleeding. Applying a tourniquet. Superimposing a twist. Limb fixation with severe bleeding.	2
5	Topic 5. Practical class 5. Evacuation-stage system of treatment of the wounded. Battlefield (first aid). The battalion medical center (first aid) complements the first medical aid. Regimental medical center (first aid). A separate medical battalion (qualified medical care) for the wounded in soft tissues. Specialized hospitals.	2
6	Topic 6. Practical class 6. Primary surgical treatment of a gunshot wound Definition. Indications and contraindications for primary surgical wound treatment. The main types of primary surgical wound treatment. Stages of primary surgical wound treatment. Primary and primary-delayed sutures.	2
7	Topic 7. Practical class 7. Peculiarities of surgical treatment of a gunshot wound. General principles of surgical treatment of a gunshot wound. Stages of primary surgical treatment of a gunshot wound. Methods of closing a gunshot wound.	2
8	Topic 8. Practical class 8. Secondary surgical treatment of the wound. Infected wounds. Local and general signs of the inflammatory process. Classification of wound infection. Tetanus Emergency prevention of tetanus. Clostridial and putrefactive wound infection, features of surgical treatment. Indications and contraindications for secondary surgical wound treatment. Wound drainage techniques. Stages of primary surgical wound treatment. Primary and primary-delayed sutures.	2
9	Topic 9. Practical class 9. Traumatic shock. Development of the doctrine of traumatic shock. Etiology and pathogenesis of traumatic shock. Classification and clinic of traumatic shock. Diagnosis of traumatic shock. Treatment of traumatic shock.	2
10	Topic 10. Practical class 10. Wound ballistics. Factors of formation of a gunshot wound. Phases of the temporary pulsating cavity. Design features and ballistic properties of modern projectiles. Morphology of a gunshot wound. Dependence of the morphology of the wound channel on the initial w. The main tactical and technical and ballistic characteristics of standard and special types of firearms. Tactical-technical and ballistic characteristics of listed types of firearms. Tactical-technical and ballistic characteristics of special types of firearms. The course of the wound	2

	process in gunshot wounds. Zones of impaired microcirculation in the wound channel. Factors contributing to development infections Surgical treatment of gunshot wounds.	
11	Topic 11. Practical class 11. Wound ballistics and morphofunctional changes in tissues with gunshot wounds. Wound ballistics. The theory of wound poisoning with gunpowder. Care theory. Theory of hydraulic action. The mechanism of a gunshot wound.	2
12	Topic 12. Practical class 12. Structure of a gunshot wound. Morphological and functional changes. Primary wound channel. Zone of contusion. Earthquake zone. The course of the wound process and wound healing. Clinical signs of a gunshot wound.	2
13	Topic 13. Practical class 13. Pathogenesis of a gunshot wound. Processes of membrane pathology. Morphofunctional changes in soft tissues of a gunshot wound. Endogenous intoxication syndrome. Phases of the wound process.	2
14	Topic 14. Practical class 14. Pathogenetic basis of modern gunshot wound treatment. Treatment of gunshot wounds of various localization. Zone of primary tissue destruction (necrosis). Characteristics of gunshot wounds. Surgical treatment. Indications for primary surgical treatment.	2
15	Topic 15. Practical class 15. Control of learning practical skills.	2
	Together	30

5.4. Laboratory topics classes

Laboratory classes are not provided .

6. Independent work of a student of higher education

No	Title of the topic / types of tasks	How many hours?
1.	Topic 1. Preparation for practical class 1 Definition, signs of a wound. Classification of wounds. Phases of the wound process. Features of a gunshot wound Modern gunshot wound . Definition. Wound. Wound. Fire wound. Clinical gunshot signs of a gunshot wound. Components of the wound. Early process, its phases. Classification of wounds: by origin; according to the nature of the wounded object; according to the degree of infection. Types of healing and phases of the wound process. Features of a gunshot wound.	4
2.	Topic 2. Preparation for practical class 2 Wound complications, as consequences of a gunshot wound . Wound complications: development of infection in the wound, bleeding from the wound, wound failure, hypertrophic scars and keloids. General principles of wound treatment and prevention of complications of the wound process after a gunshot wound.	4
3.	Topic 3. Preparation for practical class 3	4

	The concept of asepsis and antiseptics. Rules for providing first aid for injuries. The concept of dressing and dressing. Individual dressing package. Applying bandages. Definition and classification of bandages. Covering and compression bandages. Bandages for immobilization and support. Bandaging methods.	
4.	Topic 4. Preparation for practical class 4 Temporary stoppage of bleeding. Applying the harness and twisting. Types of bleeding. Signs of internal bleeding. Applying a tight bandage. Arterial pinch points to stop bleeding. Stoppage of blood with heavy bleeding. Applying a tourniquet. Superimposing a twist. Limb fixation with severe bleeding.	4
5.	Topic 5. Preparation for practical class 5 Evacuation-stage system of treatment of the wounded. Battlefield (first aid). The battalion medical center (first aid) complements the first medical aid. Regimental medical center (first aid). A separate medical battalion (qualified medical care) for the wounded in soft tissues. Specialized hospitals.	4
6.	Topic 6. Preparation for practical class 6 Primary surgical treatment of a gunshot wound Definition. Indications and contraindications for primary surgical wound treatment. The main types of primary surgical wound treatment. Stages of primary surgical wound treatment. Primary and primary-delayed sutures.	4
7.	Topic 7. Preparation for practical class 7 Peculiarities of surgical treatment of a gunshot wound. General principles of surgical treatment of a gunshot wound. Stages of primary surgical treatment of a gunshot wound. Methods of closing a gunshot wound.	4
8.	Topic 8. Preparation for practical class 8 Secondary surgical treatment of the wound. Infected wounds. Local and general signs of the inflammatory process. Classification of wound infection. Tetanus Emergency prevention of tetanus. Clostridial and putrefactive wound infection, features of surgical treatment. Indications and contraindications for secondary surgical wound treatment. Wound drainage techniques. Stages of primary surgical wound treatment. Primary and primary-delayed sutures.	4
9.	Topic 9. Preparation for practical class 9 Traumatic shock. Development of the doctrine of traumatic shock. Etiology and pathogenesis of traumatic shock. Classification and clinic of traumatic shock. Diagnosis of traumatic shock. Treatment of traumatic shock.	4
10.	Topic 10. Preparation for practical class 10 Wound ballistics. Factors of formation of a gunshot wound. Phases of the temporary pulsating cavity. Design features and ballistic properties of modern projectiles. Morphology of a gunshot wound. Dependence of the morphology of the wound channel on the initial w. The main tactical and technical and ballistic characteristics of standard and special types of firearms. Tactical-technical and ballistic characteristics of listed types of firearms. Tactical-technical and ballistic characteristics of special types of firearms. The course of the wound process in gunshot wounds. Zones of impaired microcirculation in the wound channel. Factors contributing to the development of infection. Surgical treatment of gunshot wounds.	4
11.	Topic 11. Preparation for practical class 11 Wound ballistics and morphofunctional changes in tissues with gunshot	4

	wounds. Wound ballistics. The theory of wound poisoning with gunpowder. Care theory. Theory of hydraulic action. The mechanism of a gunshot wound.	
12.	Topic 12. Preparation for practical class 12 Structure of a gunshot wound. Morphological and functional changes. Primary wound channel. Zone of contusion. Earthquake zone. The course of the wound process and wound healing. Clinical signs of a gunshot wound.	4
13.	Topic 13. Preparation for practical class 13 Pathogenesis of a gunshot wound. Processes of membrane pathology. Morphofunctional changes in soft tissues of a gunshot wound. Endogenous intoxication syndrome. Phases of the wound process.	4
14.	Topic 14. Preparation for practical class 14 Pathogenetic basis of modern gunshot wound treatment. Treatment of gunshot wounds of various localization. Zone of primary tissue destruction (necrosis). Characteristics of gunshot wounds. Surgical treatment. Indications for primary surgical treatment.	4
15.	Topic 15. Preparation for practical class 15 Control of learning practical skills.	4
	Together	60

7. Teaching methods

Practical classes: conversation, solving clinical situational problems, demonstration and practice of manipulation skills according to list 5, instruction and practice of skills on simulation dummies.
Independent work: independent work with the textbook, independent solution of clinical tasks.

8. Forms of control and assessment methods (including criteria for evaluating learning outcomes)

Current control: oral survey, testing, assessment of performance of practical skills, solution of situational clinical tasks, assessment of activity in class.

Final control : credit.

The structure of the current evaluation in the practical lesson :

1. Evaluation of theoretical knowledge on the subject of the lesson:
 - methods: survey, solving a situational clinical problem;
 - the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2 .
2. Evaluation of practical skills and manipulations on the subject of the lesson:
 - methods: assessment of the correctness of the performance of practical skills
 - the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2 .

Current assessment criteria for practical training:

Rating	Evaluation criteria
Perfectly "5"	The applicant is fluent in the material, takes an active part in discussing and solving a situational clinical problem, confidently demonstrates practical skills and interpretations of clinical, laboratory and instrumental research data, expresses his opinion on the subject of the lesson, demonstrates clinical thinking.
Good "4"	The applicant has a good command of the material, participates in the discussion and solution of a situational clinical problem, demonstrates practical skills and interpretations of clinical, laboratory and instrumental

	research data with some errors, expresses his opinion on the subject of the lesson, demonstrates clinical thinking.
Satisfactorily "3"	The applicant does not have sufficient knowledge of the material, is unsure of participating in the discussion and solution of a situational clinical problem, demonstrates practical skills and interpretations of clinical, laboratory and instrumental research data with significant errors.
Unsatisfactorily "2"	The applicant does not possess the material, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills and interpretation of clinical, laboratory and instrumental research data.

Credit is given to the applicant who completed all tasks of the work program of the academic discipline, took an active part in practical classes, completed and defended an individual assignment and has an average current grade of at least 3.0 and has no academic debt.

Test carried out: at the last lesson before the beginning of the examination session - at ribbon system teaching, on to the last occupation - with a cyclical system of education. The credit score is the arithmetic average of all components on a traditional four-point scale and has a value that is rounded using the statistics method with two decimal places after the decimal point.

9. Distribution of points received by students of higher education

The obtained average score for the academic discipline for applicants who have successfully mastered the work program of the academic discipline is converted from a traditional four-point scale to points on a 200-point scale, as shown in the table:

Conversion table of a traditional assessment into a multi-point scale

Traditional four-point scale	Multipoint 200-point scale
Excellent ("5")	185 - 200
Good ("4")	151 - 184
Satisfactory ("3")	120-150
Unsatisfactory ("2")	Below 120

Multi-point scale (200-point scale) characterizes the actual success rate of each applicant in mastering the educational component. The conversion of the traditional grade (average score for the academic discipline) into a 200-point grade is performed by the information and technical department of the University.

According to the obtained points on a 200-point scale, the achievements of the applicants are evaluated according to the ECTS rating scale. Further ranking according to the ECTS rating scale allows you to evaluate the achievements of students from the educational component who are studying in the same course of the same specialty, according to the points they received.

The ECTS scale is a relative-comparative rating, which establishes the applicant's belonging to the group of better or worse among the reference group of fellow students (faculty, specialty). An "A" grade on the ECTS scale cannot be equal to an "excellent" grade, a "B" grade to a "good" grade, etc. When converting from a multi-point scale, the limits of grades "A", "B", "C", "D", "E" according to the ECTS scale do not coincide with the limits of grades "5", "4", "3" according to the traditional scale. Acquirers who have received grades of "FX" and "F" ("2") are not included in the list of ranked acquirers. The grade "FX" is awarded to students who have obtained the minimum number of points for the current learning activity, but who have not passed the final examination. A grade of "F" is assigned to students who have attended all classes in the discipline, but have not achieved a grade point average (3.00) for the current academic activity and are not admitted to the final examination.

Applicants who study on one course (one specialty), based on the number of points scored in the discipline, are ranked on the ECTS scale as follows:

Conversion of the traditional grade from the discipline and the sum of points on the ECTS scale

Evaluation on the ECTS scale	Statistical indicator
A	Top 10% achievers
B	The next 25% of earners
C	The next 30% of earners
D	The next 25% of earners
E	The next 10% of earners

10. Methodological support

- Curriculum of the academic discipline
- Syllabus of the academic discipline
- Situational clinical tasks
- Methodical development of practical classes

11. Questions for preparing for the final inspection

1. Features of modern gunshot wounds, their characteristics.
2. Characteristics of modern firearms.
3. Classification of gunshot wounds.
4. Frequency of gunshot wounds depending on localization, type of wounded projectile, relation to cavities, morphological features, etc.
5. The mechanism of action of a wound projectile (wound ballistics).
6. Morphological, mechanical and functional changes in tissues with firearms injuries the structure of the gunshot wound.
7. Features of damage from the use of explosive ammunition.
8. Types of medical aid for gunshot wounds (battlefields, emergency medical services, medical company).
9. Wound healing mechanism. Types of wound healing.
10. Concept of primary and secondary contamination of gunshot wounds.
11. primary surgical treatment of gunshot wounds (definition of the concept, purpose, tasks, types of PHO), its role in the prevention of wound infection.
12. Indications, contraindications, absence of indications for PHO.
13. Secondary surgical treatment of wounds, its purpose. Tasks, indications, technique implementation.
14. Surgical sutures. The concept of primary and secondary (early and late) seams.
15. Indications and contraindications, etc., of applying sutures.
16. Errors that occur when performing PHO and applying seams.
17. Complications with gunshot wounds.
18. First aid, its content.
19. Pre-medical medical care, its content.
20. Qualified surgical care, its content.
21. Specialized surgical care, its content.
22. First medical aid, its content.
23. The concept of primary and secondary microbial contamination of the wound.
24. Sorting of the wounded, definition of the concept, types of sorting.
25. The role of antibiotics in the prevention of complications and treatment of gunshot wounds.

A list of practical skills, the acquisition of which is monitored during the assessment

1. Tying a surgical knot.
2. Applying nodal seams.
3. Application of continuous seams.
4. Removal of skin sutures.
5. Treatment of the operating field.
6. Treatment of the surgeon's hands.
7. Putting on sterile underwear and gloves.
8. Use of surgical instruments.
9. Local infiltration anesthesia.
10. Performing primary surgical treatment of wounds.
11. Performing secondary surgical treatment of wounds.
12. Performing a dressing.
13. Applying bandages.

12. Recommended literature

Main:

1. General Surgery. Textbook for students of higher medical educational establishments / [Lihonenko OV, Zubaha AB, Khimich SD et al.]; Edited by Prof. SD Khimich, Prof. MD Zheliba / Kyiv AUS Medicine Publishing, 2019.- 608 p.
2. General Surgery. Textbook for students of higher medical educational establishments / [Lihonenko OV, Chorna IO et al.]; Edited by Prof. Ja.S.Bereznickij, M.P.Zacharash, M.P.Mishalov, / - Vinnica: New book- 2019. -344с
3. R. Kushnir. Lecture of General surgery for foreign students of II and III years of medical faculty. – Ternopil "Ukrmedkniga", 2018 - 318 p
4. Lyapis MA Methods of examination of a surgical patient / MA Lyapis. – Ternopil: Ukrmedbook, 2004. – 156 p.

1. Загальна хірургія: підручник / С. Д. Хіміч, М. Д. Желіба, , І. Г. Герич та ін.: за ред. професорів С. Д. Хіміча, М.Д. Желіби., – К.: ВСВ «Медицина», 2018. – 608 с.
2. Загальна хірургія : [підручник для студентів вищих навч. закладів МОЗ України] / за ред.: Я. С. Березницького, М. П. Захараша, В. Г. Мішалова, В. О. Шідловського ; В. П. Андрущенко, Я. С. Березницький, А. В. Верба та ін. - Вінниця : Нова Книга, 2018. - 342 с.
3. Хірургія. (Підручник з загальної хірургії) /за ред. проф. Я.С.Березницького. – Дніпропетровськ, РВА „Дніпро VAL”, Т.1. – 2018. – 443с.

Additional:

1. Butyrsky A. General surgery. - Simferopol. 2014. - 478 p
2. General surgery. Selected lectures edited by prof. VV Mishchenko // V. Ye. Vansovych, ND Voloshenkova, DM Davydov, et other// Odessa 2019. 338p
3. Gostishcev VK General surgery/ The manual. -M.:Geotar-med, 2018. 220p
4. Schevchenko SI Surgery / SI Schevchenko and others. - Kharcov, 2004.
5. Kushnir R. Lectures of general surgery. - 2015.
6. Methodological recommendations on surgical patient care. – Vinnitsa medical national university, 2016.
7. Short practice of surgery. 24th edition. Vol.1. Edited by RCGRussell, Norman S. Williams, Christopher JKBulstrode. A member of the Hodder Headline Group. - London, 2018. – 738 p.

1. Амбулаторні хірургічні маніпуляції / за ред. Проф.. Польового В .П., Шкваровського І. В., Желіби М .Д. – Чернівці: Медуніверситет, 2018. – 252 с.

2. Десмургія : навчальний посібник / О. О. Виноградов, М. О. Ропасва, О. І. Гужва, А. В. Радченко ; Держ. закл. «Луган. нац. ун-т імені Тараса Шевченка». – Старобільськ : Вид-во ДЗ «ЛНУ імені Тараса Шевченка», 2015. – 80 с.
3. Шаповал С.Д. Гнійно-септична хірургія./Навчальний посібник. – Київ ВСВ «Медицина» - 2019 – 192 с.
2. Невідкладні стани в хірургії. /Навчальний посібник для медичних ВНЗ І—ІІІ рівнів акредитації МОЗ України/ К. Бобак, А. Бобак, В. Киретов - Київ ВСВ «Медицина» - 2017 – 560с.

13. Electronic information resources

1. <https://moz.gov.ua/> - Ministry of Health of Ukraine
2. www.ama-assn.org - American Medical Association / American Medical Association
3. www.who.int - World Health Organization
4. www.dec.gov.ua/mtd/home/ - State Expert Center of the Ministry of Health of Ukraine
5. <http://bma.org.uk> - British Medical Association
6. <http://iss-sic.com/> - International Society of Surgeons