

MINISTRY OF THE HEALTH CARE OF THE UKRAINE  
ODESSA NATIONAL MEDICAL UNIVERSITY  
DEPARTMENT HISTOLOGY, CYTOLOGY, EMBRYOLOGY AND  
PATHOLOGICAL MORFOLOGY WITH A COURSE IN FORENSIC MEDECINE



I APPROVE

Vice-rector for scientific and pedagogical work

Eduard BURIACHKIVSKY

September 1, 2024

WORKING PROGRAM OF EDUCATIONAL DISCIPLINE  
“FORENSIC MEDICINE”

**Level of high education:** the second (master) level

**Field of knowledge:** 22 «Health care»

**Specialties:** 222 «Medicine»

**Educational-professional program:** Medicine

Odesa 2024

The working program 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 knowledge 22 «Health care», approved by Scientific Council of the ONMedU (protocol No.10 of June 24, 2024)

Developers:

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The program was approved at the meeting of the forensic medical department forensic medical.

Protocol No., 1 date August 26, 2024

Head of the department  Varvara SYTNIKOVA

Agree with the guarantor of OPP  Valeriia MARICHEREDA

Approved by the subject cycle commission for medical and biological disciplines

Protocol No. 1 date August 28, 2024

Head of the subject cycle methodical commission from medical and biological disciplines of ONMedU  Leonid GODLEVSKY

Reviewed and approved at the meeting of the department

Minute No 1 \_\_\_ of “ \_\_\_ ” \_\_\_\_\_ 20\_\_

Head of the department \_\_\_\_\_

(signature)

(First name, LAST NAME)

Reviewed and approved at the meeting of the department

Minute No 1 \_\_\_ of “ \_\_\_ ” \_\_\_\_\_ 20\_\_

Head of the department \_\_\_\_\_

(signature)

(First name, LAST NAME)

## 1. Description of the academic discipline:

Name of indicators	Field of knowledge, specialty, specialization, level of higher education	Characteristics of the academic discipline
The total number of: Credits: 3.0	Branch of knowledge 22 "Health care"	<i>Full-time education</i>
		<i>Mandatory discipline</i>
Hours: 90	Specialty 222 "Medicine"	<i>Year of training: 4</i>
		<i>Semesters VII - VIII</i>
Content modules : 8	Level of higher education second (master's)	<i>Lectures (16 hours)</i>
		<i>Seminars (0 hours)</i>
		<i>Practical (34 hours)</i>
		<i>Laboratory (0 hours)</i>
		<i>Independent work (40 hours)</i>
		<i>including individual tasks (0 hours)</i>
		<i>Final control form – Differential offset</i>

## 2. The purpose and tasks of the educational discipline

**Purpose:** The aim of teaching discipline "Forensic medicine" follows from the goals of the educational-professional training program for graduates of higher medical education and is determined by the content of those systemic knowledge and skills that must be mastered by a doctor-specialist. The knowledge that by the applicants of higher education receive from the discipline is basic for the block of disciplines that provide natural scientific and professional-practical training.

### **Tasks:**

- to provide knowledge about modern possibilities of medico-legal examination and structure of medico-legal service, and also about the functions of bureau and its subdivisions;
- to provide knowledge about principles of realization of medico-legal examination;
- to teach students to diagnose the fact of biological death;
- to teach to describe bodily injuries;
- to teach to determine the type of bodily injury and mechanism of its infliction;
- to teach to use criteria for determination of degree of gravity of bodily injuries of the person;
- to know the requirements to seize material evidences of biological origin

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

### **- Integral (IC):**

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):**

**GC 1** Ability to abstract thinking, analysis and synthesis

**GC 3** Ability to apply knowledge in practical situations

**GC 4** Knowledge and understanding of the subject area and understanding of professional activity

**GC 6** Ability to make informed decisions.

**GC 10** Ability to use information and communication technologies

**GC 12** Determination and perseverance in terms of tasks and responsibilities

**GC 14** Ability to realize one's rights and responsibilities as a member of society, to realize the values of civil (free democratic) society and the need for its sustainable development, the rule of law, human and civil rights and freedoms in Ukraine

**GC 18.** Ability to make decisions and act in accordance with the principle of inadmissibility of corruption and any manifestations of dishonesty.

### **Special (SC)**

**SC 16 .** Ability to maintain medical documentation , including electronic forms

**SC 25.** Observance of professional and academic integrity, bear responsibility for the reliability of the obtained scientific results.

**SC 28.** Ability to apply fundamental biomedical knowledge at a level sufficient to perform professional tasks in the field of healthcare.

### **Program learning outcomes (PLO):**

**PLO 1.** 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.

**PLO 2.** Understanding and knowledge of fundamental and clinical biomedical sciences, at a level sufficient for solving professional tasks in the field of health care.

**PLO 3.** Specialised conceptual knowledge that includes scientific achievements in the field of health care and is the basis for research, critical thinking of problems in the field of medicine and related interdisciplinary issues, including the system of early intervention.

PLO 21. Find the necessary information in professional literature and databases of other sources, analyze, evaluate and apply this information.

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

**Know:**

- Laws, turned on the protection of inviolability of the individuality; legislation about forensic-medical examination, rules and duties and responsibility of the medical staff for the professional offence, and also main laws, which regulate the practice of the medical staff;
- Modern possibilities of forensic medical examination, structure of the service and functions of its subdivisions;
- Functions of a forensic expert in accordance with procedural legislation (performing the functions of a forensic expert in cases established by law);
- Signs of biological death, description of the corpse at the place of its discovery, understanding of corpse phenomena, description of bodily injuries and determination of their type, finding and description of physical evidence of biological origin.

**Be able to:**

- Describe the injuries and diagnose their characteristic properties of blunt, sharp objects, vehicles and firearms, acquire skills to establish the mechanism, age and life of the injury;
- To determine the severity of bodily injuries during the examination of victims, accused and other persons, to draw up a document correctly;
  - Carry out an initial inspection and describe the corpse and physical evidence (various traces) at the scene;
  - To establish the fact and time (prescription) of death;
  - Make a sectional (morphological) diagnosis and establish the cause of death;
  - Carry out a forensic medical examination based on the materials of investigative or court cases and document it.

**Master the skills:**

- Forensic examination of the victim;
- Examination of the corpse at the scene;
- Establishment of the cause of death during forensic examination of the corpse in cases of violent and non-violent death

### **3. Content of the subject**

#### **Section 1. General forensic medicine. Tasks and subject of forensic medicine. History of its development, organizational bases of forensic medical examination.**

##### **Topic 1. Tasks and subject of forensic medicine. History of its development, organizational bases of forensic medical examination.**

Forensic medicine as a science. Forensic medical examination. Expert, forensic-medical expert, doctor expert. Stages of the development of forensic medicine. Peculiarities of the 5th modern stage. Role of the forensic medical examination in the work of organs of jurisprudence and health protection. Contribution of prominent Ukrainian scientists in the development of forensic medicine

Organization of the forensic-medical service in Ukraine and other countries. Structure of Bureau of Forensic medical examinations. Functions of its departments. Rights, duties and responsibility of forensic medical expert and doctor-expert during the performing of expert functions. Guaranties of the independence of the expert.

Objects and kinds of forensic-medical examinations and free examinations. Organization of forensic medical examinations: their assignment, documentation and its content. Prescription, organization and performing of commission forensic examination in the case of professional and official offences of medical staff

#### **Section 2. Forensic tanatology**

##### **Topic 2. Forensic tanatology. Examination of the corpse on the scene of its detection. Forensic-medical autopsy, its demonstration.**

Corpses, which undergo by forensic autopsy. Forensic and pathologoanatomical autopsy, their peculiarities. Concept “death”. Forensic medical classification of death. Determination of category, kind of death. Role of forensic medical expert in assessment of the kind of violent death. Concept of tanatology. General, specific and molecular tanatology. Pathological physiology of dying. Terminal condition. Rapid and agonal death. Clinical and biological death, their diagnosing. Apparent death. Usage of organs and tissues for transplantation. Medico-legal aspects. “Brain death”. Livores mortis and their forensic importance. Rigor mortis, theories of its development. Its forensic importance. Drying and cooling of the body. Forensic importance. Autolysis and its manifestations in internal organs. Putrefaction: mechanism of development, manifestations. Entomofauna of the corpse and its forensic importance. Late post-mortem signs. Natural and artificial conservation of the body. Forensic importance. General rules and stages of forensic autopsy. Documentation. Medical death certificate

Peculiarities of the examination of the corpse of unknown person Forensic criteria of detection of the time of death occurrence: by post-mortem signs, supravital reactions and results of laboratory tests. Role of doctor-specialist in the forensic medical examination during the inspection of the corpse on the scene of its detection. Phases of inspection of scene of incident.

### **Topic 3. Forensic examination of the corpse in case of sudden death. Forensic examination of newborn corpses.**

Sudden death. Determination, medico-social importance. Factors of risk. Sudden death in the result of cardio-vascular diseases. Acute and chronic ischemic heart disease. Sudden infant death. Sudden infant death syndrome. Sudden death in the result of the diseases of respiratory tract. Sudden death in the result of the diseases of CNS and infectious diseases. Peculiarities of the forensic medical examination of the newborn's corpse. Determination of new-birth.

### **Section 3. Forensic examination of victims, accused and other persons. Forensic medical examination of controversial sexual conditions and sexual crimes.**

### **Topic 4. Forensic examination of victims, accused and others. Forensic medical examination of controversial sexual conditions and sexual crimes.**

Forensic examination of living persons: reasons to perform the examination, peculiarities and documentation. Juridical classification and expert criteria of the degree of gravity of physical injuries. Grievous physical injuries, their signs, peculiarities of forensic examination. Grievous physical injuries on the basis of danger to life. Forensic medical examination of sexual crimes Forensic medical examination of disputable sexual crimes Forensic medical examination of health condition: aggravation, simulation, dissimulation, artificial and simulated diseases, self-injury

### **Section 4. Forensic medical examination of injuries and death caused by mechanical factors.**

### **Topic 5. Forensic examination of injuries and death from mechanical factors. Damage from blunt objects. Transport injury. Forensic examination of injuries and death from mechanical factors. Damage from sharp objects. Gunshot wound: forensic examination and diagnosis. Forensic examination of mechanical asphyxia.**

Concept "injury". Environmental factors, which affect the organism. Classification of the injuries. Anatomical and functional injuries. Traumatism and its kinds. Peculiarities

of the skin injury description. Injuries caused by blunt objects, their classification, mechanism of their effect. Abrasion, its forensic importance. Bruise, its forensic importance. Hurt wounds, its forensic importance. Fractures of flat and tubular bones, which were caused by blunt objects. Cranio-cerebral injury: its kinds – impressive, diffuse axonal injury. Peculiarities of injuries from the fall on a flat surface and fall from a height. Peculiarities of the injuries during railway injury Automobile injury. Peculiarities of the injuries during the contact of automobile with a human. Incised, stab wounds, their peculiarities, which related with the kind of violent death. Determination of the internal wound canal. Incised-stab wounds. Chopped wound. Main causes of death from the blunt and sharp objects, their explanation. Forensic assessment of the vital physical injuries by histological, histo-chemical and biochemical methods. Classification of firearms. Structure of weapon cartridge and mechanism of a shot. Supplementary factors of shot. Kinetic energy of the bullet. Mechanism of the bullet's effect on the human body depending on the kinetic energy. Hydrodynamic effect. Signs of contact shot. Signs of suicide by firearm. Signs of close and distant shot Injuries caused by shotgun. Structure of shotgun cartridge. Determination of the distance of shot. Peculiarities of the gunshot injuries of flat and tubular bones. Determination of the way of wound canal and succession of shots. Importance of the laboratory methods of investigation during the forensic examination of gunshot injuries. Concept of asphyxia, classification of the kinds, vital duration. Stages of reanimation from asphyxia. General asphyxial signs, their forensic importance.

## **Section 5. Forensic medical examination of the injuries caused by the effect of other physical environmental factors.**

### **Topic 6. Forensic examination of injuries and death from extreme temperatures; atmospheric and technical electricity; radiant energy; sharply changed barometric pressure.**

Local effect on the organism of high temperature. Death caused by technical electric current. Mechanism of the effect of current flows on the human organism. Forensic determination of electric marks. Injuries caused by atmospheric electricity. Forensic medical examination of the effect of ionized radiation. Laser injury. Mechanism of the laser radiation's effect. Forensic-medical examination of the acute changed pressure. Barometric injury.

## **Section 6. Forensic medical examination of injuries and death caused by the chemical substances**

### **Topic 7. General information about poisons, the mechanism of their action and the basics of forensic diagnosis of poisoning.**



The concept of poisons and poisoning. Conditions of action of poisons. Classification of poisons. Distribution of toxins in the body. Health disorder from the action of bacteria, viruses, fungi, prions. Requirements for forensic examination of the corpse in case of suspicion of poisoning.

**Section 7. Forensic examination of physical evidence of biological origin and forensic research methods.**

**Topic 8. Forensic examination of physical evidence of biological origin and forensic research methods.**

The concept of physical evidence, their importance in the disclosure of crimes against life and health. Forensic blood examination. Determination of kind and sexual belonging of the blood and time of forming of the blood stains

**Section 8. Forensic medical examination in cases of professional and official offenses of medical workers.**

**Topic 9. Forensic medical examination in cases of professional and official offenses of medical workers**

Legal assessment of adverse treatment outcomes. Medical errors. Accidents. Examination of defects in the provision of medical care. Iatrogenic pathology: definition, relevance and main causes of iatrogenic; classification of iatrogenic, the place of iatrogenic pathology in the structure of adverse outcomes of medical interventions. General issues of legal liability of medical workers. Civil liability of treatment and prevention facilities. Administrative and disciplinary responsibility of medical workers. Criminal liability of medical workers for committing professional crimes. Official crimes in the field of health care. The concept of official crime and official in the field of health care. Abuse of office. Bribery. Receiving illegal remuneration. Official falsification. Negligence.

**4. Structure of the academic discipline:**

Topic	Total hours			
	Total	Including		
		L.	Pr.cl.	SIW
<b>Section 1. General forensic medicine. Tasks and subject of forensic medicine. History of its development, organizational bases of forensic medical examination.</b>				
Topic 1. Tasks and subject of forensic medicine. History of its development, organizational bases of forensic medical	6	2	0	4

examination.				
<b>Section 2. Forensic tanatology</b>				
Topic 2. Forensic tanatology. Examination of the corpse on the scene of its detection. Forensic-medical autopsy, its demonstration.	10	4	6	0
Topic 3. Forensic examination of the corpse in case of sudden death. Forensic examination of newborn corpses.	8	0	0	8
<b>Section 3. Forensic examination of victims, accused and other persons. Forensic medical examination of controversial sexual conditions and sexual crimes.</b>				
Topic 4. Forensic examination of victims, accused and others. Forensic medical examination of controversial sexual conditions and sexual crimes.	6	2	4	0
<b>Section 4. Forensic medical examination of injuries and death caused by mechanical factors.</b>				
Topic 5. Forensic examination of injuries and death from mechanical factors. Damage from blunt objects. Transport injury. Forensic examination of injuries and death from mechanical factors. Damage from sharp objects. Gunshot wound: forensic examination and diagnosis. Forensic examination of mechanical asphyxia.	22	6	10	6
<b>Section 5. Forensic medical examination of the injuries caused by the effect of other physical environmental factors.</b>				
Topic 6. Forensic examination of injuries and death from extreme temperatures; atmospheric and technical electricity; radiant energy; sharply changed barometric pressure.	10	0	2	8
<b>Section 6. Forensic medical examination of injuries and death caused by the chemical substances</b>				
Topic 7. General information about poisons, the mechanism of their action and the basics of forensic diagnosis of poisoning.	20	2	4	14
<b>Section 7. Forensic examination of physical evidence of biological origin and forensic research methods.</b>				
Topic 8. Forensic examination of physical evidence of biological origin and forensic research methods.	4	0	4	0
<b>Section 8. Forensic medical examination in cases of professional and official offenses of medical workers.</b>				
Topic 9. Forensic medical examination in cases of professional	0	0	2	0

and official offenses of medical workers				
Differential offset	2,0	0,0	0,0	0
<b>Total: hours</b>	90	16	34	40

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

### 5.1. Topics of lectures

#	Topic	Hours	Semester
1.	Subject of forensic medicine. History of its development as an independent science. Organization aspects of performing of forensic-medical examination in Ukraine.	2	VII-VIII
2.	General aspects of forensic tanatology. Process of dying and death. Clinical and biological death, their diagnosing. Early and late body changes. Diagnosis of the time of death occurrence. Examination of the corpse on the scene of its detection. Role of forensic expert during the examination of the corpse on the place of its detection.	4	VII-VIII
3.	Forensic-medical examination of living persons with detection of degree of gravity of the body injury, health state and age, disputable sexual conditions and sexual crimes	2	VII-VIII
4.	General aspects of the forensic traumatology. Environmental factors, which cause injuries. Outcomes of the injury. Description of the injuries. Injuries caused by blunt objects. Classification of the blunt objects. Bruises, abrasions, hurt wounds. Bone fractures. General aspects of craniocerebral injury	4	VII-VIII
5.	Forensic examination of gun-shot injuries. Forensic explanation of the mechanism of injury and death caused by gun-shot weapons.	2	VII-VIII
6.	Forensic toxicology: general aspects of poisons and poisonings, classification of the poisons, diagnosis of poisonings by corrosive, bloody, destructive and neuro-functional poisons. Forensic examination of alcohol intoxication. Forensic examination of the death caused by the drugs.	2	VII-VIII
<b>Total</b>		<b>16</b>	

### 5.2. Topics of seminar classes

Seminar classes are not provided.

### 5.3. Topics of practical classes

№	Topic	Hours
1.	<b>Topic 1. Practical lesson 1.</b> General aspects of forensic tanatology. Forensic autopsy in case of violent death. Demonstration of the autopsy. Forensic autopsy of the newborns' corpses. Conducting of forensic-medical documentation. Forensic autopsy in case of sudden death.	6
2.	<b>Topic 2. Practical lesson 2,3</b> Forensic-medical examination of living persons with detection of degree of gravity of the body injury, health state and age, disputable sexual conditions and sexual crimes.	4
3.	<b>Topic 3. Practical lesson 4</b> General aspects of forensic traumatology. Forensic-medical examination of injuries and death, caused by mechanical factors (injuries, caused by blunt and sharp objects).	2
4.	<b>Topic 3. Practical lesson 5</b> General aspects of forensic traumatology. Transport injury.	2
5.	<b>Topic 4. Practical lesson 6</b> Forensic-medical examination of gunshot injuries. Forensic explanation of the trauma's mechanism and cause of death	2
6.	<b>Topic 5. Practical lesson 6,7</b> Forensic-medical toxicology. General knowledge about poisons and poisonings. Forensic examination of alcohol intoxication. Forensic expertise of the death, resulted by the effect of narcotic substances.	4
7.	<b>Topic 4. Practical lesson 8,9</b> Forensic-medical examination of mechanic asphyxia. Forensic explanation of the trauma's mechanism and cause of death.	4
8.	<b>Topic 7 . Practical lesson 10</b> Forensic-medical examination of the material evidences of biological origin.	2
9.	<b>Topic 8. Practical lesson 11</b> Cases of medical stuff malpractice. Forensic-medical examination of unfavorable outcomes in medical	2

	practice.	
10.	<b>Topic 1. Practical lesson 12</b> Forensic medical examination of the injuries caused by the effect of other physical environmental factors.	2
11.	<b>Topic 7. Practical lesson</b> Medical-criminalistic methods of examination. Forensic-medical person's identification.	2
12.	Differential offset	2
Total		34

#### 5.4. Topics of laboratory classes

Laboratory classes are not provided

#### 6. Independent work

№	TOPIC	Number of hours
1.	Topic 1. Preparation for practical classes 1	4
2.	Topic 2. Preparation for practical classes 2-3	8
3.	Topic 3. Preparation for practical classes 4	6
4.	Topic 4. Preparation for practical classes 5-6	2
5.	Topic 5. Preparation for practical classes 7-10	2
6.	Topic 6. Preparation for practical classes 11	2
7.	Topic 7. Preparation for practical classes 12 -13	8
8.	Topic 8.1. Preparation for practical classes 14	4
9.	Topic 9. Preparation for practical classes 15	4
	<b>Total</b>	<b>40</b>

## 7. Teaching methods

**Lectures:** story, explanation, conversation.

**Practical classes:** conversation, solving clinical situational problems, practicing the skills of examination of the subject, the corpse, instruction and practice of skills on macropreparations, training exercises on topics.

**Independent work:** independent work with a textbook, independent solution of clinical problems.

### Individual tasks

Not provided.

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

**Current control:** oral control, testing, assessment of practical skills, solving situational clinical problems, assessment of activity in the classroom.

**Final control:** oral differential test, testing.

### About the evaluation of the current educational activity in a practical session

When assessing the mastery of each topic, a student of higher education is given grades on a 4-point (traditional) scale ("2", "3", "4", "5").

#### 1. Evaluation of theoretical knowledge on the subject of the lesson:

- methods: survey, solving a situational clinical problem, tests
- the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.

#### 2. Assessment of practical skills on the topic 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.

The grade for one practical session is the arithmetic average of all components and can only have a whole value (5, 4, 3, 2), which is rounded according to the statistical method.

### Current assessment criteria for practical training:

Rating	Evaluation criteria
«5»	The student is fluent in the material, takes an active part in discussing and solving a situational clinical problem, confidently demonstrates practical skills during the examination of the victim or corpse and interpretation of clinical, laboratory and instrumental studies, expresses the opinion on the topic, demonstrates clinical thinking

«4»	The student is well versed in the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of the victim or corpse and interpretation of clinical, laboratory and instrumental studies with some errors, expresses the opinion on the topic, demonstrates clinical thinking.
«3»	The student does not know enough material, insecurely participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of the victim or corpse and interpretation of clinical, laboratory and instrumental studies with significant mistakes
«2»	The student does not know the material, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of the victim or corpse and the interpretation of clinical, laboratory and instrumental data.

The student is admitted to the differential test provided that the requirements of the curriculum are met and if he received at least 3.00 points for the current academic activity.

**Evaluation of the independent work of a student of higher education.** The independent work of a student of higher education, which is provided by the topic of the lesson along with the classroom work, is evaluated during the current control of the topic in the corresponding lesson. The mastery of topics that are assigned only to independent work is checked during the final control.

#### **Evaluation of learning results during the final control (differential offset)**

The content of the assessed activity	Amount
Solving a situational problem with a description of the macropreparation	2
Answer to theoretical questions.	1
Answer to theoretical questions.	1
Answer to theoretical questions.	1

#### **T.No 5**

1. During the fight, Mr. S. was struck in the larynx with the edge of his palm. Mr. S. turned pale and fell to the ground. He was taken by ambulance to the ENT department of the hospital. According to the medical record, "Unconscious, adynamic. The skin is pale, covered with sticky sweat. The pulse is threadlike, weak, 120 beats per minute. A/D - 60/0 mm Hg. A set of resuscitation measures was performed. The examination

revealed a fracture of the carpal cartilage. Discharged on the 10th day after recovery." Determine and justify the severity of the injuries.

2. What issues are addressed in the study of newborns?
3. Look for signs of strangulation by hands.
4. With the help of which reaction is determined by the group belonging of blood in the spots of the ABO system?

**Criteria for assessment the learning results of students in the differential test:**

«5»	Put to a applicant who worked systematically during the semester, showed during the exam versatile and deep knowledge of the program material, is able to successfully perform the tasks provided by the program, mastered the content of basic and additional literature, realized the relationship of individual sections of the discipline, their importance for future profession. showed creative abilities in understanding and using educational material, showed the ability to independently update and replenish knowledge; level of competence - high (creative);
«4»	Put to a applicant who has shown full knowledge of the curriculum, successfully performs the tasks provided by the program, mastered the basic literature recommended by the program, showed a sufficient level of knowledge of the discipline and is able to independently update and update during further study and professional activities; level of competence - sufficient (constructive-variable)
«3»	Put to a applicant who has shown knowledge of the basic curriculum in the amount necessary for further study and further work in the profession, copes with the tasks provided by the program, made some mistakes in answering the exam and when performing exam tasks, but has the necessary knowledge to overcoming mistakes under the guidance of a research and teaching staff; level of competence - average (reproductive)
«2»	Put to a applicant who did not show sufficient knowledge of the basic curriculum, made fundamental mistakes in performing the tasks provided by the program, can not without the help of the teacher use the knowledge in further study, failed to master the skills of independent work; level of competence - low (receptive-productive)

**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**

<b>National assessment for discipline</b>	<b>The sum of points for the discipline</b>
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 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 given 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 in 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**

<b>Evaluation on the ECTS scale</b>	<b>Statistical indicator</b>
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:**

- Working program of the discipline
- The syllabus of the discipline
- Textbooks:
- Multimedia presentations
- Situational clinical tasks
- Methodical development of practical classes
- Electronic bank of test tasks by divisions of the discipline
  
- Educational and methodical literature: Forensic medicine: textbook / Edited by V.D. Mishalov, - Chernivtsi: "Misto" 2018. - 572

**11. List of questions to the differential test.**

1. Forensic medicine as a science. Forensic medical examination. Expert, forensic-medical expert, doctor expert.  
Stages of the development of forensic medicine. Role of the forensic medical examination in the work of organs of jurisprudence and health protection

- Contribution of prominent Ukrainian scientists in the development of forensic medicine
2. Organization of the forensic-medical service in Ukraine according to the laws. Normative-legal codes, which regulate the performing of forensic medical examination.  
Rights, duties and responsibility of forensic medical expert and doctor-expert during the performing of expert functions. Guaranties of the independence of the expert.
  3. Objects and kinds of forensic-medical examinations and free examinations. Organization of forensic medical examinations: their assignment, documentation and its content
  4. Corpses, which undergo by forensic autopsy. Forensic and pathologoanatomical autopsy, their peculiarities.
  5. Concept “death”. Forensic medical classification of death. Determination of category, kind of death. Role of forensic medical expert in assessment of the kind of violent death.
  6. Concept of tanatology. General, specific and molecular tanatology.
  7. Pathological physiology of dying. Terminal condition. Rapid and agonal death. Clinical and biological death, their diagnosing. Apparent death of the laser radiation’s effect Usage of organs and tissues for transplantation. Medico-legal aspects. “Brain death”
  8. Livores mortis and their forensic importance.
  9. Rigor mortis, theories of its development. Its forensic importance.
  10. Drying and cooling of the body. Forensic importance
  11. Aytolysis and its manifestations in internal organs
  12. Putrefaction: mechanism of development, manifestations
  13. Entomofauna of the corpse and its forensic importance.
  14. Late post-mortem signs. Natural and artificial conservation of the body. Forensic importance.
  15. General rules and stages of forensic autopsy. Documentation. Medical death certificate
  16. Peculiarities of the examination of the corpse of unknown person
  17. Forensic criteria of detection of the time of death occurrence: by post-mortem signs, supravital reactions and results of laboratory tests  
Role of doctor-specialist in the forensic medical examination during the inspection of the corpse on the scene of its detection. Phases of inspection of scene of incident.
  18. Sudden death. Determination, medico-social importance. Factors of risk.

- Sudden death in the result of cardio-vascular diseases. Acute and chronic ischemic heart disease.
19. Sudden infant death. Sudden infant death syndrome.
  20. Sudden death in the result of the diseases of respiratory tract. death in the result of the diseases of CNS and infectious diseases.
  21. Peculiarities of the forensic medical examination of the newborn's corpse. Determination of new-birth.
  22. Forensic solving of the problems, which occur during the autopsy of the newborn's body.
  23. Causes of the newborns' deaths. Traumatic death of the newborn. Infant-murder.
  24. Forensic examination of living persons: reasons to perform the examination, peculiarities and documentation.
  25. Juridical classification and expert criteria of the degree of gravity of physical injuries.
  26. Grievous physical injuries, their signs, peculiarities of forensic examination. Grievous physical injuries on the basis of danger to life.
  27. Forensic medical examination of sexual crimes  
Forensic medical examination of disputable sexual crimes
  28. Forensic medical examination of health condition: aggravation, simulation, dissimulation, artificial and simulated diseases, self-injury
  29. Concept "injury". Environmental factors, which affect the organism. Classification of the injuries. Anatomical and functional injuries. Traumatism and its kinds. Peculiarities of the skin injury description.
  30. Injuries caused by blunt objects, their classification, mechanism of their effect.
  31. Abrasion, its forensic importance.
  32. Bruise, its forensic importance.
  33. Hurt wounds, its forensic importance.
  34. Fractures of flat and tubular bones, which were caused by blunt objects.
  35. Cranio-cerebral injury: its kinds – impressive, diffuse acsonal injury
  36. Peculiarities of injuries from the fall on a flat surface and fall from a height.
  37. Peculiarities of the injuries during railway injury
  38. Automobile injury. Peculiarities of the injuries during the contact of automobile with a human.
  39. Incised, stab wounds, their peculiarities, which related with the kind of violent death. Determination of the internal wound canal.
  40. Incised-stab wounds
  41. Chopped wound
  42. Main causes of death from the blunt and sharp objects, their explanation.

- Forensic assessment of the vital physical injuries by histological, histo-chemical and biochemical methods.
43. Classification of firearms. Structure of weapon cartridge and mechanism of a shot. Supplementary factors of shot. Kinetic energy of the bullet.  
Mechanism of the bullet's effect on the human body depending on the kinetic energy. Hydrodynamic effect.
  44. Signs of contact shot. Signs of suicide by firearm.  
Signs of close and distant shot
  45. Injuries caused by shotgun. Structure of shotgun cartridge. Determination of the distance of shot.
  46. Peculiarities of the gunshot injuries of flat and tubular bones. Determination of the way of wound canal and succession of shots.  
Importance of the laboratory methods of investigation during the forensic examination of gunshot injuries
  47. Concept of asphyxia, classification of the kinds, vital duration. Stages of reanimation from asphyxia
  48. General asphyxial signs, their forensic importance
  49. Hanging and its diagnostic meaning
  50. Forensic medical diagnosing of the drowning
  51. Local effect on the organism of high temperature. Skin-burns from the effect of different thermal factors. Peculiarities of the examination of burnt bodies. Signs of the vital effect of the flame
  52. Concept "poison". Conditions of the poisons' effect. Classification of poisons and poisonings. Forensic sources of the poisonings' diagnosing. Rules of extraction of the internal organs for forensic toxicological examination.
  53. Poisoning by corrosive poisons.
  54. Destructive poisons. Poisonings with organic and non-organic mercurial preparations
  55. Peculiarities of forensic medical examination in the case of biological factors' effect. Sources for diagnosing
  56. Concepts of material evidences and their classification. Rules of extraction and sending of the material evidences for the examination. Organization of the examination of material evidences of biological origin.
  57. Peculiarities of the blood stains on the scene of incident. General tasks, which are solved during the examination of blood stains.
  58. Determination of blood presence, oriental and evidential methods  
Determination of the individual possession of the blood in the spot
  59. Genome dactyloscopy
  60. Organization of medico-criminalistic examination: methods, aims and objects

## **List of practical skills, acquiring of which is controlled during the differential test from subject “Forensic medicine”**

1. Apply the provisions of law in medical practice
2. Demonstrate the skills of description and seizure of the material evidences of the biological origin.
3. Demonstrate the ability to describe the body injuries
4. Demonstrate the ability to perform the forensic-medical examination of the victim, accused and other persons
5. Demonstrate the ability to perform forensic-medical examination of the corpse and detect the cause of the violent death

## **12. Recommended Literature**

1. B.V. Mykhailychenko, A.M.Biliakov, I.G. Savka. Forensic medicine: Textbook. –Kyiv: AUS Medicine Publishing, 2019. – 224 p.;
2. Franchuk V.V. Forensic Medicine : practical guide / V.V. Franchuk. – Ternopil : TSMU, 2011. – 204 p.
3. Journal of Clinical Forensic Medicine ##

## **13. Electronic information resources**

1. <https://zakon.rada.gov.ua/laws/show/4651-17#Text>
2. <https://zakon.rada.gov.ua/laws/show/4038-12#Text>
3. <https://zakon.rada.gov.ua/laws/show/z0248-95#Text>
4. <https://zakon.rada.gov.ua/laws/show/2341-14#Text>
5. <http://moz.gov.ua> – [Ministry of Health of Ukraine](#)
6. [www.ama-assn.org](http://www.ama-assn.org) - [American Medical Association](#) / American Medical Association
7. [www.who.int](http://www.who.int) - [World Health Organization](#)
8. [www.dec.gov.ua/mtd/home/](http://www.dec.gov.ua/mtd/home/) - [State Expert Center of the Ministry of Health of Ukraine](#)
9. <http://bma.org.uk> - British Medical Association