

**MINISTRY OF THE HEALTH CARE OF THE UKRAINE  
ODESSA NATIONAL MEDICAL UNIVERSITY  
DEPARTMENT OF FORENSIC MEDICINE**



**I APPROVE**

Vice-rector for scientific and pedagogical work

Eduard BURIACHKIVSKY

September 1, 2023

**WORKING PROGRAM IN THE DISCIPLINE  
“FORENSIC MEDICINE”**

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

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

**Specialties:** 221 «Dentistry»

**Educational-professional program:** Dentistry

**Odesa 2023**

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.8 of June 29)

Developers:

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

Protocol No., 1 date August 29, 2023

Head of the department \_\_\_\_\_  Grygoryi KRYVDA

Agree with the guarantor of OPP \_\_\_\_\_  Valeriia MARICHEREDA

Approved by the subject cycle commission for medical and biological disciplines

Protocol No., 1 date August 29, 2023

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 "01" September 20 23

Head of the department



Sytnikova Varvara

(signature)

(First name, LAST NAME)

Reviewed and approved at the meeting of the department

Minute No 1 \_\_\_ of "\_\_\_" \_\_\_\_\_ 20 \_\_\_\_\_

Head of the department \_\_\_\_\_ Varvara SYTNIKOVA

## 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:<br>Credits: 3.0<br>Hours: 90<br>Content modules : 8 | Branch of knowledge<br>22 "Health care"                                  | <i>Full-time education</i>                  |
|  |  | <i>Mandatory discipline</i>                 |
|  | Specialty<br>221 " Denistry "  | <i>Year of training: 4</i>                  |
|  |  | <i>Semesters V</i>                          |
|  | Level of higher education<br>second (master's)                           | <i>Lectures (10 hours)</i>                  |
|  |  | <i>Seminars (0 hours)</i>                   |
|  |  | <i>Practical (50 hours)</i>                 |
|  |  | <i>Laboratory (0 hours)</i>                 |
|  |  | <i>Independent work (30 hours)</i>          |
|  |  | <i>including individual tasks (0 hours)</i> |
|  |  | <i>Final control form –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

GC2. Knowledge and understanding of the subject area and understanding of professional activities.

GC 3 Ability to apply knowledge in practical situations

GC 4. Ability to communicate in the state language both orally and in writing.

GC 6. Skills in the use of information and communication technologies.

GC 7. Ability to search, process and analyse information from various sources.

GC 9. Ability to identify, formulate and solve problems.

GC 10. Ability to be critical and self-critical.

GC 14. Ability to exercise their rights and responsibilities as a member of society, to understand 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

GC15. The ability to preserve and enhance moral, cultural, scientific values and achievements of society based on an understanding of the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, technology and technology, to use various types and forms of physical activity for active recreation and healthy lifestyle

**Special (SC)**

SC14. Ability to maintain regulatory medical records.

SC 15 . Processing of state, social and medical information

SC 17. Ability to provide legal support for own professional activity

**Program learning outcomes (PLO):**

PLO 14. Analyse and evaluate government, social and health information using standardised approaches and computer information technology.

PLO 16: Formulate goals and determine the structure of personal activity based on the results of the analysis of certain social and personal needs

PLO 18: To be aware of and be guided in their activities by civil rights, freedoms and responsibilities, to improve the general cultural level of education.

PLO 19. To comply with the requirements of ethics, bioethics and deontology in their professional activities.

**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. Postmortem teeth’s changes. Conducting of forensic-medical documentation with creation of dental formula. Detection of degree of the body injury in the case of dental injury.

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 acsonal 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, histochemical 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. | SI W |
| <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 examination.  | 6           | 2         | 2       | 2    |
| <b>Section 2. Forensic tanatology</b>   |             |           |         |      |
| Topic 2. Forensic tanatology. Examination of the corpse on the scene of its detection. Conducting of forensic-medical documentation with creation of dental formula Forensic-medical autopsy, its demonstration.  | 10          | 2         | 4       | 4    |
| Topic 3. Forensic examination of the corpse in case of sudden death. Postmortem teeth's changes. Detection of degree of the body injury in the case of dental injury.   | 4           | 0         | 2       | 2    |
| <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.  | 8           | 0         | 4       | 4    |
| <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. Injury of facial soft tissues and oral mucous membrane. Injuries of the skull, face and teeth. Determination of the period and time of infliction of the facial soft tissues and teeth injuries. 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. | 26          | 4         | 16      | 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.  | 6           | 0         | 4       | 2    |
| <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. Forensic-medical examination of the injuries of the face and teeth with chemical agents.              | 12 | 2 | 6  | 4  |
| <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. Forensic-medical person's identification using dental status. Forensic-medical bases of person's identification using teeth | 10 | 0 | 8  | 2  |
| <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 and official offenses of medical workers. Forensic-medical examination of unfavorable outcomes in stomatological practice.  | 8  | 0 | 4  | 4  |
| Offset   | 0  |   |    | 0  |
| <b>Total: hours</b>  | 90 | 0 | 30 | 60 |

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

### 5.1. Topics of lectures

| №<br>3/II | TOPIC   | Number of<br>hours |
|-----------|---|--------------------|
| 1.        | Subject of forensic medicine. History of it's development as an independent science. Organization aspects of performing of forensic-medical examination in Ukraine.   | 2                  |
| 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. | 2                  |
| 3         | 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.                                 | 2                  |
| 4.        | 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                  |

|    |  |    |
|----|--|----|
| 5. | Forensic examination of gun-shot injuries. Forensic explanation of the mechanism of the injury and death caused by the gun-shot weapons. | 2  |
|    | TOGETHER:  | 10 |

## 5.2. Topics of seminar classes

Seminar classes are not provided.

## 5.3. Topics of practical classes

| №  | TOPIC  | Number of hours |
|----|--|-----------------|
| 1  | Organization aspects of performing of forensic-medical examination in Ukraine.   | 2               |
| 2  | General aspects of forensic tanatology. Diagnosis of the time of death occurrence. Early and late body changes. Postmortem teeth's changes. Demonstration of the autopsy. Conducting of forensic-medical documentation with creation of dental formula. Detection of degree of the body injury in the case of dental injury. | 6               |
| 3  | Forensic-medical examination of alive persons with detection of degree of the body injury.   | 4               |
| 4  | Forensic-medical examination of injuries and death, caused by mechanical factors (injuries, caused by blunt and sharp objects, transport injury).  | 4               |
| 5  | Injury of facial soft tissues and oral mucous membrane. Injuries of the skull, face and teeth. Determination of the period and time of infliction of the facial soft tissues and teeth injuries.   | 4               |
| 6  | Forensic-medical examination of gun-shot injuries.   | 4               |
| 7  | Forensic-medical examination of mechanic asphyxia.   | 4               |
| 8  | Forensic medical examination of the injuries caused by the effect of other physical environmental factors.   | 4               |
| 9  | Forensic-medical examination of the material evidences of biological origin. Medical-criminalistic methods of examination. Forensic-medical person's identification.   | 4               |
| 10 | Forensic-medical person's identification using dental status. Forensic-medical bases of person's identification using teeth.   | 4               |
| 11 | Cases of medical stuff malpractice. Forensic-medical examination of unfavorable outcomes in stomatological practice.   | 4               |

|    |   |    |
|----|---|----|
| 12 | 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. | 4  |
| 13 | Forensic-medical examination of the injuries of the face and teeth with chemical agents.  | 2  |
|    | TOGETHER:   | 50 |

#### 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      | 2               |
| 2. | Topic 2. Preparation for practical classes 2-3    | 4               |
| 3. | Topic 3. Preparation for practical classes 4      | 2               |
| 4. | Topic 4. Preparation for practical classes 5-6    | 4               |
| 5. | Topic 5. Preparation for practical classes 7-10   | 6               |
| 6. | Topic 6. Preparation for practical classes 11     | 2               |
| 7. | Topic 7. Preparation for practical classes 12 -13 | 4               |
| 8. | Topic8. Preparation for practical classes 14      | 2               |
| 9. | Topic 9. Preparation for practical classes 15     | 4               |
|    | TOGETHER:   | 30              |

#### 7. Teaching methods

**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 recommended basic and additional literature , with electronic information resources, preparation of reporting documents and practice diary.

##### 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:** credit

**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.

**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.

**Current assessment criteria for practical training:**

| Rating | Evaluation criteria  |
|--------|--|
| «5»    | The applicant 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 applicant 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 applicant 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 applicant 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.  |

Credit is given to the student 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. Assessment is carried out: at the last lesson before the

beginning of the examination session - with the tape system of learning, at the last lesson - with the cycle system of learning. The credit score is the arithmetic mean of all components according to the traditional four-point scale and has a value that is rounded according to the statistics method with two decimal places after the decimal point.

**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.

### **9. Distribution of points received by applicant 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

**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 pathoanatomical 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. Autolysis 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 axonal 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