

MINISTRY OF HEALTH OF UKRAINE
ODESSA NATIONAL MEDICAL UNIVERSITY
Department of Traumatology, orthopedics and Battlefield Surgery

Signature

I APPROVE
Vice Rector for scientific and pedagogical work
Eduard BURYACHKIVSKIY
" 1 " *weinst* 2024

**WORKING PROGRAM OF DISCIPLINE
«TRAUMATOLOGY AND ORTHOPEDICS»**

Level of the higher education: the second (master)

Field of knowledge: 22 "Health care"

Specialty: 222 "Medicine"

Educational and professional program: Medicine

The working program was made on the basis of educational and professional program «Medicine», for training of masters of the second level of the higher education of Specialty 222 «Medicine», Field of knowledge 22 "Health care", approved by Academic Council of ONMedU (protocol № 10, 27 June 2024).

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The program is approved at the meeting of Traumatology, orthopedics & Battlefield Surgery department Protocol № 1, 26.08.2024 y.

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The program is reviewed and discussed at the meeting of Traumatology, orthopedics & BC department Protocol № __, " __ " _____ 2026 y.

Head of the department

Yurii SUKHIN

1. Description of the educational discipline

Name of indicators	Field of knowledge, Specialty, Level of higher education	Characteristics of the educational discipline
General: Credits : 3 Hours: 90 Sections: 3	Field of knowledge 22 "Health care"	<i>Day form of education</i> <i>Obligatory discipline</i>
	Specialty 222 "Medicine"	<i>Year of study: 5</i>
	Level of higher education second (Masters)	<i>Semesters IX–X</i>
		<i>Lectures (6 hours)</i>
		<i>Seminars (0 hours)</i>
		<i>Practices (54 hours)</i>
		<i>Laboratory (0 hours)</i>
		<i>Independent work (30 hours)</i>
		<i>Individual tasks (0 hours)</i>
		<i>Form of final control -Differential test</i>

2. Purpose and tasks of educational discipline

Purpose: Mastering by the student of knowledge and formation of elements of professional competences in the field of traumatology and orthopedics, improvement of skills and competences acquired at studying of previous surgical disciplines.

Tasks:

1. Formation of skills and abilities: on diagnosis, treatment, rehabilitation and principles of injury prevention in patients with musculoskeletal disorders;
2. Improving the skills of substantiation of clinical diagnosis and treatment of patients with injuries and diseases of the musculoskeletal system;
3. Mastering the ability to determine the tactics of treatment, to provide emergency medical care to victims with fractures and dislocations at the pre-hospital stage.

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

— *general (GC):*

GC1 – Ability to abstract thinking, analysis and synthesis;

GC2 – Ability to learn and master modern knowledge;

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;

GC10 – Ability to use information and communication technologies;

GC11 – Ability to search, process and analyze information from various sources;

GC16 – Ability to evaluate and ensure the quality of work performed.

— *special (SC):*

- SC1 – Ability to collect medical information about the patient and analyze clinical data;
- SC2 – Ability to determine the necessary list of laboratory and instrumental studies and evaluate their results;
- SC3 – Ability to establish a preliminary and clinical diagnosis;
- SC4 – Ability to determine the necessary mode of work and rest in the treatment and prevention of diseases;
- SC6 – Ability to determine the principles and nature of treatment and prevention of diseases;
- SC7 – Ability to diagnose emergency conditions;
- SC8 – Ability to determine tactics and provide emergency medical assistance;
- SC10 – Ability to perform medical manipulations;
- SC16 – Ability to maintain medical records, including electronic forms.

Program's results of studying (PRS).

- PRS1 – 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;
- PRS2 – Understanding and knowledge of basic and clinical biomedical sciences, at a level sufficient for solving professional tasks in the field of health care;
- PRS3 – Specialized conceptual knowledge, which includes scientific achievements in the field of health care and is the basis for conducting research, critical understanding of problems in the field of medicine and related interdisciplinary problems;
- PRS4 – Highlight and identify leading clinical symptoms and syndromes; according to standard methods, using preliminary data of the patient's history, data of the patient's examination, knowledge about the person, his organs and systems, establish a preliminary clinical diagnosis of the disease;
- PRS5 – Collect complaints, history of life and illness, assess 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, taking into account the age of the patient;
- PRS6 – To establish a final clinical diagnosis by making a reasoned decision and analyzing the received subjective and objective data of clinical, additional examination, carrying out differential diagnosis, observing the relevant ethical and legal norms, under the control of the managing physician in the conditions of a health care institution;
- PRS7 – Prescribe and analyze additional (mandatory and optional) examination methods (laboratory, functional and/or instrumental), patients with diseases of organs and body systems for differential diagnosis of diseases;
- PRS8 – Determine the main clinical syndrome or symptom that determines the severity of the victim/victim's condition by making a reasoned decision about the person's condition under any circumstances (in the conditions of a health care institution, according to its limits) including in conditions of emergency and hostilities, in field conditions, in conditions of lack of information and limited time;
- PRS14 – Determine tactics and provide emergency medical care for emergency conditions in a limited time in accordance with existing clinical protocols and standards of treatment;
- PRS15 – To organize the provision of medical aid and medical evacuation measures to the population and military personnel in emergency situations and hostilities, including in field conditions;
- PRS17 – Perform medical manipulations 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 accepting reasoned decision, observing relevant ethical and legal norms;
- PRS18 – Determine the state of functioning and limitations of a person's vital activities and the duration of incapacity with the preparation of relevant documents, in the conditions of a health care institution, based on data about the disease and its course, peculiarities of a person's professional activity, etc. Maintain medical documentation regarding the patient and population contingent based on regulatory documents;
- PRS21 – Search for relevant information in the professional literature and databases of other sources, analyze, evaluate and apply this information.

As a result of studying the discipline the master of higher education must:

Know:

- basic principles of organization of orthopedic and trauma care for the population of Ukraine;
- general elements of care for orthopedic and trauma patients;
- theoretical foundations of modern asepsis and antiseptics;
- classification, clinic, methods of temporary and final stopping of bleeding;
- basics of resuscitation, clinical manifestations of terminal conditions, their diagnosis, stages and measures during resuscitation;
- means and methods of transport immobilization;
- clinic, diagnosis and treatment of certain purulent-inflammatory diseases of soft tissues, tendons, bones and joints;
- methods and features of examination of an orthopedic and traumatological patient;
- the structure of the medical chart of an inpatient.

Be able to:

- diagnose various mechanical damages;
- provide first aid for various mechanical injuries;
- apply a bandage to different parts of the body;
- apply and remove a plaster cast;
- choose means for transport immobilization, to apply a Kramer, Dieterix splint;
- apply measures to prevent the occurrence of bedsores;
- carry out differential diagnosis in case of bleeding, identify signs of hemorrhagic shock;
- ways to temporarily stop bleeding, choose a method for the final stop of bleeding;
- choose an adequate method of anesthesia for carrying out one or another intervention;
- conduct anamnesis collection and objective examination of traumatological patient;
- issue a card for an inpatient with a mechanical injury or orthopedic pathology.

3. Contents of the educational discipline

Section 1.

General questions of traumatology and orthopedics

Theme 1. Features of inspection of traumatologic and orthopedic patients.

Features of collecting the anamnesis and the main methods of inspection of patients with musculoskeletal system pathology. Ways of definition of an axis of extremities and backbone. Main types of deformations of extremities and backbone. Measurement of length and volume of extremities. Methods of determination of amplitude of movements in joints. Types of shortenings and contractures of extremities.

Theme 2. Treatment of ortopedical-traumatologic patients in out-patient conditions.

The principles of the organization of an ambulatory care by the patient with injuries and orthopedic diseases. Organization of work of emergency station. Structurally functional divisions of emergency station and consulting and diagnostic center. Features of prevention of traumatism, treatment of injuries in out-patient conditions. Principles of out-patient treatment of typical orthopedic diseases.

Theme 3. Traumatic dislocations.

Definition of the concepts "dislocation" and "incomplete dislocation". Dislocation morphology. General classification of dislocations. Mechanical genesis of dislocations/shoulder, forearm, hip/, their classification and clinic. Delivery of health care at a pre-hospital stage. Treatment of dislocations in the conditions of a specialized hospital. Complications of dislocations, their prevention and treatment.

Section 2.

Injury of a spine, pelvis, bones and joints of extremities.

Theme 4. Diagnostics and treatment of injuries of bones of the upper extremity.

Frequency and classification of bone fractures of the upper extremity, their clinic and diagnostics. Wounds, classification, treatment methods. Injuries of joints, their classification, general and local clinical manifestations. Treatment methods.

Anatomy-morphological features of the closed and open bone fractures and joints of the upper extremity, the main principles of assistance at a hospital stage. Changes of proximal department and diaphysis of a humeral bone. Mechanical genesis of a trauma, classification, diagnostics and treatment.

Diaphyseal bone fractures of a forearm. Classification, damage mechanism. Features of shift of fragments. Clinic, diagnostics. Indications to conservative and operational methods of treatment.

Fractures of the distal end of bones of a forearm and their types. Damage mechanical genesis. Clinic, diagnostics, treatment.

Damages of a brush and their treatment. Brush bone fractures. Bone fractures of a wrist and metacarpal bones of a brush. Typical mechanisms of a trauma. Clinic, diagnostics, treatment. Injuries of sinews of fingers. Clinic, diagnostics, treatment.

Theme 5. Diagnostics and treatment of injuries of bones of the lower extremity.

Frequency and classification of bone fractures of the lower extremity, their clinic and diagnostics. Injuries of joints, their classification, general and local clinical manifestations. Treatment methods.

Anatomy-morphological features of the closed and open bone fractures and joints of the lower extremity, the main principles of assistance at a pre-hospital stage. Classification of fractures of proximal end of a hip. Damage mechanism. Clinic, diagnostics. Delivery of health care at a hospital stage. Features of reparative regeneration of fractures of proximal part of a hip. Methods of treatment, their indication and feature depending on localization of fractures and their types.

Diaphyseal fractures of a femur. Trauma mechanism, clinic, diagnostics. Features of shift of fragments depending on localization of a fracture. Indications to conservative and operative treatment.

Shin bone fractures. Classification. Damage mechanism, clinic, diagnostics. Conservative and operational methods of treatment of bone fractures of a shin, the indication to them.

Features of treatment of damages of foot. Fractures of collision and calcaneal bones. Mechanism of their damage. Clinic, diagnostics, treatment. Fractures of metatarsal bones and phalanxes of fingers of foot. Clinic, diagnostics, treatment.

Theme 6. Diagnostics and treatment of damages of spine and pelvis.

Classification of damages of spine, their mechanogenesis, pathological morphology. Definition of "stable" and "unstable" damages of spine. Clinical symptoms of complicated and non-complicated damages depending on their localization. First medical care on the pre-hospital stage at various damages of spine and on the hospital stage in peace time. Indications for conservative and surgical methods of treatment of complicated and non-complicated damages of spine.

Classification of damages of pelvis and mechanogenesis of their appearance. Clinical picture of various damages of pelvis. Clinical features of the complicated damages of pelvis and their diagnostics. Principles of medical care for a patient on the pre-hospital stage. Conservative and surgical methods of treatment of patients with various types of pelvis damages..

Section 3.

Degenerative-dystrophic diseases of joints and deformation of bones

Theme 7. Degenerative-dystrophic diseases of spine.

Pathogenesis of osteochondrosis of the spine. Biomechanics and physiology of the intervertebral segment. Stages of osteochondrosis. Clinic, diagnosis of osteochondrosis of the spine of various localization. Indications for conservative and operative methods of treatment.

Etiology, pathogenesis of spondylosis and spondyloarthritis. Clinic, diagnosis. Principles of treatment of spondylosis and spondyloarthritis.

Theme 8. Degenerative-dystrophic diseases of joints.

Etiology and pathogenesis of primary deforming osteoarthritis. Classification and clinic of arthrosis. Diagnosis and principles of treatment of deforming osteoarthritis depending on the stage of the disease. Indications for conservative and operative treatment of arthrosis of hip, knee and ankle joints.

Theme 9. Congenital deformations of thorax and spine.

Congenital muscular torticollis, disease of Klippel-Feil, disease of Grisel. Congenital high standing of scapula, wing-shape scapula. Etiology, clinical signs. The principles of diagnosis and treatment.

Funnel and keel chest. Pathogenesis of the scoliotic disease. Classification of scoliosis. Clinical signs of various stages of scoliosis. The basic principles of early detection of scoliosis. Prevention, conservative and surgical treatment. Defects of posture and their types. Etiology. Principles of treatment.

Theme 10. Congenital deformations of thorax and spine.

Congenital dislocation of the hip. Etiology, pathogenesis. Clinical and radiological diagnosis of congenital hip dislocation in the age of 1 year. Prevention of congenital hip dislocation. Features of its treatment in different age groups.

Congenital clubfoot. Etiology, pathogenesis. Clinical signs, diagnostics. Methods of conservative and surgical treatment of indications. Clinical and anatomical forms of syndactyly and polydactyly. Treatment.

4. Structure of discipline

THEME	Hours					
	In total	Including				
		L	S	P	L	IWS
Section 1. General questions in traumatology and orthopedics						
Theme 1. Features of inspection of trauma and orthopedic patients	4			4		
Theme 2. Methods of diagnostic of injuries of bones and joints	2					2
Theme 3. Treatment of orthopedic and trauma patients in outpatient settings	4			4		
Theme 4. Traumatic illness. Polytrauma	2	2				
Theme 5. Traumatic dislocations	4			4		
Theme 6. Resuscitation of patients with traumas of locomotor system	2					2
Theme 7. Stable-functional osteosynthesis	2					2
Theme 8. Complications at treatment of the locomotor systems injuries	2					2
Theme 9. Prosthetics in traumatology and orthopedics	2					2
Theme 10. Endoprosthesis in traumatology and orthopedics	2					2
Theme 11. Methods of physiotherapy in traumatology and orthopedics	2					2
<i>In total in Section 1</i>	28	2	0	12	0	14
Section 2. Damages of spine, pelvis, bones and joints of the limbs						
Theme 12. Damages of bones and joints of limbs. Modern methods of treatment	2	2				
Theme 13. Methods of transport immobilization at fractures of limbs	2					2
Theme 14. Damages of thorax	2					2
Theme 15. Damages of shoulder girdle	2					2
Theme 16. Diagnostic and treatment at injuries of upper limbs bones	6			6		
Theme 17. Diagnostic and treatment at injuries of lower limbs bones	6			6		
Theme 18. Diagnostic and treatment at injuries of spine and pelvis	6			6		
Theme 19. Rehabilitation of patients with effects of the damages of spine and pelvis	2					2
<i>In total in Section 2</i>	28	2	0	18	0	8
Section 3. Degenerative-dystrophic diseases of joints and deformations of bones						

Theme 20. Bone-articular tuberculosis	2				2
Theme 21. Degenerative-dystrophic diseases and its treatment	2	2			
Theme 22. Degenerative-dystrophic diseases of spine	6			6	
Theme 23. Degenerative-dystrophic diseases of joints	6			6	
Theme 24. Congenital deformities of the spine and thorax	6			6	
Theme 24. Congenital and acquired deformities of limbs. <i>Differential test</i>	6			6	
Curation of patients and writing of medical history	6				6
<i>In total in Section 3</i>	34	2		24	8
<i>Individual tasks</i>	0				
Total hours	90	6		54	30

5. Thematic plan of lectures / seminar classes / practical classes / laboratory classes

5.1. Thematic plan of lectures

№	Theme	Hours
1.	Traumatic illness. Polytrauma	2
2.	Injuries of bones and joints of limbs. Modern principles of treatment	2
3.	Degenerative-dystrophic diseases of the spine and joints	2
Total hours		6

5.2. Thematic plan of seminar classes – not provided.

5.3. Thematic plan of practical classes

№	Theme	Hours
Lesson 1.	Features of inspection at trauma and orthopedic patients	4
Lesson 2.	Treatment of orthopedic and trauma patients in outpatient settings	4
Lesson 3.	Traumatic dislocations	4
Lesson 4.	Diagnostic and treatment at injuries of upper limbs bones	6
Lesson 5.	Diagnostic and treatment at injuries of lower limbs bones	6
Lesson 6.	Diagnostic and treatment at injuries of spine and pelvis	6
Lesson 7.	Degenerative-dystrophic diseases of spine	6
Lesson 8.	Degenerative-dystrophic diseases of joints	6
Lesson 9.	Congenital deformations of thorax, spine and limbs	6
Lesson 10.	Congenital and acquired deformations of limbs. <i>Differential test</i>	6
Total hours		54

5.4. Thematic plan of laboratory classes – not provided.

6. Independent work of a student

№	Theme / Type of work	Total hours
1	<i>Independent study of the theoretical material of content modules:</i>	24
	1. Methods of diagnostic injuries of bones and joints	2
	2. Resuscitation of patients with traumas of locomotor system	2
	3. Stable-functional osteosynthesis	2
	4. Complications at treatment of the locomotor systems injuries	2
	5. Prosthetics in traumatology and orthopedics	2
	6. Endoprosthesis in traumatology and orthopedics	2
	7. Modern methods of physiotherapy in traumatology and orthopedics	2
	8. Methods of transport immobilization at fractures of limbs	2
	9. Damages of thorax	2
	10. Damages of shoulder girdle	2
	11. Rehabilitation of patients with effects of the damages of spine and pelvis	2
	12. Bone-articular tuberculosis	2
2	<i>Curation of patients and writing of medical history</i>	6
	Total hours	30

7. Methods of education

Lectures: explanation, conversation, multimedia presentations.

Practical classes: oral interview, solution of clinical situational tasks, "standardized patient" technique, study of radiographs and disease histories of thematic patients, practice of practical skills of diagnosis and treatment of patients with injuries and diseases of the muscle-skeletal system.

Independent work of students: study of recommended sources of educational literature; working with a bank of test tasks; performance of clinical tasks according to the topics of practical classes with methodical instructions and questions that were formulated by the teacher in the previous class. Mastering the educational material related to the algorithm for providing primary medical aid to the injured, working with radiological examination methods and the medical history of thematic patients.

8. Forms of control and methods of evaluation (and criteria for evaluation of education results)

Current control: oral questioning (control of theoretical knowledge); assessment of practical skills, assessment of solving situational clinical problems; assessment of clinical examinations, interpretation of their results; assessment of the correctness of the diagnosis and choice of treatment; analysis and evaluation of the results of instrumental studies.

Final control: a differentiated test conducted by the head of the department or scientific and pedagogical staff of the department at the last practical lesson of the cyclic system of training of higher education students.

Evaluation of the current educational activity in a practical class:

1. Evaluation of theoretical knowledge according to the subject of the lesson:

- methods: questioning, solving situational clinical tasks;
- maximal grade – 5, minimal grade – 3, unsatisfactory grade – 2.

2. Evaluation of practical skills and manipulations according to the subject of the lesson:

- methods: evaluation of the correctness of practical skills;
- maximal grade – 5, minimal grade – 3, unsatisfactory grade – 2.

3. Evaluation of patient curation:

- methods: evaluation: a) communicative skills of communication with the patient, b) the correctness of the appointment and evaluation of laboratory and instrumental studies, c) compliance with the differential diagnosis algorithm, d) substantiation of the clinical diagnosis, e) making a plan and determining the treatment method;

- maximal grade – 5, minimal grade – 3, unsatisfactory grade – 2.

The grade for one practical lesson 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.

Criteria for current control in the practical lesson

Grade	Criteria of evaluation
«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 a patient and the interpretation of clinical, laboratory and instrumental research data, expresses his opinion on the subject of the lesson, and demonstrates clinical thinking.
«4»	The student has a good knowledge of the material, participates in the discussion and solution of the situational clinical problem, demonstrates practical skills during the examination of the patient and the interpretation of clinical, laboratory and instrumental research data with some errors, which he independently corrects, expresses his opinion on the subject of the lesson, demonstrates clinical thinking.
«3»	The student does not have sufficient knowledge of the material, is unsure of participating in the discussion and solution of the situational clinical problem, and demonstrates practical skills during the examination of the patient and the interpretation of clinical, laboratory and instrumental research data with significant errors.
«2»	The student does not possess the material, takes a passive part in the discussion and solution of the situational clinical problem, and does not demonstrate practical skills during the examination of the patient and the interpretation of clinical, laboratory and instrumental research data.

Only those applicants who have fulfilled the requirements of the curriculum in the discipline, have no academic debt and their average score for current academic activities in the discipline is at least 3.00 are admitted to the final control.

The method of final control of the educational component in the form of a differentiated test involves an interview with the applicant on the theoretical material and a description of the X-ray, CT, MRI. The number of questions corresponds to the number of meaningful modules allocated for the current study of the academic discipline (3 credits / 90 hours, namely 60 questions).

Evaluation of the results of the students' study during the final control

The content of the evaluated activity	Points
Answers to theoretical questions	3
Assessment of differentiated control	1
Evaluation of X-ray radiographs	1

Criteria for evaluating the results of the students' study during the final control

Grade	Criteria of evaluation
«Excellent»	The student knows the content of theoretical questions thoroughly and comprehensively, is fluent in professional terminology. He has logical thinking, on which he builds an answer, freely uses the acquired theoretical knowledge when analyzing practical tasks. Correctly interprets the results of clinical, laboratory and instrumental studies, gives a comprehensive answer to the questions and convincingly substantiates his point of view on the choice of treatment method.
«Good»	He knows the content of theoretical questions deeply and comprehensively, and knows professional terminology. He has logical thinking, on which he builds an answer, uses the acquired theoretical knowledge in the analysis of practical tasks. But when answering some questions, there is not enough depth and argumentation, insignificant mistakes are made, which are eliminated by the student himself when the teacher points them out. Inaccuracy in the interpretation of the results of clinical, laboratory and instrumental studies is assumed, answers all the questions without significant errors, substantiates his point of view on the choice of treatment method, however, the proposal of an alternative option by the teacher causes uncertainty in the answer.
«Satisfactory»	Has a basic amount of theoretical knowledge, but uses professional terminology inaccurately. Has a significant difficulty in constructing an independent logical answer and applying theoretical knowledge in the analysis of practical tasks. The answers contain significant errors in the interpretation of the results of clinical, laboratory and instrumental studies, which cannot be corrected independently when pointed out by the teacher.
«Unsatisfactory»	Did not master the basic amount of theoretical knowledge, revealed a low level of mastery of professional terminology. The answers to the questions are fragmentary, inconsistent and illogical regarding the application of theoretical knowledge in the analysis of practical tasks. There are a significant number of gross errors in the answers. Unable to interpret the obtained results of clinical, laboratory and instrumental studies and choose the correct method of treatment.

9. Distribution of points for mastering the discipline

The 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:

Table of conversion of traditional grade into multi-point

National scale for discipline	Points for discipline
Excellent («5»)	185 – 200
Good («4»)	151 – 184
Satisfactory («3»)	120 – 150
Unsatisfactory («2»)	Less than 120

A multi-point scale (200-point scale) characterizes the actual performance of each student in mastering the educational component. The conversion of the traditional grade (grade point average for a discipline) into a 200-point scale is performed by the University's Information Technology Department.

According to the points obtained on a 200-point scale, the achievements of applicants are evaluated according to the ECTS rating scale. Further ranking according to the ECTS rating scale allows to evaluate the achievements of applicants in the educational component who study in one course of one

specialty, according to the points they received.

The ECTS scale is a relative and comparative rating scale that establishes the applicant's belonging to the group of the best or worst among the reference group of fellow students (faculty, specialty). Grade A on the ECTS scale cannot be equal to grade A, and grade B cannot be equal to grade B, etc. When converting from a multi-point scale, the limits of grades "A", "B", "C", "D", "E" on the ECTS scale do not coincide with the limits of grades "5", "4", "3" on the traditional scale. Applicants who have received grades "FX" and "F" ("2") are not included in the list of ranked applicants. The grade "FX" is assigned to applicants who have scored the minimum number of points for current academic activities, but who have not been credited with the final control. The grade "F" is assigned to applicants who have attended all classes in the discipline, but have not gained an average score (3.00) for current academic activities and are not allowed to take the final control.

Applicants enrolled in the same course (one specialty), based on the number of points gained in the discipline, are ranked on the ECTS scale as follows:

Conversion of the traditional grade for the discipline and the amount of points on the ECTS scale

ECTS Score	Statistics
A	Best 10% of master`s students
B	Next 25% of master`s students
C	Next 30% of master`s students
D	Next 25% of master`s students
E	Last 10% of master`s students

10. Methodical maintenance

- Working program of the discipline
- The syllabus of the discipline
- Methodical recommendations for practical classes
- Methodical recommendations for Independent Work of students
- PowerPoint presentations
- Clinical tasks
- Electronic bank of test tasks by sections of the discipline
- Recommended literature: G.G.Golka, O.A.Burianov, V.G.Klimovitskiy. Traumatology and orthopedics: textbook for students of higher medical educational institutions : transl. from. ukr. lang. – Vinnytsia : Nova Knyha, 2018. – 400 p.

11. Questions for current and final control

Section 1. General questions in traumatology and orthopedics

1. Types of curvature of upper and lower limbs axis.
2. A comparative length measurement of upper and lower limbs.
3. Types of shortening of the limb.
4. Types of restriction of joints movements.
5. Classification of long bone fractures.
6. Types of fragment displacement at long bone fractures.
7. Reliable and relative clinical signs of bone fracture.
8. Types of immobilization and their characteristic.

9. Main principles of transport immobilization.
10. Main rules of plaster immobilization.
11. Types of osteosynthesis at long bone fractures.
12. Types of consolidations violation, their causes and principles of treatment.
13. Absolute and relative indications to amputations.
14. Types of limb prosthesis and their characteristic.
15. Orthopedic devices, their function and indication to use.

Section 2. Damages of spine, pelvis, bones and joints of the limbs

16. Classification of traumatic dislocations.
17. General clinical signs and principles of treatment at dislocation.
18. Dislocation of shoulder. Classification, diagnostics and treatment.
19. Dislocation of forearm. Classification, diagnostics and treatment.
20. Dislocation of hip. Classification, diagnostics and treatment.
21. Fracture of ribs. Classification, diagnostics and treatment.
22. Fracture of clavicle. Classification, diagnostics and treatment.
23. Mechanism and classification of spinal damages.
24. Diagnostic and treatment of uncomplicated fracture of spine.
25. Fracture of humeral bone - diagnostics and treatment.
26. Fracture of elbow process - diagnostics and treatment.
27. Injury of Monteggia and Galeazzi - diagnostics and treatment.
28. Classification and treatment at fractures of radial bone in typical place.
29. Diagnostics and treatment at fractures of metacarpal bones and phalanges of wrist.
30. Mechanism and classification of pelvic fractures.
31. Diagnostics and treatment of pelvic fractures.
32. Fractures of femoral bone - classification, diagnostics and treatment.
33. Fracture of patella. Mechanism, classification and treatment.
34. Mechanism of ligament injuries in knee joint. Diagnostics and treatment.
35. Damages of meniscus in the knee joint. Diagnostics and treatment.
36. Fracture of shin bones - classification, diagnostics and treatment.
37. Damage of Dupuytren - diagnostics and treatment.
38. Damage of Malgen - diagnostics and treatment.
39. Damage of Pott-Desto - diagnostics and treatment.
40. Diagnostics and treatment at injury of ligaments in ankle joint.
41. Damage of the Achilles ligament - diagnostics and treatment.
42. Fracture of the heel bone - diagnostics and treatment.
43. Fracture of metatarsal bones and phalanges of foot toes - diagnostics and treatment.

Section 3. Degenerative-dystrophic diseases of joints and deformations of bones

44. Diagnostic of spine osteochondrosis.
45. Main treatment methods of spine osteochondrosis.
46. Clinical and radiologic stages of deforming arthrosis.
47. Main treatment methods of deforming arthrosis.
48. Funnel chest and keel chest.
49. Clinical signs of congenital muscle torticollis.
50. Definition of "scoliosis", classification and clinical signs of scoliosis.
51. Conservative and surgical treatment of scoliosis.

52. Defects of posture, clinical signs and principles of treatment.
53. Clinical and radiologic diagnostic of congenital hip dislocation.
54. Features of treatment of congenital hip dislocation.
55. Clinical signs of congenital clubfoot and its classification.
56. Treatment methods of congenital clubfoot.
57. Clinical and radiological forms of syndactyly and polydactyly. Treatment.
58. Types of acquired static foot deformations.
59. The deviation of the 1st toe outwards – etiology, clinical signs and treatment.
60. Clinical signs, diagnostics and treatment of flatfoot.

List of practical skills, that every master’s student should master during the study

1. To examine patients with injuries and diseases of the musculoskeletal system.
2. To perform temporary stop of bleeding.
3. To perform anesthesia at the diaphyseal fractures of the bones.
4. To provide transport immobilization with standard tires.
5. To perform medical immobilization with simple plaster bandages.
6. To assess the condition of the limb in a plaster cast.
7. To remove a plaster splint.

13. Recommended teaching-methodological literature

Basic:

1. V.F.Venger, V.V.Serdyuk, Rashed Mochammad. Traumatology and orthopedics: Compilation of methodical developments to the practical studies in traumatology and orthopedics including the materials for self-training of students of medical institutes of higher education. – Odessa: Print, 2004. – 288 p.
2. G.G.Golka, O.A.Burianov, V.G.Klimovitskiy. Traumatology and orthopedics: textbook for students of higher medical educational institutions : transl. from. ukr. lang. – Vinnytsia : Nova Knyha, 2018. – 400 p.

14. Electronic resources

1. <http://www.moz.gov.ua/ua/portal> – official web-site MOF of Ukraine;
2. <http://inmeds.com.ua> – web-site «The one medical space»;
3. <http://www.nbuv.gov.ua> – National library of Ukraine .