

Ministry of Science and Higher Education of the Russian Federation
Federal State Autonomous Institution of Higher Education
“National Research Nuclear University “MEPhI”

INSTITUTE OF ENGINEERING PHYSICS FOR BIOMEDICINE

APPROVED ИТС ИФИБ

Protocol No. 3.1

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ACADEMIC COURSE OUTLINE

ТОПОГРАФИЧЕСКАЯ АНАТОМИЯ И ОПЕРАТИВНАЯ ХИРУРГИЯ / TOPOGRAPHIC
ANATOMY AND OPERATIVE SURGERY

Educational program track (specialty) [1] 31.05.01 General Medicine

Semester	Labour input, credits	Total course academic, hours	Lectures, hrs.	Practical sessions, hrs.	Laboratory sessions, hrs.	In the form of practical studies, hrs.	Independent studies, hrs.	Independent studies monitoring, hrs.	Course progress, Exam/Pass-fail exam/Term
4	3	108	14	0	50		44	0	PFE
5	5	180	18	0	36		72	0	Ex
Total	8	288	32	0	86	0	116	0	

ABSTRACT

Topographic anatomy and operative surgery as an academic discipline provides the opportunity to acquire knowledge, skills, and form practical abilities regarding the topographic structure of the human body, its systems and organs in their development and interposition, projection onto the surface of the body, blood supply, innervation and lymph drainage, regarding the choice of surgical approaches and types of operative interventions, methods and techniques of surgical operations, surgical instruments and apparatus, forms the skills of using general-purpose surgical instruments and performing standard general surgical manipulations.

1. ACADEMIC COURSE GOALS AND OBJECTIVES

The purpose of studying the discipline: the formation of a system of knowledge, skills, and abilities regarding the topographic structure of the human body, its systems and organs in their development and interposition, projection onto the surface of the body, blood supply, innervation and lymph drainage, and regarding the methods of surgical interventions, operative approaches based on knowledge of the layered structure of the human body.

Objectives:

- formation of a system of knowledge about the topographic-anatomical structure of the regions of the human body, individual, constitutional, and gender-age topographic-anatomical features of the human body, syntopy, topographic features of blood supply, innervation, and lymph drainage;
- formation of readiness to recognize and use surgical instrumentation;
- study of the methods and techniques of basic operative interventions, the ability to provide an anatomical and physiological rationale;
- formation of skills in mastering general operative technique and standard surgical procedures based on knowledge of standard operative approaches and regional anatomy;
- formation of abilities to use knowledge of the topographic anatomy of the tissues and organs of the human body in therapeutic and diagnostic activities for choosing rational surgical approaches and types of operative interventions; about the methods and techniques of surgical operations, surgical instruments and apparatus; to use general-purpose surgical instruments; to master surgical techniques, the technique of performing general surgical manipulations and operations

2. PLACE OF THE ACADEMIC COURSE IN THE MAIN HIGHER EDUCATION CURRICULUM

For mastering the discipline, knowledge, abilities, and skills formed by the preceding disciplines are necessary: anatomy; biology, histology, embryology, cytology, normal physiology.

It lays the foundation for studying clinical disciplines where surgical treatment methods are widely used, which ensures integration of teaching with these disciplines and the formation of abilities to apply the acquired knowledge, abilities, and skills for solving professional tasks.

3. DEVELOPED COMPETENCIES AND INTENDED LEARNING OUTCOMES

Universal and/or general professional competencies:

Competency code and title	Code and title of competency-based rubrics
ОПК-5 [1] – Capable of assessing morphofunctional and physiological states, as well as pathological processes in the human body to solve professional tasks.	3-ОПК-5 [1] – Know: - basic medical, pharmaceutical, and morphofunctional terminology, including Latin terms; - structure and functions of the human body, age-related, gender-specific, and individual characteristics of the structure and development of a healthy organism; - physical and chemical nature of processes occurring in a living organism; - patterns of vital activity of the organism, mechanisms of self-regulation and regulation; - features of regulation of the functioning of human body systems in pathological conditions; - patterns of occurrence, development, and outcome of typical pathological processes, the concept of sanogenesis; - etiology and pathogenesis of the most common diseases; - the concept of nosology, principles of disease classification; - principles of microorganism classification, their morphology, physiology, and impact on human health; - structure and functions of the human immune system. У-ОПК-5 [1] – Be able to: - analyze mechanisms of disease development and manifestation; - recognize morphological and functional changes in cells, tissues, organs, and systems of the human body; - use basic physical-chemical and other natural science concepts and methods in solving professional tasks; - determine the cause of death and formulate a pathological diagnosis. В-ОПК-5 [1] – Possess skills in: - conducting microscopy and analyzing microscopic specimens; - correlating morphological and clinical manifestations of diseases; - assessing morphofunctional, physiological states, and pathological processes in humans; - clinical-anatomical analysis of autopsy results.

4. PEDAGOGIC POTENTIAL OF THE COURSE

Pedagogic tracks/objectives	Pedagogic goals (code)
Intellectual education	Establishing conditions for: formation of culture of intellectual work (B11)
Vocational and labor education	Establishing conditions for: formation of a deep understanding of the profession's social role, a positive and active commitment to the values of the chosen specialty, and a responsible attitude towards professional activity and work (B14)

5. ACADEMIC COURSE STRUCTURE AND CONTENT

Academic course sections, their scope, terms of study and assessment:

No.	Academic course section name	Weeks	Lectures/ Practical (seminars)/ Laboratory sessions, hrs.	Compulsory current assessment (form*, week)	Maximum grade per section**	Section assessment (form*, week)	Competency-based rubrics
	<i>4 Semester</i>						
1	Topography and Operative Surgery of the Upper Limb	1-5	4/0/15	T-5 (13)	13	T-5	3-ОПК-5, У-ОПК-5, В-ОПК-5
2	Topography and Operative Surgery of the Lower Limb	6-10	4/0/15	T-10 (12)	12	T-10	3-ОПК-5, У-ОПК-5, В-ОПК-5
3	Topography and Operative Surgery of the Head	11-13	2/0/10	T-13 (13)	13	T-13	3-ОПК-5, У-ОПК-5, В-ОПК-5
4	Topography and Operative Surgery of the Neck	14-15	4/0/10	T-15 (12)	12	T-15	3-ОПК-5, У-ОПК-5, В-ОПК-5
	<i>Totals for 4 Semester</i>		14/0/50		50		
	Assessment events for 4 Semester				50	PFE	3-ОПК-5, У-ОПК-5, В-ОПК-5
	<i>5 Semester</i>						
1	Topographic Anatomy and Operative Surgery of the Abdominal Cavity	1-8	9/0/18	T-6 (25)	25	T-8	3-ОПК-5, У-ОПК-5, В-ОПК-5
2	Topographic Anatomy and Operative Surgery of the Pelvic and Thoracic Regions	9-15	9/0/18	T-14 (25)	25	T-15	3-ОПК-5, У-ОПК-5, В-ОПК-5
	<i>Totals for 5 Semester</i>		18/0/36		50		
	Assessment events for 5 Semester				50	Ex	3-ОПК-5, У-ОПК-5, В-ОПК-5

* – abbreviated name of assessment

** – 100 maximum points per semester including a pass/fail exam and (or) an exam

Abbreviated current assessment forms and section assessment

Abbreviation	Full name
T	Testing
PFE	Pass/fail examination
Ex	Exam

SYLLABUS

Weeks	Topics / Content	Lect., hrs.	Pr./sem., hrs.	Lab., hrs.
	<i>4 Semester</i>	14	0	50
1-5	Topography and Operative Surgery of the Upper Limb	4	0	15
1 - 5	Topography and Operative Surgery of the Upper Limb General issues of clinical anatomy and technology of surgical operations. Methods of topographic-anatomical research. General principles of surgical interventions. Surgical instrumentation, rules of use.	All		
		4	0	15
		Online		
		0	0	0
6-10	Topography and Operative Surgery of the Lower Limb	4	0	15
6 - 10	Topography and Operative Surgery of the Lower Limb Topographic anatomy and operative surgery of the gluteal region and thigh. Approaches to neurovascular bundles. Operations for femoral hernia.	All		
		4	0	15
		Online		
		0	0	0
11-13	Topography and Operative Surgery of the Head	2	0	10
11 - 13	Topography and Operative Surgery of the Head Topographic anatomy and operative surgery of the regions of the head. Trepanation of the skull.	All		
		4	0	10
		Online		
		0	0	0
14-15	Topography and Operative Surgery of the Neck	4	0	10
14 - 16	Topography and Operative Surgery of the Neck Layered structure and topography of the triangles of the neck. Fascia of the neck according to Shevkunenko. Operative approaches to the organs of the neck	All		
		4	0	8
		Online		
		0	0	0
	<i>5 Semester</i>	18	0	36
1-8	Topographic Anatomy and Operative Surgery of the Abdominal Cavity	9	0	18
1 - 4	Topographic Anatomy and Operative Surgery of the Anterior Abdominal Wall, Upper Floor of the Peritoneal Cavity Layered structure of the anterior abdominal wall. Topography of weak spots. Introduction to herniology. Topography of the peritoneal cavity and operative surgery of the organs of the upper floor of the peritoneal cavity.	All		
		9	0	18
		Online		
		0	0	0
5 - 8	Topographic Anatomy and Operative Surgery of the Lower Floor of the Peritoneal Cavity, Retroperitoneal Space Topography and operative surgery of the organs of the lower floor of the peritoneal region. Topography and operative surgery of the lumbar region and retroperitoneal space	All		
		0	0	0
		Online		
		0	0	0
9-15	Topographic Anatomy and Operative Surgery of the Pelvic and Thoracic Regions	9	0	18
9 - 12	Topographic Anatomy and Operative Surgery of the Pelvis. Topographic anatomy of the floors of the pelvis. Operative surgery of the pelvic organs and perineum	All		
		9	0	18
		Online		
		0	0	0
13 - 15	Topographic Anatomy and Operative Surgery of the Thorax. Topographic anatomy of the thoracic cavity. Operative surgery of the mediastinal organs and pleural cavities	All		
		0	0	0
		Online		
		0	0	0

Abbreviated names of online options:

Abbreviation	Full name
EC	E-course
FtM	Full-text material
FtL	Full-text lectures
VM	Video materials
AM	Audio materials
Prs	Presentations
T	Tests
ERM	E-reference materials
IS	Interactive site

LABORATORY (LAB) SESSIONS TOPICS

Weeks	Topics / Content
	<i>4 Semester</i>
1	Intraduction to topography anatomy and operative surgery The general questions of clinical anatomy and technology of surgical operations. The methods of topographo-anatomic investigates. The general principles of surgical interventions. The surgical instrumentation, usage rules
2	Topography and operation surgery of the upper limbs Topographical anatomy and operative surgery of the shoulder and arm. Topographical anatomy and operative surgery of the forearm and hand
3	Topography and operation surgery of the upper limbs Topographical anatomy and operative surgery of the gluteal region and thigh. The approaches to the neurovascular bundles. The operations for femoral hernia. Topography of the knee, leg and foot. The approaches to the neurovascular bundles.
4	Topography and operation surgery of the upper limbs The principles of operations on vessels, nerves and tendons. The principles of operations on bones and joints.
5	Control point № 1 Topography and operation surgery of the upper limbs Test, oral, practical skills
6	Topography and operation surgery of the lower limbs Topographical anatomy and operative surgery of the gluteal region and thigh. The approaches to the neurovascular bundles. The operations for femoral hernia
7	Topography and operation surgery of the lower limbs Topography of the knee, leg and foot. The approaches to the neurovascular bundles
8	Topography and operation surgery of the lower limbs The principles of operations on vessels, nerves and tendons of the lower limbs
9	Topography and operation surgery of the lower limbs The principles of operations on bones and joints, the amputation of the lower extremities.
10	Control point № 2 Topography and operation surgery of the lower limbs Test, oral, practical skills
11	Topography and operation surgery of the head Topographical anatomy and operative surgery of the cerebral part of the head. The contents of the cranial cavity. Trepanation
12	Topography and operation surgery of the head The contents of the cranial cavity. Topographical anatomy and operative surgery of the lateral facial region.

13	Control point № 3 Topography and operation surgery of the head Test, oral, practical skills
14	Topography and operation surgery of the neck Topographical anatomy of the regions and triangles of the neck
15	Topography and operation surgery of the neck Topographical anatomy and operative surgery of the organs of the neck
16	Control point № 4 Topography and operation surgery of the neck Test, oral, practical skills
	<i>5 Semester</i>
1	Topography of the anterolateral wall of the abdomen, inguinal canal. Borders, external landmarks. Division into areas. Layered structure of the anterior abdominal wall, blood supply and innervation. Folds and pits of the posterior surface of the anterior abdominal wall. Topography of weak points of the anterior abdominal wall: white line, navel, inguinal canal. Operative accesses through the anterior lateral wall of the abdomen to the formations of the abdominal cavity, retroperitoneal space, small pelvis.
2	Operations for hernias of the anterior wall of the abdomen Surgical anatomy of oblique, direct, acquired, congenital and sliding inguinal hernias. Herniotomy and plastic surgery of the walls of the inguinal canal. Femoral hernias: hernia repair and plasty of hernial orifices by femoral and inguinal methods. Umbilical hernias: herniotomy, plastic of the umbilical ring. The concept of the laparoscopic technique for operating on abdominal hernias.
3	Topographic anatomy of the upper floor of the abdominal cavity Abdomen. Division into floors. Topography of bags and organs of the upper floor of the abdominal cavity, their ligaments, blood supply, innervation and lymphatic drainage. Topographic anatomy of the organs of the upper floor of the abdominal cavity. Operations on the organs of the upper floor of the peritoneal cavity
4	Topographic anatomy of the organs of the lower floor of the abdominal cavity Their relationship to the peritoneum, blood supply, innervation, lymphatic drainage. Topography of furrows, sinuses and pockets of the lower floor of the abdominal cavity
5	Topographic anatomy of the organs of the lower floor of the abdominal cavity Revision of the peritoneal cavity. Operations on the organs of the lower floor of the peritoneal cavity
6	Topographic anatomy of the lumbar region and retroperitoneal space Borders and layered structure of the lumbar region, weaknesses. Topography of fasciae and cellular spaces, organs, vessels and nerves of the retroperitoneal space. Perinephric blockade. Access to the organs of the retroperitoneal space. Operations on the kidneys and urinary tract.
7	Intestinal suture technique Intestinal suture technique: suturing the wounds of the small and large intestines with the formation of interintestinal anastomoses end-to-end and side-to-side.
8	Control lesson on topographic anatomy and operative surgery of the abdomen Control lesson on topographic anatomy and operative surgery of the abdomen

6. EDUCATIONAL TECHNOLOGIES

Teaching methods include the use of multimedia, interactive approaches, and laboratory equipment for acquiring theoretical knowledge and practical skills.

For independent preparation for practical classes and exams, students are provided with access to full-text textbooks and articles from electronic databases. An atlas of topographic anatomy and sectional images is available in the form of an interactive anatomical table.

Training is also conducted using special anatomical specimens of parts of the human body.

The mastery of operative surgery skills is carried out using sets of surgical instruments and simulators for tying knots, applying and removing sutures, making incisions, etc. Assisting in surgeries is practiced in the training operating room.

7. ASSESSMENT TOOLKIT

The assessment toolkit ensures verification of the intended learning outcomes achievement (competency-based rubrics) using current, midterm and interim assessment of the course.

The link between developed competencies and their assessment is presented in the following table:

Competency	Achievement rubrics	Assessment activity (Syl 1)	Assessment activity (Syl 2)
ОПК-5	3-ОПК-5	PFE, T-5, T-10, T-13, T-15, T-5, T-10, T-13, T-15	Ex, T-8, T-15, T-6, T-14
	У-ОПК-5	PFE, T-5, T-10, T-13, T-15, T-5, T-10, T-13, T-15	Ex, T-8, T-15, T-6, T-14
	В-ОПК-5	PFE, T-5, T-10, T-13, T-15, T-5, T-10, T-13, T-15	Ex, T-8, T-15, T-6, T-14

Educational achievement rubrics scales

The scale of each assessment activity varies from 0 to the maximum established point, inclusive. The final assessment of the course is performed on a 100-point scale and represents the sum of the points earned by the student in the section assessments, framework of current and interim assessment.

Sections and interim assessments are considered passed when the student achieves a minimum score equal to 60% of the maximum. The final grade is assigned only upon passing all sections and the interim assessment.

The final grade is assigned in accordance with the following scale:

Total score	Rating on a 4-point scale	Pass/fail examination	ECTS assessment
90-100	5 – « <i>excellent</i> »	« <i>pass</i> »	A
85-89	4 – « <i>good</i> »		B
75-84			C
70-74			D
65-69			
60-64	3 – « <i>satisfactory</i> »		E
below 60	2 – « <i>fail</i> »	« <i>fail</i> »	F

An “excellent” grade indicates a deep and solid mastery of the program material by a student who presents their answers consistently, clearly, and logically, is able to closely link theory with practice, and uses materials from monographic literature in their answers.

A “good” grade corresponds to a student’s solid knowledge of the material, who presents their answers competently and to the point, without any significant inaccuracies.

A “satisfactory” grade corresponds to the basic level of mastery of the material by the student, in which the main material has been mastered, but its details have not been assimilated, the answers contain inaccuracies, insufficiently correct wording and logical inconsistencies.

A grade “pass” corresponds to at least a basic level of mastery of the program material, in which the student possesses the necessary knowledge, skills, and abilities, and is able to apply theoretical principles to solve typical practical problems.

A grade “fail” is given to a student who lacks a significant understanding of the curriculum material, makes significant errors in their answers, or fails all required assignments. These students are generally unable to continue their studies without additional classes.

8. ACADEMIC COURSE EDUCATIONAL, METHODOLOGICAL AND INFORMATIONAL SUPPORT

CORE READING:

1. ЭИ О-63 Operative surgery and topographic anatomy. Practical surgical skills for students of years II-IV of medical universities and faculties program. Part I. Surgical instruments : учебное пособие, , Москва: ГЭОТАР-Медиа, 2023

2. ЭИ О-63 Operative surgery and topographic anatomy. Practical surgical skills for students of years II-IV of medical universities and faculties program. Part II. Main elements of operational technique : учебное пособие, , Москва: ГЭОТАР-Медиа, 2023

3. ЭИ Н63 Topographic Anatomy and Operative Surgery : учебник, Nikolaev A.V., Москва: ГЭОТАР-Медиа, 2021

4. ЭИ Т58 Topographic Anatomy and Operative Surgery. Workbook. In 2 parts. Part I : рабочая тетрадь, Dydykin S.S., Москва: ГЭОТАР-Медиа, 2022

5. ЭИ Т58 Topographic Anatomy and Operative Surgery. Workbook. In 2 parts. Part II : рабочая тетрадь, Dydykin S.S., Москва: ГЭОТАР-Медиа, 2022

6. ЭИ Н 63 Топографическая анатомия и оперативная хирургия : Министерство образования и науки РФ Рекомендовано ГБОУ ВПО "Первый Московский государственный медицинский университет им. И.М. Сеченова" в качестве учебника для студентов высшего профессионального образования, обучающихся по специальностям "Лечебное дело", "Педиатрия" по дисциплине "Топографическая анатомия, оперативная хирургия", по специальности "Медико-профилактическое дело" по разделу дисциплины "Анатомия человека. Топографическая анатомия", Николаев А.В., Москва: ГЭОТАР-Медиа, 2019

7. ЭИ Д 87 Топографическая анатомия и оперативная хирургия. В 2 ч. Ч. II : рабочая тетрадь, , Москва: ГЭОТАР-Медиа, 2021

8. ЭИ Т 58 Топографическая анатомия и оперативная хирургия. В 2 ч. Ч. II : рабочая тетрадь, , Москва: ГЭОТАР-Медиа, 2021

FURTHER READING:

1. ЭИ К12 Топографическая анатомия и оперативная хирургия в терминах, понятиях, классификациях : учебное пособие, Каган И.И., Чемезов С.В., Москва: ГЭОТАР-Медиа, 2019

2. ЭИ К 12 Топографическая анатомия и оперативная хирургия. В 2 томах. Том 1 : , , Moscow: ГЭОТАР-Медиа, 2013

SOFTWARE:

1. Microsoft Office 2016+ ()

2. Windows Media Player ()

LMS AND ONLINE RESOURCES

1. Terminologia Anatomica (<http://terminologia-anatomica.org/en>)

2. Anatomical Dictionary. (<https://www.memorixanatomy.com/dictionary>)

3. База данных elibrary.ru - научной электронной библиотеки. (<http://elibrary.ru/defaultx.asp/>)

4. Электронная библиотека медицинского вуза. (<http://www.studmedlib.ru/>)

5. www.book.ru ()

6. www.studentlibrary.ru ()

7. www.iprbooks.ru ()

<https://online.mephi.ru/>

<http://library.mephi.ru/>

9. LOGISTICAL SUPPORT

1. Персональный компьютер: Моноблок Lenovo V540-24IWL All-In-One 23,8" i3-8145U 8Gb 256GB_SSD_M.2 Intel (64-403)

2. Интерактивная доска SMART SBM 685 (64-403)

3. Проектор SMART P109 (64-403)

4. «Интерактивный анатомический стол «Пирогов I» с программным обеспечением «3D атлас нормальной и топо (64-403)

5. Демонстрационные модели тела человека (64-403)
6. Демонстрационные модели опорно-двигательного аппарата (64-403)
7. Демонстрационные модели сердечно-сосудистой системы (64-403)
8. Пластинированный анатомический препарат "Мышцы целого тела" (64-402)
9. Пластинированные анатомические препараты - части тела человека (64-402)
10. Демонстрационные модели опорно-двигательного аппарата (64-402)
11. Тренажер интубации с контроллером (64-301)
12. Мебель лабораторная, стулья, шкафы для хранения (64-403)
13. Набор для отработки навыков местной анестезии (64-403)
14. Двухслойная модель кишки для отработки навыков наложения швов (64-403)
15. Тренажеры базовых хирургических навыков наложения швов и завязывания узлов (включают хирургические и (64-403)
16. Набор операционный большой в 4 кипятильниках (64-403)
17. Лаборатория in vivo исследований (64-209)
18. Тренажер для выполнения люмбальной пункции и эпидуральной анестезии (64-302)
19. Тренажеры базовых хирургических навыков с имитацией кожи (64-403)

10. EDUCATIONAL AND METHODOLOGICAL RECOMMENDATIONS FOR STUDENTS

Recommendations for preparing for seminars.

The plan for practical classes, their topics, recommended literature, and the goal and objectives of studying the discipline are communicated by the instructor during the introductory classes or in the syllabus for this discipline. Practical classes help to deepen the understanding of the educational material and acquire skills in creative work with scientific literature.

Before starting to study a topic, it is necessary to familiarize oneself with the main questions of the practical class plan and the list of recommended literature.

When beginning preparation for a practical class, it is necessary, first of all, to refer to the lecture notes, sections of textbooks and study guides to get a general idea of the topic's place and significance within the course being studied. Then, work with additional literature and make notes based on the recommended sources. While studying the recommended material, it is necessary to understand the structure of the topic being studied, identify the main points, trace their logic, and thereby grasp the essence of the problem under study. It is necessary to keep notes on the material being studied in the form of a summary; this, along with visual memory, also engages motor memory

and allows for the accumulation of a personal fund of auxiliary materials for quick review of what has been read and for mobilizing accumulated knowledge.

The main forms of note-taking are: an outline (simple and detailed), excerpts, and theses. During preparation, it is important to compare sources, contemplate the material being studied, build an algorithm of actions, and carefully plan one's oral presentation.

Recommendations for preparing for a test.

Test - 10 - 15 - 20 - 25 points. Each question - 1 (2) points.

TOPICS: are specified in each respective section

Requirement for the answer: a clear, detailed answer (2 points/task) or selecting the correct answer for a test question (1 point/task).

Recommendations for preparing for the pass/fail exam or final exam

Answer requirements and grading criteria:

A grade of "Excellent" (45–50 points on the pass/fail exam or final exam) is awarded for: a correct, complete, and logically structured answer; the ability to use specialized terminology; the ability to illustrate theoretical points with practical material.

A grade of "Good" (35–44 points on the exam) is awarded for: a correct, complete, and logically structured answer with minor errors or inaccuracies; the ability to use specialized terminology, but with conclusions or generalizations that are not entirely complete.

A grade of "Satisfactory" (30–34 points on the exam) is awarded for: a schematic, incomplete answer; an inability to use specialized terminology or a lack of knowledge thereof; the presence of one major error.

A grade of "Unsatisfactory" (< 30 points on the exam) is awarded for: an answer to all questions on the exam card with major errors; an inability to use specialized terminology; an inability to provide examples of the practical application of scientific knowledge.

Admission to the final exam for the discipline is granted with a total score of more than 30 points.

During the semester, a student can accumulate between 30 and 50 points.

The minimum score for the exam answer is 30, the maximum is 50.

11. EDUCATIONAL AND METHODOLOGICAL RECOMMENDATIONS FOR TEACHERS

Grading and criteria for tests, written assignments with detailed answers, homework, and the final test:

1. Tests are graded according to the scheme: 1 point – 1 correct answer. If a student did not attempt the work: (-1) point.

2. Written assignments with a detailed answer are graded according to the scheme: complete answer – 2 points, incomplete answer – 1 point, no answer – 0 points. If a student did not attempt the work: (-2) points.

3. Homework must be completed by all students to be admitted to the final assessment. A late submission results in a deduction from the final score of (-1) point.

4. Grading Criteria for the Pass/Fail Exam or Final Exam

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