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 НТС ИФИБ

Protocol No. 3.1

dated 30.08.2024

ACADEMIC COURSE OUTLINE

ИНТЕРВЕНЦИОННАЯ КАРДИОЛОГИЯ / INTERVENTION CARDIOLOGY

Educational program track (speciality) [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**
7	3	108	20	40	0		48	0	PFE
Total	3	108	20	40	0	40	48	0	

ABSTRACT

As a result of mastering this discipline, the student acquires knowledge, skills and abilities of modern approaches to the diagnosis and treatment of diseases of the cardiovascular system, about the possibilities of interventional cardiology, is able to justify and promptly refer the patient to a specialist in interventional cardiology, determine indications and contraindications for endovascular diagnosis and treatment, especially in situations requiring prompt medical attention. solutions for life-threatening conditions.

This course covers the basic principles of coronary angiography, percutaneous coronary angioplasty and coronary stenting, intravascular ultrasound, secondary endovascular interventions, electro impulse therapy for arrhythmias, treatment of heart valve pathology and congenital heart defects without open surgery, and other modern approaches in cardiology.

1. ACADEMIC COURSE GOALS AND OBJECTIVES

The purpose of studying the discipline is to develop basic knowledge, skills and abilities in diagnostic and therapeutic approaches for diseases of the cardiovascular system using interventional cardiology methods.

Tasks:

- study of modern approaches to the diagnosis and treatment of diseases of the cardiovascular system using minimally invasive endovascular interventions; formation of an idea of the prospects, trends in the development of interventional cardiology;
- study of the basic principles of coronary angiography, percutaneous coronary angioplasty and coronary stenting, intravascular ultrasound, secondary endovascular interventions, electro impulse therapy for arrhythmias, treatment of heart valve pathology and congenital heart defects without open surgery;
- formation of skills and abilities to justify and promptly refer a patient to an interventional cardiology specialist, determine indications and contraindications for endovascular diagnosis and treatment, especially in situations requiring quick medical decisions in life-threatening conditions, assess the risk of complications from these interventions, and be able to interpret the results of using interventional cardiology methods.

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

The discipline refers to the part of the educational program formed by participants in educational relations, is a clinical discipline and participates in the formation of professional competencies, complementing and deepening the knowledge, skills and abilities formed as a result of mastering other clinical disciplines.

The study of the discipline "Interventional Cardiology" is preceded by the study of the following disciplines: Anatomy, Topographic Anatomy and Operative Surgery, Normal Physiology, Pathological Anatomy, Pathological Physiology, Pharmacology, Propaedeutics of internal diseases, General Surgery, Radiation diagnostics

The study of the discipline "Interventional Cardiology" participates in the preparation of students for the successful development of the following disciplines and practices: Hospital therapy, Hospital surgery, Childhood diseases, Therapeutic industrial practice, Surgical industrial practice

The industrial practice of "Polyclinic business" and the Industrial practice of emergency medical procedures.

3. DEVELOPED COMPETENCIES AND INTENDED LEARNING OUTCOMES

Universal and/or general professional competencies:

Competency code and title	**Code and title of competency-based rubrics**

Professional competencies in compliance with the goals and professional knowledge areas:

Professional activity goal	**Professional activity knowledge area**	**Professional competency code and title; Based on the professional standard, experience analysis**	**Code and title of competency-based rubrics**
medical			
Diagnostics of diseases and pathological conditions of the patients.	Individuals (patients); the population; the set of means and technologies aimed at creating conditions for preserving and strengthening the health of the adult population	ПК-3.2 [1] - Capable of conducting patient examinations to establish a diagnosis *The base:* Professional standard: 02.009	З-ПК-3.2[1] - Know: - clinical diagnosis establishment algorithm; - patient history-taking and physical examination methodology; - laboratory and instrumental research methods for health assessment to establish a diagnosis; - semiotics of diseases of different organs and systems; - structure, principles of the current International Statistical Classification of Diseases and Related Health Problems (hereinafter - ICD).; У-ПК-3.2[1] - Be able to: - conduct patient history-taking and physical examination; - interpret history, physical examination data, laboratory and instrumental results to recognize a condition or establish the presence/absence of a disease, establish a diagnosis; - distinguish and recognize in each specific case tissue damage, the

			reaction to it, and the form of adaptability; - develop a patient examination plan, justify the necessity and scope of laboratory and instrumental examination; - identify main pathological conditions, symptoms and syndromes, nosological forms in the patient according to the current ICD.; В-ПК-3.2[1] - Possess skills in: - patient history-taking and physical examination; Formulating a preliminary diagnosis; - developing a patient examination plan; Interpreting laboratory and instrumental results; - establishing a diagnosis considering the current ICD
Providing primary medical care in outpatient settings and day hospital settings.	Individuals (patients); the population; the set of means and technologies aimed at creating conditions for preserving and strengthening the health of the adult population	ПК-3.3 [1] - Able to provide primary medical care in an outpatient setting *The base:* Professional standard: 02.009	З-ПК-3.3[1] - Know: - general issues of organizing medical care for the population and organizing medical care for the adult population in outpatient settings, including at home; - features of medical care using telemedicine technologies; - Clinical picture, differential diagnosis, features of the course of the disease, complications and outcomes of internal diseases; - diagnostic criteria for the most common diseases of internal organs and systems; - indications for referring patients for specialist consultations according to clinical guidelines and considering relevant medical care standards; - indications for referring patients for

			specialized medical care in inpatient settings and day hospitals according to clinical guidelines and considering relevant medical care standards; - features of managing and treating elderly patients in outpatient settings. ; У-ПК-3.3[1] - Be able to: - perform differential diagnosis of internal diseases; - monitor the course of physiological pregnancy; - justify the need for referring patients to specialist consultations; - recognize the main and concomitant diseases; - assess disease or condition severity - the degree of organ and/or system damage or functional impairment due to the disease/condition or its complications; - determine management, examination and treatment tactics for patients with specific diseases (nosological units) depending on disease severity and condition, according to clinical guidelines and considering relevant medical care standards.; В-ПК-3.3[1] - Possess skills in: - conducting differential diagnosis with other diseases/conditions, including emergencies; - interpreting data obtained from patient consultations with specialists; - prescribing additional tests to clarify the diagnosis; - formulating a clinical diagnosis; - prescribing treatment according to clinical guidelines and considering relevant medical care standards.

4. PEDAGOGIC POTENTIAL OF THE COURSE

Pedagogic tracks/objectives	Pedagogic goals (code)
Professional education	Establishing conditions for: formation of responsibility for professional choice, professional development and professional decisions (B18)
Professional education	Establishing conditions for: formation of motivation to improve the quality of medical care to the population and the desire to follow the rules and norms of interaction between the doctor, colleagues and the patient, contributing to the creation of the most favorable environment for the patient's recovery (B34)

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
	7 Semester						
1	General issues of interventional cardiology	1-8	10/20/0	T-8 (25)	25	T-8	З-ПК-3.2, У-ПК-3.2, В-ПК-3.2, З-ПК-3.3, У-ПК-3.3, В-ПК-3.3
2	Private Interventional Cardiology	9-16	10/20/0	T-15 (25)	25	T-15	З-ПК-3.2, У-ПК-3.2, В-ПК-3.2, З-ПК-3.3, У-ПК-3.3, В-ПК-3.3
	Totals for 7 Semester		20/40/0		50		
	Assessment events for 7 Semester				50	PFE	В-ПК-3.2, З-ПК-3.2, У-ПК-3.2, З-ПК-3.3, У-ПК-3.3, В-ПК-3.3

* – 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

SYLLABUS

Weeks	Topics / Content	Lect., hrs.	Pr./sem., hrs.	Lab., hrs.
	7 Semester	20	40	0
1-8	**General issues of interventional cardiology**	10	20	0
1 - 4	**Basic principles of coronary angiography** Coronary angiography indications, contraindications, complications; methods and techniques of coronary artery angiography; features of performing coronary angiography with radiation access; outpatient coronary angiography; abnormal anatomy of the coronary arteries	All		
		5	10	0
		Online		
		0	0	0
5 - 8	**Basic principles of coronary angioplasty and stenting** coronary angioplasty and stenting: indications, contraindications, complications; methods of coronary angioplasty and stenting; types of coronary artery lesions requiring revascularization	All		
		5	10	0
		Online		
		0	0	0
9-16	**Private Interventional Cardiology**	10	20	0
9 - 11	**Intravascular imaging and verification of myocardial ischemia** IVUS, OCT, iFR, FFR: indications, contraindications, complications; methods of performing IVUS, OCT, iFR, FFR	All		
		5	10	0
		Online		
		0	0	0
12 - 16	**Specific issues of myocardial revascularization** Angioplasty and stenting in acute coronary syndrome; stenting of the unprotected main trunk of the left coronary artery; bifurcation stenting of the coronary arteries; stenting of chronic coronary artery occlusions; endovascular interventions for diffuse and calcified lesions of the coronary arteries	All		
		5	10	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

PRACTICAL SESSIONS TOPICS

Weeks	Topics / Content
	7 Semester

1 - 4	**Basic principles of coronary angiography** 1. Coronary angiography: indications, contraindications, complications 2. Methods and techniques of coronary artery angiography 3. Features of performing coronary angiography by radiation access; outpatient coronary angiography 4. Abnormal anatomy of the coronary arteries
5 - 8	**Basic principles of coronary angioplasty and stenting** 5. Coronary angioplasty and stenting: indications, contraindications 6. The technique of coronary angioplasty and stenting 7. Complications of coronary angioplasty and stenting 8. Types of coronary artery lesions requiring revascularization
9 - 12	**Intravascular imaging and verification of myocardial ischemia** 9. IVUS: indications, contraindications, complications; method of implementation 10. OCT: indications, contraindications, complications; method of implementation 11. iFR: indications, contraindications, complications; method of implementation 12. FFR: indications, contraindications, complications; method of implementation
13 - 16	**Specific issues of myocardial revascularization** 13. Angioplasty and stenting in acute coronary syndrome 14. Stenting of the unprotected main trunk of the left coronary artery 15. Bifurcation stenting of coronary arteries 16. Stenting of chronic coronary artery occlusions; endovascular interventions for diffuse and calcified coronary artery lesions

6. EDUCATIONAL TECHNOLOGIES

In the process of teaching the discipline, methods based on modern achievements of science and information technology in education are used. They are aimed at improving the quality of specialist training by developing students' creative abilities and independence. For this purpose, both traditional teaching methods (lectures, clinical practical exercises) and interactive forms of seminars and clinical discussions are used.:

- training forms of practical training (clinical situational task, case study, role-playing game in the form of clinical analysis or patient supervision);
- interactive clinical debriefing with patient demonstrations;
- involvement of students in scientific preclinical and clinical research, preparation of presentation materials, reports, essays or abstracts.

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)**
ПК-3.2	З-ПК-3.2	PFE, T-8, T-15, T-8, T-15
	У-ПК-3.2	PFE, T-8, T-15, T-8, T-15
	В-ПК-3.2	PFE, T-8, T-15, T-8, T-15
ПК-3.3	З-ПК-3.3	PFE, T-8, T-15, T-8, T-15
	У-ПК-3.3	PFE, T-8, T-15, T-8, T-15

	В-ПК-3.3	PFE, T-8, T-15, T-8, T-15

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:

<table>
<tr><th>Total score</th><th>Rating on a 4-point scale</th><th>Pass/fail examination</th><th>ECTS assessment</th></tr>
<tr><td>90-100</td><td>5 – «excellent»</td><td rowspan="7">«pass»</td><td>A</td></tr>
<tr><td>85-89</td><td rowspan="2">4 – «good»</td><td>B</td></tr>
<tr><td>75-84</td><td>C</td></tr>
<tr><td>70-74</td><td rowspan="2">D</td></tr>
<tr><td>65-69</td><td rowspan="2">3 – «satisfactory»</td></tr>
<tr><td>60-64</td><td>E</td></tr>
<tr><td>below 60</td><td>2 – «fail»</td><td>«fail»</td><td>F</td></tr>
</table>

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 H99 Internal Diseases. Volume I : , Martynov A.I. [и др.], Москва: ГЭОТАР-Медиа, 2022

2. ЭИ В 60 Внутренние болезни. В 2 томах. Том 1. : , , Москва: ГЭОТАР-Медиа, 2023

3. ЭИ С 13 Интервенционная кардиология. Коронарная ангиография и стентирование : практическое руководство, Савченко А.П. [и др.], Москва: ГЭОТАР-Медиа, 2010

4. ЭИ Ч-49 Коронарная ангиография и стентирование. Руководство : , Чернявский А.М. , Москва: ГЭОТАР-Медиа, 2022

FURTHER READING:

1. ЭИ O-97 Intraoperative and interventional echocardiography : : atlas of transesophageal imaging /, Oxorn, Donald C. , Oxorn, Donald C., , Philadelphia, PA :: Elsevier,, 2018

2. ЭИ K68 Introduction to Computational Cardiology : Mathematical Modeling and Computer Simulation, Kogan, Boris Ja. , Boston, MA: Springer US,, 2010

SOFTWARE:

No special softwares is required

LMS AND ONLINE RESOURCES

1. Сайт Российского общества ангиохирургов (https://www.angiolsurgery.org/specialist/)

https://online.mephi.ru/

http://library.mephi.ru/

9. LOGISTICAL SUPPORT

1. Персональный компьютер: Процессор CPU Intel Core i7-8700 (3.2GHz/12MB/6 cores) Материнская плата Gig (Клиническая база)

2. Мышь, клавиатура (Клиническая база)

3. Проектор SMART P109 (Клиническая база)

4. Видеокамера Microsoft LifeCam Cinema HD (Клиническая база)

5. Монитор (Клиническая база)

6. Иное оснащение, предусмотренное порядками оказания медицинской помощи по соответствующему профилю (Клиническая база)

10. EDUCATIONAL AND METHODOLOGICAL RECOMMENDATIONS FOR STUDENTS

Lecture:

Writing lecture notes: briefly, schematically, consistently record the main points, conclusions, formulations, generalizations; mark important thoughts, highlight keywords, terms. Checking terms and concepts with the help of encyclopedias, dictionaries, reference books with writing out interpretations in a notebook. Identify the questions, terms, and material that causes difficulties, mark them, and try to find an answer in the recommended literature. If you can't figure out the material on your own, you need to formulate a question and ask the teacher for a consultation or a practical lesson.

Independent work:

Each student should individually prepare for the topics of the discipline by reading lecture notes and recommended literature. Independent work allows the student to think in a calm environment, sort out information on the topic, and, if necessary, refer to the reference literature. Careful reading and repetition of what has been read helps to fully assimilate the content of the topic and structure knowledge.

In order for meaningful information on the discipline to be remembered for a long time, it is advisable to study it in stages - by topic and in strict sequence, since subsequent topics, as a rule, rely on previous ones. That is why most of the independent work involves preparing for seminars, completing recommended tasks, preparing for colloquiums, completing and defending individual homework, as well as preparing for laboratory work. To successfully complete these tasks, each student has the opportunity to use the methodological support developed at the department.

It is best for students to plan the time for independent work required to study this discipline for the entire semester, while providing for regular repetition of the material they have studied. The material reviewed in the lectures should be regularly supplemented with information from literary sources presented in the discipline's work program. For each of the self-study topics listed in the discipline's work program, you should first read the recommended literature and, if necessary, make a brief summary of the main provisions, terms, and information that require memorization and are fundamental in this topic and for mastering subsequent sections of the course. It is recommended to use online resources to expand knowledge of the discipline.

When working independently, it is recommended to take notes on the studied (studied) material. The summary can be basic, contain only the main key points, but at the same time it is sufficient for a complete answer to the question. The summary can be detailed. The volume of the summary is determined by the student himself.

In the process of working with educational / scientific literature, the student is recommended to take notes on the course of reading in the form of a simple or detailed plan, to compose abstracts, to prepare annotations of what he has read. The presence of such notes can give additional points for activity.

When preparing for a practical lesson, it is necessary, first of all, to refer to the lecture notes, sections of textbooks and manuals in order to get a general idea of the place and meaning of the topic in the course being studied.

Then work with additional literature and make notes on recommended sources. In the process of studying the recommended material, it is necessary to understand the structure of the topic under study, identify the main points, trace their logic and thereby delve into the essence of the problem under study. It is necessary to keep records of the studied material in the form of a synopsis, which, along with visual, includes motor memory and allows you to accumulate an individual fund of auxiliary materials for rapid repetition of what you read, for the mobilization of accumulated knowledge.

Clinical practical exercises

The most important stage of practical training is the independent work of students to master practical skills: in simulated conditions, at the bedside of a patient, a functional diagnostic room, etc. Depending on the specific topic of the lesson, the student independently (or under the supervision of a teacher) questions the patient, conducts a clinical trial, is present during instrumental diagnostics and examines the results of additional studies, summarizes the data, presents the medical history in fragments and reports the results to the teacher. Achievements are assessed individually for each student, the degree of formation of practical skills and their theoretical foundations.

Clinical reviews of thematic patients are conducted for the whole group or through the participation of students in clinical reviews and periodic scientific and practical conferences in medical organizations where practical training takes place. During the analysis, the teacher evaluates the active participation of each student, the ability to think clinically.

Solving situational tasks proposed by the teacher, which develop clinical thinking and force the student to use the knowledge gained in various specialty subjects.

Active and interactive forms of teaching are widely used in the educational process (working in small groups, enhancing creative activity, using computer training programs, and a conference session).

The teacher oversees the independent work of students, the preparation of research papers, research, working with the patient together with the teacher, interpreting the data of additional research methods, filling out medical documentation.

Control work:

Familiarization with the main and additional literature, including reference publications, foreign sources, a summary of the main provisions, terms, information required for memorization and which are fundamental in this topic. Making annotations to read literary sources, etc.

The test score is 10-15 (20-25) points. Each question is awarded 1 (2) points.

TOPICS: specify the topics of a specific section

The requirement for the answer is a clear detailed answer (2 points / task) or the choice of the correct answer to the test task (1 point / task).

Report:

The search for literature and the compilation of a bibliography, the use of 3 to 5 scientific papers, the presentation of the opinion of the authors and their judgment on the selected issue; the presentation of the main aspects of the problem.

Exam preparation/assessment:

When preparing for the exam (assessment), it is necessary to focus on lecture notes, recommended literature, etc.

Response requirement and evaluation criteria:

The "excellent" score of 45-50 points on the test / exam is given with: correct, complete and logically constructed answer; ability to use special terms; ability to illustrate theoretical positions with practical material.

The "good" score of 35-44 points on the exam is given with: a correct, complete and logically constructed answer with minor errors or inaccuracies; the ability to operate with special terms, but incomplete conclusions or generalizations are made.

A "satisfactory" score of 30-34 points on the exam is given with: a sketchy incomplete answer; inability to use special terms or ignorance of them; with one gross mistake;

The grade "unsatisfactory" < 30 points on the exam is given when: answering all the questions of the ticket with gross errors; inability to use special terminology; inability to give examples of the practical use of scientific knowledge.

Admission to the exam in the discipline is carried out with a score of more than 30 points.

A student can score from 30 to 50 points per semester.

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

11. EDUCATIONAL AND METHODOLOGICAL RECOMMENDATIONS FOR TEACHERS

In practical classes, students are monitored for learning lecture materials, patients are supervised, and practical skills are monitored.

Visual aids, surgical instruments, simulators, device simulators, or demonstrations of interventional cardiology manipulations in real conditions are used to demonstrate and train practical skills. To assess the ability to think clinically, students are offered situational tasks, clinical stories, test tasks, analysis of clinical patients, visits to medical conferences, consultations, scientific symposiums.

Active and interactive forms of teaching are widely used in the educational process (working in small groups, enhancing creative activity, using computer training programs, and a conference session).

The teacher oversees the independent work of students, the preparation of research papers, research, working with the patient together with the teacher, interpreting the data of additional research methods, filling out medical documentation.

Work with educational literature is considered as a type of educational work and is performed within the hours allotted for its study. Each student is provided with access to the electronic library collections of the Institute and the department.

Students' education helps them develop communication skills with patients, taking into account ethics and deontology.

Independent work contributes to the formation of skills in working with patients, working with literature, analytical thinking, skills in filling out documentation, accuracy, and discipline.

The initial level of students' knowledge is determined by testing, the current control of the subject's assimilation is determined by an oral survey during classes, during clinical reviews, when solving typical situational tasks and answering test tasks.

At the end of the study of the academic discipline, intermediate and final knowledge control is carried out using test control, checking practical skills and solving situational problems.

Grading and criteria for tests, open-ended answer assessments, 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. Open-ended answer assessments 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. For work submitted late, a deduction of (-1) point from the final grade is applied.

4. Criteria for evaluating a presentation report. Conversion from a 100-point scale to a 10-point (5-point) scale is applied.

5. Criteria for evaluating an essay. Maximum score is 10 points. Conversion to a 5-point scale is possible.

10 points are awarded if all requirements for writing the essay are met: the problem is identified and its relevance is justified; a brief analysis of the problem is provided and a personal position is logically presented; conclusions are formulated; the source material is fully analyzed; the required length is maintained; formatting requirements are met.

9 points are awarded if the following requirements for the essay are met: the problem is identified and its relevance is justified; a brief analysis of the problem is provided and a personal position is logically presented; conclusions are formulated; the source material is fully analyzed. However, the required length is not maintained and/or formatting requirements are not met.

8 points – the main requirements for the essay are met, but minor shortcomings are present. Specifically, there are inaccuracies in the presentation of the material; a logical sequence in reasoning is absent; the required essay length is not maintained; there are omissions in formatting.

7 points – the main requirements for the essay are met, but the following shortcomings are present: there are inaccuracies in the presentation of the material; a logical sequence in reasoning is absent; conclusions are not formulated; the required essay length is not maintained; there are omissions in formatting.

6 points – there are significant deviations from the essay requirements; the topic is only partially covered; factual errors in the content are present; conclusions and a personal viewpoint on the problem are absent.

5 points – there are significant deviations from the essay requirements: the topic is only partially covered; factual errors in the presentation of materials and methods are present; conclusions and a personal viewpoint on the problem are absent; the required format is not maintained.

4 points – there are significant deviations from the essay requirements: the relevance of the topic is not revealed; factual errors in the presentation of materials and methods are present; conclusions and a personal viewpoint on the problem are absent; the required format is not maintained.

3 points – analysis of the topic's relevance, applied approaches, and methods is absent, while the formal length requirement for the essay is met.

2 points – the essay topic is not addressed, a substantial misunderstanding of the problem is evident. However, the formal length and formatting requirements are fulfilled.

1 point – the essay topic is not addressed, a substantial misunderstanding of the problem is evident.

0 points – the essay was not submitted by the student.

Author(s):

Sokolov Aleksejj Ilyasovich / Соколов Алексей Ильясович /