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

ОНКОЛОГИЯ / ONCOLOGY

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
11	5	180	20	40	0		84	0	Ex
Total	5	180	20	40	0	40	84	0	

ABSTRACT

The program is designed based on the requirements for completing the specialist program. Graduates (general practitioners) should be prepared to address the challenges of diagnosing, treating, and preventing diseases. In the process of mastering the discipline, students acquire knowledge, skills and abilities in the diagnosis of oncological diseases, in the management of patients with oncological profile, in the possibilities of preventing malignant neoplasms and early diagnosis, acquire skills in interpreting the results of various research methods, and the specifics of organizing oncological care for the population.

1. ACADEMIC COURSE GOALS AND OBJECTIVES

The purpose of studying this course is to develop competencies in the field of diagnostics, principles of treatment and prevention of oncological diseases, as well as to develop readiness to implement professional tasks from the position of oncological alertness.

Tasks:

- to form a system of theoretical and applied knowledge about the etiology, epidemiology, pathogenesis, clinical manifestations of oncological diseases, and the concept of precancerous diseases;
- to develop readiness to identify the main pathological conditions, symptoms and syndromes, nosological forms of oncological diseases, formulate a preliminary diagnosis and refer to a specialist;
- to develop the skills and abilities to draw up an examination plan and determine treatment tactics for patients with suspected cancer, interpret the results of additional studies in accordance with clinical guidelines in order to establish a diagnosis;
- to develop readiness to implement the tasks of professional activity from the position of oncological alertness;
- development of skills and abilities in providing medical care in the event of emergency conditions in cancer patients, determining indications for hospitalization of patients;
- familiarization with the specifics of organizing oncological care for the population and modern principles of treating cancer patients and methods of monitoring the effectiveness and safety of the treatment;
- to develop skills and abilities in carrying out preventive measures aimed at early diagnosis and prevention of the development of oncological diseases, complications, and relapses;
- development of communication skills with patients taking into account ethics and deontology, and skills of interaction with colleagues;
- to develop clinical thinking, the ability to work with scientific literature and apply regulatory documents in the oncology field in professional activities, and the ability to maintain medical records.

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

The study of the discipline is preceded by the study of the following disciplines:

Pathological anatomy and physiology, internal medicine (faculty and hospital courses), surgical diseases (faculty and hospital courses), radiation diagnostics, and other clinical disciplines and practices.

To obtain a comprehensive understanding of the diagnosis and treatment of oncological diseases, the pathogenesis of symptoms, the general methodology of diagnosis, and the development of clinical thinking, it is advisable to study oncology, radiodiagnostics, and radiotherapy in parallel. The knowledge, skills, abilities and practical experience acquired in mastering this discipline are necessary for successful professional activity.

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-4 [1] – Capable of using medical devices stipulated by the medical care procedures, as well as conducting patient examination for diagnosis establishment.	З-ОПК-4 [1] – Know: - modern diagnostic instrumental examination methods for patients, including functional, radiological, ultrasound, radionuclide diagnostics, and endoscopy; - diagnostic capabilities of instrumental examination methods; - medical devices stipulated by the procedure for providing medical care to the adult population in the "Therapy" specialty, and the equipment standard for a therapeutic room; - main medical devices stipulated by the procedures for providing medical care to the adult population in major surgical specialties, obstetrics, and gynecology; - indications for referring patients for instrumental examinations and functional diagnostics; - techniques for physical examination of patients using medical devices stipulated by procedures and considering medical care standards У-ОПК-4 [1] – Be able to: - use medical devices stipulated by the medical care procedure; - determine the required volume and content of instrumental and functional diagnostics to establish a diagnosis; - interpret results of the most common functional and instrumental diagnostic methods В-ОПК-4 [1] – Possess skills in: - using basic medical devices (stethoscope, blood pressure monitor, sphygmomanometer, pulse oximeter, height-weight scale, measuring tape, neurological hammer, scalpel, forceps, and other devices); - operating electrocardiographs and devices for measuring external respiratory function; - interpreting results of the most common functional and instrumental diagnostic methods
ОПК-6 [1] – Capable of organizing general nursing, providing primary medical care, ensuring the organization of work and making professional decisions in emergencies at the pre-hospital stage, in emergency situations, epidemics and in areas of mass destruction	З-ОПК-6 [1] – Know: - a set of measures for general nursing with diseases of various organs and systems; Signs of clinical and biological death; - indications for patient hospitalization for the most common diseases with typical progression. У-ОПК-6 [1] – Be able to: - organize care for patient when providing medical care in an outpatient setting; - determine the need for patient hospitalization; - ensure the organization of work in emergency situations, epidemics, and in mass casualty zones. В-ОПК-6 [1] – Possess skills in: - general care of a patient (general nursing); - providing first aid; - making medical decisions in emergencies at the prehospital stage, including in emergency situations, epidemics, and in mass casualty zones.

ОПК-7 [1] – Capable of prescribing treatment and monitoring its effectiveness and safety.	З-ОПК-7 [1] – Know: - pharmacological groups of medicinal drugs and their intended purposes; - mechanisms of action of pharmacological and non-pharmacological treatments, indications and contraindications for their use, side effects, and complications caused by their application; - methods for monitoring the effectiveness and safety of various treatment approaches. У-ОПК-7 [1] – Be able to: - make rational choices for pharmacological and non-pharmacological treatments based on clinical guidelines and in accordance with medical care standards; - develop a treatment plan for a disease or condition considering the diagnosis, age, disease course characteristics, and comorbidities, based on clinical guidelines and medical care standards; - prescribe medications, medical devices, and therapeutic nutrition considering the diagnosis, age, disease course characteristics, and comorbidities, based on clinical guidelines and medical care standards; - justify prescribed pharmacological and non-pharmacological treatments; - evaluate the effectiveness and safety of medications, medical devices, therapeutic nutrition, and other treatment methods. В-ОПК-7 [1] – Possess skills in: - administering medications through various routes of administration; - developing treatment plans for diseases or conditions considering diagnosis, age, disease course characteristics, and comorbidities; - assessing the effectiveness and safety of prescribed treatments.

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
	11 Semester						
1	The First Section	1-8	10/20/0	Т-7 (25)	25	Т-8	З-ОПК-4, У-ОПК-4, В-ОПК-4, З-ОПК-6, У-ОПК-6, В-ОПК-6,

							З-ОПК-7, У-ОПК-7, В-ОПК-7, 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	The Second Section	9-15	10/20/0	Т-14 (25)	25	Т-15	З-ОПК-4, У-ОПК-4, В-ОПК-4, З-ОПК-6, У-ОПК-6, В-ОПК-6, З-ОПК-7, У-ОПК-7, В-ОПК-7, 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 11 Semester		20/40/0		50		
	Assessment events for 11 Semester				50	Ex	З-ОПК-4, У-ОПК-4, В-ОПК-4, З-ОПК-6, У-ОПК-6, В-ОПК-6, З-ОПК-7, У-ОПК-7, В-ОПК-7, З-ПК-3.2, У-ПК-3.2, В-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
Ex	Exam

SYLLABUS

Weeks	Topics / Content	Lect., hrs.	Pr./sem., hrs.	Lab., hrs.
	11 Semester	20	40	0
1-8	**The First Section**	10	20	0
1 - 4	**Organization of oncology services in Russia. Basic diagnostic methods.** Malignant neoplasm incidence statistics. The role and importance of the general practitioner in the timely diagnosis of oncopathology. Ethics in oncology.	All		
		5	10	0
		Online		
		0	0	0
5 - 8	**General oncology** Tumor etiology, theories of carcinogenesis, pathogenesis, TNM classification, tumor growth, obligate and facultative precancer, diagnostic methods, classification of tumor treatment methods. Tumor chemotherapy	All		
		5	10	0
		Online		
		0	0	0
9-15	**The Second Section**	10	20	0
9 - 15	**Private oncology** Private oncology Skin cancer, melanoma. Etiopathogenesis, classification, risk factors, growth patterns, diagnostics, modern treatment methods. Breast cancer. High-risk groups. Precancerous conditions. TNM classification of breast cancer. Principles of combined and comprehensive treatment of breast cancer. The role of radiation and chemotherapy in the treatment of breast tumors. Thyroid cancer. High-risk groups. Precancerous thyroid tumors and their treatment. Clinical presentation, diagnosis, and treatment of thyroid cancer. TNM classification. Prognosis. Lymphomas. Etiology, classification, clinical features, diagnostic methods, and treatment principles. Lung cancer. Etiology, pathogenesis, and TNM classification. Clinical features, diagnostic methods, and treatment principles. Esophageal cancer. Etiology, pathogenesis, and TNM classification. Clinical features, diagnostic methods, and treatment principles. Gastric cancer. Etiology, pathogenesis. Clinical features, diagnosis, and treatment. High-risk groups. TNM classification of gastric cancer. Principles of combined and comprehensive treatment of gastric cancer. Colon cancer. Etiology, pathogenesis. Clinical features, diagnosis, and treatment. High-risk groups. TNM classification of colon cancer. Principles of combined and comprehensive treatment of colon cancer.	All		
		10	20	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**
	11 Semester
1 - 4	**Organization of oncology services in Russia. Basic diagnostic methods.** 1. Malignant neoplasm incidence statistics. The role and importance of the general practitioner in the timely diagnosis of oncopathology. Ethics in oncology.
5 - 8	**General oncology.** 2. Tumor etiology, theories of carcinogenesis, pathogenesis, TNM classification, tumor growth, obligatory and optional precancer, classification of diagnostic methods, classification of tumor treatment methods, combination treatment, comprehensive treatment, symptomatic treatment, radical treatment, palliative treatment. Chemotherapy of tumors: indications, contraindications, complications, basic principles.
9 - 15	**Private oncology** 3. Skin cancer, melanoma. Etiopathogenesis, classification, risk factors, growth patterns, clinical presentation, diagnosis, and current treatment methods. 4Breast cancer. High-risk groups. Etiological factors and pathogenesis. Precancerous conditions. TNM classification of breast cancer. Diagnosis. Principles of combined and comprehensive treatment of breast cancer. The role of radiation and chemotherapy in the treatment of breast tumors. 5. Thyroid cancer. High-risk groups. Precancerous thyroid tumors and their treatment. Etiology and pathogenesis. Clinical presentation, diagnosis, and treatment of thyroid cancer. TNM classification. Prognosis. 6. Lymphomas. Etiology, classification, clinical features, diagnostic methods, and treatment principles. 7. Lung cancer. Etiology, pathogenesis, TNM classification. Clinical presentation, diagnostic methods, treatment principles. Complications. Prognosis. 8. Esophageal cancer. Etiology, pathogenesis, TNM classification. Clinical presentation, diagnostic methods, and treatment principles. 9. Gastric cancer. Etiology, pathogenesis. Clinical features, diagnosis, and treatment. High-risk groups. TNM classification of gastric cancer. Principles of combined and comprehensive treatment of gastric cancer. 10. Colon cancer. Etiology, pathogenesis. Clinical features, diagnosis, and treatment. High-risk groups. TNM classification of colon cancer. Principles of combined and comprehensive treatment of colon cancer.

6. EDUCATIONAL TECHNOLOGIES

The use of information technologies in the implementation of the educational process in the discipline is carried out in accordance with the approved Regulation on the electronic information and educational environment of NRNU MEPhI.

The electronic learning management system (LMS) is used to implement educational programs in face-to-face, distance and blended learning modes.

The system implements the following main functions:

- Creating and managing classes,
- Creation of courses,

- Organizing the registration of students for the course,
- Providing access to educational materials for students,
- Публикация заданий для учеников,
- Assessing student assignments, administering tests, and monitoring learning progress,
- Organization of interaction between participants in the educational process.

The system integrates with additional services, enabling the use of functions such as a work calendar, video communication, multi-user document editing, survey form creation, and an interactive whiteboard.

List of information technologies

– Homework checking and consultation via an electronic educational environment.

– Using electronic presentations during practical classes.

– A set of educational videos

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)**
ОПК-4	З-ОПК-4	Ex, T-8, T-15, T-7, T-14
	У-ОПК-4	Ex, T-8, T-15, T-7, T-14
	В-ОПК-4	Ex, T-8, T-15, T-7, T-14
ОПК-6	З-ОПК-6	Ex, T-8, T-15, T-7, T-14
	У-ОПК-6	Ex, T-8, T-15, T-7, T-14
	В-ОПК-6	Ex, T-8, T-15, T-7, T-14
ОПК-7	З-ОПК-7	Ex, T-8, T-15, T-7, T-14
	У-ОПК-7	Ex, T-8, T-15, T-7, T-14
	В-ОПК-7	Ex, T-8, T-15, T-7, T-14
ПК-3.2	З-ПК-3.2	Ex, T-8, T-15, T-7, T-14
	У-ПК-3.2	Ex, T-8, T-15, T-7, T-14
	В-ПК-3.2	Ex, T-8, T-15, T-7, T-14
ПК-3.3	З-ПК-3.3	Ex, T-8, T-15, T-7, T-14
	У-ПК-3.3	Ex, T-8, T-15, T-7, T-14
	В-ПК-3.3	Ex, T-8, T-15, T-7, 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:

<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="3">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 S83 Basics of Oncology : , Aigner, Karl Reinhard. , Stephens, Frederick O. , Cham: Springer International Publishing, 2016

2. ЭИ О-58 Онкология : учебник, , Москва: ГЭОТАР-Медиа, 2023

3. ЭИ О-58 Онкология 2.0 : учебник, Ямиданов Р. С. [и др.], Москва: ГЭОТАР-Медиа, 2024

FURTHER READING:

1. ЭИ К49 Клиническое обследование пациента : Серия "Онкология", Гайнуллин А.Х. [и др.], Москва: ГЭОТАР-Медиа, 2021

2. ЭИ П 88 Медико-социальная экспертиза при онкологических заболеваниях : учебник для вузов, Пузин С. Н. [и др.], Москва: Юрайт, 2024

3. ЭИ Г19 Рак желудка : Серия "Онкология", Ганцев Ш.Х., Бочкова Т.В., Москва: ГЭОТАР-Медиа, 2021

4. ЭИ Г19 Рак кожи. Меланома : Серия "Онкология", Ганцев Ш.Х., Тимин К.Е., Кзыргалин Ш.Р., Москва: ГЭОТАР-Медиа, 2020

5. ЭИ Г19 Рак легкого : Серия "Онкология, Ганцев Ш.Х., Хмелевский А.А., Москва: ГЭОТАР-Медиа, 2020

6. ЭИ Г19 Рак молочной железы : Серия "Онкология", Ганцев Ш.Х., Москва: ГЭОТАР-Медиа, 2021

SOFTWARE:

No special softwares is required

LMS AND ONLINE RESOURCES

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. Кушетка медицинская (Клиническая база)

6. Монитор (Клиническая база)

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

10. EDUCATIONAL AND METHODOLOGICAL RECOMMENDATIONS FOR STUDENTS

Recommendations for preparing for seminars.

The practical lesson plan, topics, recommended readings, and the course's goals and objectives are communicated by the instructor during introductory classes or in the course's curriculum. Practical

lessons help students gain a deeper understanding of the course material and develop skills for creatively working with scientific literature.

Before you begin studying the topic, you need to familiarize yourself with the main questions of the practical lesson plan and the list of recommended literature.

When preparing for a practical lesson, you should first review lecture notes, textbook sections, and teaching aids to gain a general understanding of the topic's place and significance in the course being studied. Then, consult additional literature and take notes on the recommended sources. In the process of studying the recommended material, it is necessary to understand the structure of the topic being studied, highlight the main provisions, follow their logic and thereby delve into the essence of the problem being studied. It is necessary to keep records of the material being studied in the form of notes, which, along with visual memory, also includes motor memory and allows for the accumulation of an individual fund of auxiliary materials for the rapid repetition of what has been read, for the mobilization of accumulated knowledge.

Basic note-taking forms: outline (simple and detailed), excerpts, and abstracts. During preparation, it's important to compare sources, consider the material being studied, develop an action plan, and carefully consider your oral presentation.

Recommendations for preparing for the test.

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

TOPICS: are indicated in each specific section

Answer requirement: a clear, detailed answer (2 points/task) or choosing the correct answer to the test task (1 point/task).

Recommendations for preparing for a test/exam

Response requirements and evaluation criteria:

An "excellent" grade of 45-50 points on a test/exam is awarded for: a correct, complete, and logically constructed answer; the ability to use specialized terminology; the ability to illustrate theoretical principles with practical material.

A "good" grade of 35–44 points on the exam is awarded for: a correct, complete, and logically constructed answer with minor errors or inaccuracies; the ability to use specialized terminology, but incomplete conclusions or generalizations are made.

A “satisfactory” grade of 30–34 points on the exam is given for: a schematic, incomplete answer; inability to use special terms or ignorance of them; with one serious error;

An "unsatisfactory" grade of <30 points on the exam is given for: answering all questions on the ticket with serious errors; inability to use specialized terminology; inability to give examples of the practical use of scientific knowledge.

Admission to the exam in a discipline is granted if the number of points exceeds 30.

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

Scoring and criteria for quizzes, open-ended quizzes, homework assignments, and the final quiz:

1) - Test assignments are graded according to the following scheme: 1 point for every 1 correct answer. A student who has not started the assignment receives -1 point.

2) - Tests with detailed answers are assessed according to the following scheme: complete answer – 2 points, incomplete answer – 1 point, no answer – 0 points, student did not start work – (-2) points.

3) – All students must complete the homework assignment to be eligible for the final assessment. Late submissions will result in a -1 point deduction from the final grade.

4) - Presentation Report Evaluation Criteria. Recalculation from a 100-point to a 10 (5)-point system.

5) - Essay evaluation criteria. Maximum 10 points. A 5-point system may be used.

10 points are awarded if all requirements for writing an abstract are met: the problem is identified and its relevance is justified, a brief analysis of the problem under consideration is made and the author's position is logically presented, conclusions are formulated, the article is analyzed in full, the length is maintained, and the formatting requirements are met.

9 points are awarded if the following requirements for writing an abstract are met: the problem is identified and its relevance is justified, a brief analysis of the problem under consideration is made and the author's position is logically stated, conclusions are formulated, the article is analyzed in full, but the volume is not maintained and the formatting requirements are not met.

8 points – the paper meets the basic requirements, but some shortcomings remain. Specifically, there are inaccuracies in the presentation of the material; there is a lack of logical consistency in the arguments; the paper's length is not maintained; and there are omissions in the formatting.

7 points – the main requirements for the abstract have been met, but the following shortcomings have been made: there are inaccuracies in the presentation of the material; there is no logical consistency in the judgments; conclusions have not been formulated, the length of the abstract is not maintained; there are omissions in the design

6 points – there are significant deviations from the abstracting requirements; the topic is only partially covered; there are factual errors in the abstract content, conclusions and a personal point of view on the problem are missing.

5 points – there are significant deviations from the abstract requirements: the topic is only partially covered; there are factual errors in the presentation of materials and methods, conclusions and a personal point of view on the problem are missing, the format is not maintained.

4 points – there are significant deviations from the requirements for the abstract: the relevance of the topic is not disclosed; factual errors were made in the presentation of materials and methods, conclusions and a personal point of view on the problem are missing, the format is not maintained

3 points – there is no analysis of the relevance of the research topic, approaches and methods used, while the volume of the abstract is formally observed.

2 points – the topic of the paper is not fully explored, revealing a significant lack of understanding of the problem. However, the paper's length and formal requirements are met.

1 point – the topic of the paper is not covered, a significant misunderstanding of the problem is revealed.

0 points – the student did not submit an abstract.

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