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Federal State Budget Educational Institution
of Higher Education
Pacific State Medical University
of the Ministry of Health of the Russian Federation

APPROVED BY

Director of the Institute of Surgery
_____ / Kostiv E.P.
"4th" of April 2025

SUBJECT GUIDE FOR TEACHERS AND STUDENTS FOR

Б1.О.38 Oncology, radiation therapy

(Name of discipline)

Specialty	**31.05.01 General Medicine for international students (in English)** (code, name)
Degree	Specialist's degree
Profile	02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system)
Mode of study	**Full-time**
Period of mastering the BEP	**6 years** (nominal length of study)
Institute	of Surgery

Vladivostok, 2025

Subject guide for teachers and students for **Б1.О.38 Oncology, radiation therapy** is based on:

1) Federal State Educational Standard of Higher Education for the specialty approved by the Order No. 988 of Ministry of Science and Higher Education of the Russian Federation dated August 12, 2020.

2) Curriculum for the 31.05.01 General Medicine for international students (in English), profile 02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system), approved by the Academic Council of FSBEI HE PSMU of the Ministry of Health of Russia, Report No. 8/24-25 dated March 31, 2025.

Subject guide for teachers and students for **Б1.О.38 Oncology, radiation therapy** was developed by the writing team of the Institute of Surgery of the FSBEI HE PSMU of the Ministry of Health of Russia, under the guidance of the director of the institute, Doctor of Medical Sciences, Professor Kostiv E.P.

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1. GENERAL PROVISIONS

Subject guide for **Б1.О.38 Oncology, radiation therapy** is a set of recommendations and explanations that facilitate to optimal organization of mastering this discipline.

Regular analysis of lecture materials and work with end-of-the-text questions are necessary for better understanding of the material and systematization of knowledge of **Б1.О.38 Oncology, radiation therapy**. Particular attention should be paid to emerging questions, confusing terms, and conflicts of points of view during the independent review of the lecture material. If necessary, a student should contact the teacher for advice. Lecture material streamlines students' thinking, while practical classes provide deeper insight into the material of the discipline.

Special attention should be paid to the content of the main provisions and conclusions, explanation of phenomena and facts, and clarification of the practical application of theoretic aspects of topic when preparing for a practical class. During this process students should aim to understand and remember the main provisions of the material under consideration, examples provided, as well as understand the illustrative material.

Collections of assessment tools are used to organize independent study of topics of **Б1.О.38 Oncology, radiation therapy**.

Independent work of students is facilitated by the following:

1. availability and accessibility of the necessary educational and reference material;
2. a system of regular quality control of completed independent work;
3. availability of teacher's advice.

Subject guides for self-study are presented as literary sources. Subject guides for independent work of students include a list of library resources of the educational institution and other materials accessible to students.

Independent work is a type of in-person extracurricular work of teachers and students of **Б1.О.38 Oncology, radiation therapy**. Control of independent work is conducted by the leading teacher. Evaluation of independent work results is taken into account when conducting interim examination of students throughout the **Б1.О.38 Oncology, radiation therapy** course.

Continuous assessment during **Б1.О.38 Oncology, radiation therapy** course is implemented in order to check indicators of achieving competencies, to stimulate students' academic work, and improve methods of mastering new knowledge. Continuous assessment during **Б1.О.38 Oncology, radiation therapy** course is conducted during the semester to assess all types and sections of the academic discipline that encompass the competencies developed by the discipline: classroom questioning, conducting discussions, working with tests. Continuous assessment of students' knowledge and results of their preparation for practical classes is conducted during every class session.

Interim assessment aims to determine the level of mastery of competency indicators. It is conducted in the pass/fail test format after the student has mastered all sections of **Б1.О.38 Oncology, radiation therapy** and takes into account learning outcomes for all types of student work over the entire period of mastering **Б1.О.38 Oncology, radiation therapy** course.

Time allotted for interim assessment is indicated in the schedule.

Assignments given during practical classes, as well as assignments aimed to prepare students for continuous and interim assessment, are included in the collection of assessment tools for **Б1.О.38 Oncology, radiation therapy**. If necessary, students should contact the teacher for advice. It is necessary to thoroughly think over questions that need clarification before seeking teacher's advice.

2. SUBJECT GUIDES FOR LECTURE CLASSES

Table 1. Subject Guides for **Б1.О.38 Oncology, radiation therapy** Lectures

Topic No.1 Carcinogenesis. Modern topics in oncology	
Duration of the lecture (in academic hours):	2
Purpose of the lecture: 1. tell students about etiology, pathogenesis, and preventive measures of the most common malignant neoplasms; the epidemiology of malignant neoplasms; 2. define carcinogenesis and the concept of carcinogenesis; 3. examine the organization of oncology services.	
Lecture plan, order of presentation of its sections: - Etiopathogenesis of malignant neoplasms (MN) - Incidence rate of the main malignant neoplasms types in the Russian Federation and worldwide, and its dynamics - Oncoepidemiological situation in the world. Epidemiology of the main types of MN - Histogenetic classification of the main types of MN. Russian and international classifications of MN by local distribution. Principles of the TNM classification - Prognostic factors - Organization of the work of state oncology institutions for the detection of MN. Private medical institutions, interaction with the oncology service - Structure of the oncology service. Preventive examinations, fluorography, examination rooms. Screening. Screening programs, funding, and effectiveness - Clinical groups. Accounting documentation. Principles of clinical examination of cancer patients. Rehabilitation in oncology - Standards of examination and treatment of MN. International, Russian, and local - Principles of constructing an oncological diagnosis	
Recommended literature 1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru 2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru	
Topic No.2 Methods of diagnosing malign lesions. Treatment principles in patients with malign lesions	
Duration of the lecture (in academic hours):	2
Purpose of the lecture: 1. tell students about modern methods of diagnosing malignant neoplasms and the principles of their treatment; 2. define ablastics and antiblastics, and describe treatment methods in oncology; 3. examine surgical, pharmacological, and radiation treatment methods for malignant neoplasms.	
Lecture plan, order of presentation of its sections: - Terminology. Clinical symptoms, macro- and microscopic characteristics of benign and malignant tumors of the main locations. General and specialized research methods in oncology. Methods of primary and follow-up diagnostics in oncology. Indications and contraindications for the use of endoscopic, radiological, radioisotope, and other methods, the role and importance of biopsy in oncology. Morphological diagnostics. Immunohistochemistry, tissue factors for prognosis and individualization of treatment. Cytological diagnostic methods and sample collection methods. Marker diagnostics:	

primary and as a means of monitoring the quality of treatment. Radiation diagnostics and diagnostic capabilities. Ultrasound (sonography) capabilities and areas of application. Endosinoscopy. X-ray method. Computed tomography. Magnetic resonance imaging. Single-photon radioisotope examination (SPECT) - capabilities and indications. Dual-photon radioisotope examination (PET-CT). Diagnostic capabilities. Standards for examination of malignant neoplasms. International, Russian, and local standards

- Definition of the principles and concepts of mono-, combined, and complex treatment methods for malignant neoplasms. Concept of malignant neoplasm treatment standards. Randomized trials and their use in establishing standards. Surgical treatment. Concepts of ablastics and antiblastics. Principles of oncological operations. Current trends in the development of surgical treatment of malignant neoplasms. Principles of organ-preserving and function-sparing surgical treatment. Reconstructive surgery
- Pharmacological treatment of malignant neoplasms. Chemotherapy, groups of anticancer medications. Hormone therapy, options for using hormonal medications. Targeted therapy, principles of target medications development. Maintenance therapy, antiemetics, cardioprotectors, colony-stimulating factors
- The place of radiation therapy in malignant neoplasm treatment programs
- Principles of rehabilitation of cancer patients
- Standards for the treatment of malignant neoplasms. Definitions of the terms "palliative care" and "symptomatic treatment." Organizational and methodological approaches to palliative care for cancer patients. Diagnosis and treatment of chronic pain syndrome of oncological origin. Diagnosis and correction of homeostasis disorders in cancer patients. Diagnosis and treatment of compression syndromes in cancer patients
- Standards for the provision of palliative and symptomatic care

Recommended literature

1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru
2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

Topic No.3 Physical and biological basis of radiation therapy. Planning and methods of radiation therapy

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about ionizing radiation;
2. define radiation therapy;
3. examine radiation therapy methods.

Lecture plan, order of presentation of its sections:

- Ionizing radiation used in medicine: physical characteristics. Penetrating and ionizing properties of radiation. Atomic structure, concept of isotopes, methods of isotope production. Radioactivity, types of radioactive decay, nuclear displacement law. Types of radiation interaction with matter. High-energy X-rays and bremsstrahlung (braking radiation). Mechanism of formation, characteristics, and application. Alpha rays and their properties and application. Beta rays and their properties and application. Gamma rays and their properties and application. Dosimetry of ionizing radiation. Ionization dosimetry. Photochemical dosimetry. Scintillation dosimetry. Units of exposure dose. Dose rate. Units of absorbed dose. Units of radioactive substance activity
- Chronology of effects in biological tissues. Describe the concept of interphase and apoptotic cell death. Radiosensitivity and the Bergonier-Tribondeau law. Radiosensitivity of tumor tissue. The role of apoptosis in tumor cell death. Describe the mechanism of

apoptosis under the action of ionizing radiation. Phases of the radiation reaction. Classification of tumors based on radiosensitivity. List the factors determining tumor radiosensitivity. The relationship between tumor morphology and histogenesis and radiosensitivity. The relationship between tumor radiosensitivity and the cell cycle phase. Define the concept of the oxygen effect. Radiosensitivity and the oxygen effect. Radiosensitivity and heterogeneity of the tumor cell population. The relationship between tumor cell ploidy and radiosensitivity. Factors determining the effectiveness of radiation therapy other than radiosensitivity. The relationship between the presence of previous irradiation and radiation therapy. The effect of the volume of irradiated tissue on the effectiveness of radiation therapy. The effect of the irradiation regimen and time of exposure on the effectiveness of radiation therapy. TDF concept and definition. The concept of "lethal dose for a tumor". The concept of "tolerant dose for tissue". Radiosensitizers and Radiosensitization

- The role of radiation therapy in the treatment of malignant tumors. Combination therapy. Combination therapy. Radiation therapy as the primary treatment method (monotherapy). Combined radiation therapy. Radical, palliative, and symptomatic radiation therapy. Explain the concept of "dose-effect-complication." Explain the concept of irradiation volumes. Explain the concept of clinical topography. Stages of developing a patient treatment plan. Verifying the accuracy of radiation markings. Resources for the radiation therapy department. Organization of the radiation therapy department. Requirements for the radiation therapy department staff. Planning the work of the radiation therapy department
- Classification of radiation therapy methods. Contact radiation therapy methods. Intraoperative radiation therapy. Radiopharmaceutical accumulation method. Interstitial radiation therapy. Intracavitary therapy, afterloading. Application therapy. Close-focus X-ray therapy
- Distance therapy. Radiation sources: gamma, bremsstrahlung, neutrons, protons, electrons, ions – advantages and limitations. Convection therapy. Conformal radiation therapy (CRT). Intensity-modulated radiation therapy (IMRT). Image-guided radiation therapy (IGRT). Tomotherapy. Stereotactic radiation therapy (SRT). ARC therapy. Photodynamic therapy

Recommended literature

1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru
2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

Topic No.4 Esophageal cancer. Lung cancer

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about epidemiology, pathogenesis, classification, and clinical presentation;
2. define central and peripheral lung cancer, as well as atypical forms of lung cancer;
3. examine diagnostic and treatment methods for malignant neoplasms.

Lecture plan, order of presentation of its sections:

- Esophageal Cancer
    - Esophageal cancer. Incidence, mortality, and neglect
    - Current classifications. Main clinical manifestations depending on the morphological form of the tumor and the clinical and anatomical pattern of tumor growth. Optimal modern diagnostic methods and their use. Current treatment methods, indications, and contraindications. General principles of esophageal cancer treatment depending on clinical, morphological, and biological prognostic

factors. Indications for combined and surgical treatment of patients with esophageal cancer. Radiation therapy in esophageal cancer treatment programs. Surgical treatment of esophageal cancer
    - Standards for treatment and examination of malignant neoplasms of the esophagus
- Lung cancer
    - Incidence and mortality from lung cancer (LC) worldwide, in the Russian Federation, and in Primorsky Krai. Detection of early and preclinical forms (the role of fluorography and oncopulmonary commissions). Clinical, anatomical, and morphological classifications of LC. Clinical and radiographic features of individual clinical and anatomical forms of lung cancer. Differential diagnosis. Radiographic and endoscopic examination methods. Surgical, combined, and comprehensive treatment. Palliative care
    - Principles of clinical follow-up (clinical group III). Patient capacity after radical treatment. Rehabilitation
    - Standards for examination and treatment of lung cancer

Recommended literature

1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru
2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

Topic No.5 Stomach cancer. Colorectal cancer

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about the epidemiology, pathogenesis, classification, and clinical presentation;
2. define diffuse gastric cancer and the clinical forms of colorectal cancer;
3. examine diagnostic and treatment methods for malignant neoplasms.

Lecture plan, order of presentation of its sections:
- Gastric cancer. Incidence, mortality, and stage 1 disease. Current classifications
- Main clinical manifestations depending on the morphological form of the tumor and the clinical and anatomical pattern of tumor growth, features of differential diagnosis. Optimal modern diagnostic methods and procedures for their use
- General principles of gastric cancer treatment based on clinical, morphological, and biological prognostic factors. Indications for combined and surgical treatment of gastric cancer
- Treatment outcomes: surgical, combined, and comprehensive treatment depending on the histological structure of the tumor and its extent. Medical and occupational expertise and medical rehabilitation of patients after radical and palliative treatment. Standards for examination and treatment of gastric malignancies
- Incidence and mortality from colon cancer (cc) globally, in the Russian Federation, and in Primorsky Krai. Epidemiology of CC. Factors increasing the risk of CC. Classifications (histological and TNM staging). Clinical forms of CC. Main clinical syndromes. Differential diagnosis of CC. Basic principles of treatment for rectal cancer. Treatment of advanced stages. Principles of follow-up observation of patients with rectal cancer (clinical group III). Ability to work in patients with rectal cancer after radical treatment. Rehabilitation methods. Incidence and mortality from rectal cancer (RC) in the world, Russia, and Primorsky Krai. Epidemiological characteristics of RC. Histological and clinical-anatomical classifications of RC. Symptomatology of RC depending on the location and growth pattern of tumors. Diagnosis of RC. Differential diagnosis. Causes of medical errors. Radical and palliative treatment. The role of surgery, radiation, and drugs

in the treatment of RC. Prognosis for RC. Medical and labor examination. Standards for examination and treatment of patients with colorectal cancer

Recommended literature

1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru
2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

Topic No.6 Malign skin lesions. Tumors of the head and neck

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about the epidemiology, pathogenesis, classification, and clinical manifestation;
2. define basal cell carcinoma, squamous cell carcinoma, and melanoma;
3. examine methods for diagnosing and treating malignant neoplasms.

Lecture plan, order of presentation of its sections:

- Skin cancer (SC): epidemiological characteristics, increased risk factors. Morphological classification of SC, classification according to the TNM system. Basal cell carcinoma: clinical features, diagnosis, treatment. Squamous cell carcinoma of the skin: clinical manifestations, diagnosis, treatment methods
- Melanoma (M): epidemiology, increased risk factors. Melanotoxicity of pigmented nevi. Classification of melanomas according to the TNM, Breslau, and Clark systems. Melanoma clinical presentation. Symptoms of pigmented nevus "activation." Dermoscopy. Physician's tactics for pigmented nevi. Treatment of melanomas. Standards for examination and treatment of melanomas
- Tumors of the oropharynx. Epidemiology, distribution. Diagnosis. Treatment principles. The role of radiation therapy in the treatment of malignant neoplasms of the oropharynx
- Laryngeal cancer. Diagnosis. Treatment principles. The role of radiation therapy in the treatment of malignant neoplasms of the larynx. Principles of surgical treatment. Rehabilitation
- Thyroid cancer. Morphological variants. Diagnosis. TNM classification features. Radioisotope diagnostics. Principles of thyroid cancer treatment. Indications for radioiodine therapy
- Brain tumors. Classification. Comprehensive and combined treatment
- Standards of examination and treatment for head and neck tumors

Recommended literature

1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru
2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

Topic No.7 Benign and malign lesions of the mammary gland

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about the epidemiology, pathogenesis, classification, and clinical presentation;
2. define breast cancer, its clinical forms, and occult (hidden) cancer;
3. examine methods for diagnosing and treating malignant neoplasms.

Lecture plan, order of presentation of its sections:

- Endocrine imbalances in the genesis of dyshormonal hyperplasia of the mammary glands (DHMG). Pathogenetic variants of DHMG. Classification of DHMG. Clinical, radiological, morphological, and laboratory diagnostics. Treatment principles. Preventive measures and follow-up monitoring for DHMG
- The concept of early breast cancer. Screening for early cancer. BRCA 1-2 gene mutations. Principles of genetic screening for breast cancer. Tactics for detecting hereditary breast cancer. Methods of clarifying diagnostics
- Features of the spread of breast cancer (BC) in the Russian Federation and Primorsky Krai. Endogenous and exogenous risk factors for BC. Histological classification. Prognostic factors in BC. Luminal, HER2-positive, triple-negative cancer. The role of immunohistochemistry in the diagnosis of BC. The international classification according to the TNM system. Clinical forms: nodular, diffuse, Paget's disease, stippled, and intraductal carcinoma
- Investigation methods: mammography, ultrasound, needle biopsy, CORE biopsy, MRI, SPECT, PET-CT. Indications for sector resection with rapid biopsy
- Breast cancer treatment depending on stage, growth pattern, and ovarian-menstrual function
- Long-term results. Treatment of advanced stages. Reconstructive surgery. Principles of follow-up care (clinical group III). Patient capacity for work after radical treatment. Rehabilitation
- Breast cancer screening and treatment standards

Recommended literature

1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru
2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

Topic No.8 Tumors of the bones and soft tissues. Lymphadenomas

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about epidemiology, pathogenesis, classification, and clinical presentation;
2. define sarcomas;
3. examine diagnostic and treatment methods for malignant neoplasms.

Lecture plan, order of presentation of its sections:

- Tumors of the skeletal system. Incidence, mortality, and neglect
- Current classifications. Main clinical manifestations depending on tumor morphology and differential diagnosis. Optimal diagnostic methods and their use
- Current treatment methods, indications, and contraindications. Patterns of metastasis. Prognostic factors. Evaluation of treatment effectiveness
- Soft tissue tumors. Incidence, mortality, and neglect. Current classifications. Main clinical manifestations depending on tumor morphology and differential diagnosis. Optimal diagnostic methods and their use
- Current treatment methods, indications, and contraindications. Patterns of metastasis. Prognostic factors. Evaluation of treatment effectiveness
- Diagnostic and treatment standards for bone and soft tissue malignancies
- Hodgkin's lymphoma (HL). Classification. Histogenesis. HL incidence and mortality worldwide, in the Russian Federation, and in Primorsky Krai. Clinical manifestations of non-Hodgkin's lymphoma. Diagnosis. The role of morphological verification. Treatment methods depending on the stage of non-Hodgkin's lymphoma. Prognosis

- Incidence and mortality in non-Hodgkin's lymphoma (NHL) worldwide, in the Russian Federation, and in Primorsky Krai. Current classifications (pathological, clinical, anatomical). Clinical manifestations depending on the primary site of NHL. Diagnosis of NHL. Differential diagnosis. Treatment methods for NHL. Prognosis - Standards for diagnosis and treatment of malignant lymphomas
Recommended literature 1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru 2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

3. SUBJECT GUIDES FOR PRACTICAL CLASSES

Table 2. Subject Guides for Practical **Б1.О.38 Oncology, radiation therapy** Classes

Topic No.1 Carcinogenesis. Modern topics in oncology	
Duration of the practical class (in academic hours):	4
Purpose of the practical class: 1. consolidate acquired knowledge on etiology and pathogenesis of malignant neoplasms; 2. during the discussion, outline key preventive measures for the most common malignant neoplasms; 3. thoroughly go over definitions and concepts of carcinogenesis; 4. study the patterns of tumor development and metastasis; 5. formulate a clinical diagnosis.	
Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.	
Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.	
Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.	
Recommended literature 1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru 2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru	
Topic No.2 Methods of diagnosing malign lesions	
Duration of the practical class (in academic hours):	4
Purpose of the practical class: 1. consolidate acquired knowledge on patient examination methods, indications and contraindications for instrumental and laboratory tests; 2. during the discussion, outline the main methods of diagnosing malignant neoplasms.	
Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.	

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended literature

1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru
2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

Topic No.3 Physical and biological basis of radiation therapy

Duration of the practical class (in academic hours):	4

Purpose of the practical class:
1. consolidate acquired knowledge on ionizing radiation;
2. during the discussion, outline the main types of radiation;
3. thoroughly go over definitions and concepts of radioactivity.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended literature

1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru
2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

Topic No.4 Planning and methods of radiation therapy

Duration of the practical class (in academic hours):	4

Purpose of the practical class:
1. consolidate acquired knowledge on the role of radiation therapy in the treatment of malignant tumors;
2. during the discussion, outline the main types of radiation therapy;
3. thoroughly go over definitions and concepts of combination therapy; radiation therapy as the primary treatment method (monotherapy); combined radiation therapy.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended literature

1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru
2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

Topic No.5 Treatment principles in patients with malign lesions

Duration of the practical class (in academic hours):	4

Purpose of the practical class:
1. consolidate acquired knowledge on the etiology and pathogenesis of cancer;
2. during the discussion, outline the main types of cancer treatment;
3. thoroughly go over definitions and concepts of ablastics, antiblastics, chemotherapy, targeted therapy, hormonal therapy, and immunotherapy;
4. study the patterns of development of chemoresistance;
5. formulate a clinical diagnosis.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended literature

1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru
2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

Topic No.6 Esophageal cancer. Prevention principles. Screening. Diagnostics. Classification. Treatment principles. Stomach cancer. Prevention principles. Screening. Diagnostics. Classification. Treatment principles

Duration of the practical class (in academic hours):	4

Purpose of the practical class:
1. consolidate acquired knowledge on the etiology and pathogenesis of malignant neoplasms;
2. during the discussion, outline key measures for preventing malignant neoplasms;
3. thoroughly go over definitions and concepts of esophageal and gastric cancer;
4. study the patterns of tumor development and metastasis;
5. formulate a clinical diagnosis.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended literature

1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru
2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

Topic No.7 Colorectal cancer. Prevention principles. Screening. Diagnostics. Classification. Treatment principles

Duration of the practical class (in academic hours):	4

Purpose of the practical class:
1. consolidate acquired knowledge on the etiology and pathogenesis of cancer;
2. during the discussion, outline key cancer prevention measures;
3. thoroughly go over definitions and concepts of colorectal cancer;
4. study the patterns of tumor development and metastasis;
5. formulate a clinical diagnosis.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended literature

1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru
2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

Topic No.8 Malign skin lesions. Prevention principles. Screening. Diagnostics. Classification. Treatment principles

Duration of the practical class (in academic hours):	4

Purpose of the practical class:
1. consolidate acquired knowledge on the etiology and pathogenesis of malignant neoplasms;
2. during the discussion, outline key measures for preventing malignant neoplasms;
3. thoroughly go over definitions and concepts of BCC, SCC, and melanoma;
4. study the patterns of tumor development and metastasis;
5. formulate a clinical diagnosis.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended literature

1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru
2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

Topic No.9 Benign and malign lesions of the mammary gland. Prevention principles. Screening. Diagnostics. Classification. Treatment principles

Duration of the practical class (in academic hours):	4

Purpose of the practical class:
1. consolidate acquired knowledge on the etiology and pathogenesis of malignant neoplasms;
2. during the discussion, outline key measures for preventing malignant neoplasms;
3. thoroughly go over definitions and concepts of breast cancer, secondary edematous forms, and occult cancer;
4. study the patterns of tumor development and metastasis;
5. formulate a clinical diagnosis.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended literature
1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru
2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

Topic No.10 Lung cancer. Prevention principles. Screening. Diagnostics. Classification. Treatment principles

Duration of the practical class (in academic hours):	4

Purpose of the practical class:
1. consolidate acquired knowledge on the etiology and pathogenesis of malignant neoplasms;
2. during the discussion, outline key measures for preventing malignant neoplasms;
3. thoroughly go over definitions and concepts of lung cancer, atypical forms of lung cancer, and paraneoplastic syndromes;
4. study the patterns of tumor development and metastasis;
5. formulate a clinical diagnosis.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended literature

1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru
2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

Topic No.11 Tumors of the head and neck. Prevention principles. Screening. Diagnostics. Classification. Treatment principles

Duration of the practical class (in academic hours):	4

Purpose of the practical class:
1. consolidate acquired knowledge on the etiology and pathogenesis of malignant neoplasms;
2. during the discussion, outline key measures for preventing malignant neoplasms;
3. thoroughly go over definitions and concepts of tumors of the head and neck;
4. study the patterns of tumor development and metastasis;
5. formulate a clinical diagnosis.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended literature

1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru
2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

Topic No.12 Lymphadenomas. Prevention principles. Screening. Diagnostics. Classification. Treatment principles

Duration of the practical class (in academic hours):	4

Purpose of the practical class:
1. consolidate acquired knowledge on the etiology and pathogenesis of malignant neoplasms;
2. during the discussion, outline key measures for preventing malignant neoplasms;
3. thoroughly go over definitions and concepts of lymphomas;
4. study the patterns of tumor development and metastasis;
5. formulate a clinical diagnosis.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended literature

1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru 2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru
Topic No.13 Tumors of the bones and soft tissues. Prevention principles. Screening. Diagnostics. Classification. Treatment principles
Duration of the practical class (in academic hours): 4
Purpose of the practical class: 1. consolidate acquired knowledge on the etiology and pathogenesis of malignant neoplasms; 2. during the discussion, outline key measures for preventing malignant neoplasms; 3. thoroughly go over definitions and concepts of tumors of the bones and soft tissues; 4. study the patterns of tumor development and metastasis; 5. formulate a clinical diagnosis.
Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.
Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.
Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.
Recommended literature 1. Gostishchev, V. K. General surgery : textbook / V. K. Gostishchev. - M. : ГЭОТАР-Медиа, 2024. - 800 с. - URL: http://www.studentlibrary.ru 2. Surgical diseases : textbook : in 2 vol. / N. V. Merzlikin, N. V. Brazhnikova, B. I. Alperovich, V. F. Tskhai. - M.: GEOTAR-Media. - (Textbook). Vol. 1. - 2021.- URL: http://www.studentlibrary.ru

4. GUIDELINES FOR CONTINUOUS AND INTERIM ASSESSMENT

Table 3. Guidelines for Conducting Continuous and Interim Assessment during **Б1.О.38 Oncology, radiation therapy** Course

Type of assessment	Assessment format
Continuous assessment	- conducting and evaluating oral quizzes during practical classes; - assessment and evaluation of completion and results of assignments given during practical classes; - assess and evaluate completion and results of individual assignments and exam tasks given during practical classes; - assessment and evaluation of lecture notes quality.
Interim certification	is conducted in oral format; it allows to assess the development of students' competencies correlating with types of professional activity.

5 ASPECTS OF THE IMPLEMENTATION OF THE COURSE FOR STUDENTS WITH DISABILITIES AND SPECIAL NEEDS

5.1. Availability of accessible environment

For students with disabilities and special needs, if a written application is submitted, lectures and practical classes are carried out taking into account health limitations, individual capabilities and medical status (hereinafter referred to as individual characteristics) of the student. Compliance with the following general requirements is ensured: teaching aids for collective and individual use are provided, required technical assistance is provided by an assistant, buildings and premises where lectures and practical classes are taking place meet accessibility requirements, other arrangements lack of which makes it impossible or difficult to master the discipline are made.

5.2. Compliance with general requirements

When lectures and practical classes are carried out at the written application of the student, the following general requirements are met: lectures and practical classes for students with disabilities and special needs take place at the same location as for students who do not have disabilities, if this does not cause difficulties for students; an assistant (assistants), who provide(s) students with the necessary technical assistance taking into account individual characteristics of the student, is (are) provided; necessary teaching aids are provided, taking into account individual characteristics of the student.

5.3. Availability of the internal policies and procedures of FSBEI HE PSMU of the Ministry of Health of Russia to students with disabilities in a form accessible to them.

All internal policies and procedures of FSBEI HE PSMU of the Ministry of Health of Russia concerning the discipline are made available to students with disabilities in a form accessible to them.

5.4. Increase in the duration of interim assessment of students with disabilities and special needs in relation to the established duration

Format of the interim assessment of academic performance within the scope of the discipline for students with disabilities and special needs is selected taking into account individual characteristics (orally, by writing on paper, by typing on a computer, as a test, etc.). The duration of the interim assessment in relation to the established duration is increased at the written application of the student with disabilities. Time limit for the student's preparation for the test is increased by at least 0.5 hours

6. STAFFING REQUIREMENTS OF THE DISCIPLINE

Academic teaching personnel that ensure the implementation of the discipline education process meet the requirements of the Federal State Educational Standard of Higher Education for the 31.05.01 General Medicine specialty; list of the aforementioned personnel is available on the website of the educational organization.