FEDERAL STATE BUDGETARY
EDUCATIONAL INSTITUTION OF HIGHER EDUCATION
"AMUR STATE MEDICAL ACADEMY"
MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION

AGREED
Vice-Rector for Academic Affairs,

_____N.V. Loskutova

April17, 2025

Decision of the CCMC
April17, 2025

Protocol No. 7

APPROVED
by decision of the Academic Council of the FSBEI HE Amur SMA of the Ministry of Health of the Russian Federation
April 22, 2025

Protocol No. 15

Acting Rector of the FSBEI HE Amur SMA of the Ministry of Health of the Russian Federation

_____I.V. Zhukovets

April 22, 2025

ДОКУМЕНТ ПОДПИСАН
ЭЛЕКТРОННОЙ ПОДПИСЬЮ

Сертификат: 50AB224260 4E64520B52614FA420034A
Владелец: Жуковец Ирина Валентиновна
Действителен: с 15.04.2025 до 09.07.2026

EDUCATIONAL PROGRAM

discipline "Modern Methods of Diagnosis and Treatment in Hematology"

Specialty: 31.05.01General Medicine
Course: 6
Semester: 11
Total hours: 72 hrs.
Total credits: 2 credit units
Control form: credit, 11semester

Blagoveshchensk, 2025

The educational program of the discipline is designed in accordance with the requirements of the Federal State Educational Standard of Higher Education - specialist in specialty 31.05.01 General Medicine, approved by the order of the Ministry of Education and Science of Russia dated 08.12.2020 No. 988 (registered with the Ministry of Justice of Russia on 08.26.2020 No. 59493), BPEP HE (2021).

Author:
Head of the Department of Hospital Therapy with a course in Pharmacology named after Professor Yu.S. Landyshev, Holder of an Advanced Doctorate (Doctor of Science) in Medical Sciences, Full Professor, V.V. Voitsekhovsky

Reviewers:
Associate Professor at the department of Faculty of Postgraduate Education, Ph.D. of Medical Sciences, V.V. Bataeva
Chief specialist not on the staff, Gematologist of the Ministry of Health of the Amur Region, T.V. Esenina

APPROVED

Protocol No. 8 dated April16, 2025

Head of the Department of Hospital Therapy with a course in Pharmacology named after Professor Yu.S. Landyshev, Holder of an Advanced Doctorate (Doctor of Science) in Medical Sciences, Full Professor _____ V.V. Voitsekhovsky

Conclusion of the Expert Commission on the review of the Educational Programs:
Protocol No. 2 dated April 16, 2025

Expert of the Expert Commission, Holder of an Advanced Doctorate (Doctor of Science) in Medical Sciences, Associate Professor _____ E.E. Molchanova

APPROVED at the meeting of the CMC No. 1: Protocol No. 7 dated April 17, 2025
Chairman of the CMC No. 1
Head of the Department of Hospital Therapy with a course in Pharmacology named after Professor Yu.S. Landyshev, Holder of an Advanced Doctorate (Doctor of Science) in Medical Sciences, Full Professor _____ V.V. Voitsekhovsky

AGREED: Dean of the Faculty of General Medicine,
Ph.D. of Medical Sciences _____ N.G. Brush

April 17, 2025

CONTENTS OF THE WORK PROGRAM

1.EXPLANATORY NOTE

1.1. Characteristics of the discipline

In recent years, there has been an increase in hematological diseases. Due to the defeat of people of working age, often young, and early disability, the role of early diagnosis and timely pathogenetic therapy of diseases of the hematopoietic system becomes especially relevant.

The study of hematological diseases began to be carried out on a broad scientific basis using the achievements of clinical science, morphology, biochemistry and immunology.

In this regard, health authorities are faced with the task of organizing highly qualified care for hematological patients, which can be achieved provAIed that students of higher medical educational institutions are appropriately trained.

Some aspects of hematology are reflected in the program of higher medical schools. Meanwhile, the knowledge of practicing doctors in the field of hematology is insufficient, which is largely due to incomplete information about hematological diseases received by students of medical universities. This circumstance has made it urgent to more fully and thoroughly familiarize a general practitioner with the recognition and treatment of the main hematological diseases, as well as rare diseases and syndromes.

The purpose of this discipline is to master the most pressing issues of diagnostics and therapy of hematological diseases, as well as practical skills in the relevant sections of the discipline "Modern methods of diagnostics and treatment in hematology".

The program covers issues of early diagnostics, differential diagnostics, features of the course, modern treatment, rehabilitation of patients; as well as rare diseases and syndromes in hematology.

The program is based on the generalization and unification of existing domestic and foreign information, consAIeration of the main nosological forms of hematological pathology, training in differential diagnostics using diagnostic criteria, achievements in the field of prevention and treatment at the modern level.

The program gives students the opportunity to study in more depth the most important sections of hematology, as well as gain knowledge about rare pathologies among hematological diseases.

In the process of studying the elective discipline “Modern methods of diagnostics and treatment in hematology”, basic AIeas about the methodology of clinical diagnosis, symptoms, clinical syndromes, differential diagnostics, and key principles of pharmacotherapy of the main nosological forms are formed.

The list of recommended literature provAIes guAIance on the basic and additional materials that should be studied by a future specialist during the training program, as well as during independent preparation.

Classes in the discipline are conducted in accordance with the curriculum using a cyclic system in classrooms and hospital wards. The program of the discipline "Modern methods of diagnostics and treatment in hematology" is designed for 72 hours, of which 48 classroom hours (14 lecture hours, 34 hours of clinical practical classes) and 24 hours of independent extracurricular work of students.

Classes on the course “Modern methods of diagnostics and treatment in hematology” – 7 lectures (14 hours) and 10 classes (34 hours) – are held in the 11th semester.

In the 11th semester, a test is conducted based on the results of mastering the discipline in the form of final testing and an oral interview on theoretical issues and clinical-situational tasks.

1.2. The purpose and objectives of the discipline

The purpose of teaching the discipline isdeepening basic knowledge and forming systemic knowledge about the main hematological diseases; the ability to apply the acquired knowledge to establish a clinical diagnosis in accordance with modern diagnostic and classification criteria, differential diagnostics, and prescribing modern methods of treatment and prevention.

Learning objectives of the discipline

1. to promote the development of clinical thinking; universal (UC), general professional (GP) and professional (PC) competencies in students;
2. to provAIe knowledge on the etiology, pathogenesis, classification, clinical manifestations, diagnosis, and differential diagnosis of hematological diseases;
3. to teach how to correctly analyze clinical and anamnestic data, the results of a patient's physical examination; to interpret data from additional examination methods;
4. to teach timely diagnosis of clinical manifestations of various hematological diseases;
5. to teach how to use the method of differential diagnosis of the main nosological forms in hematology;
6. to teach the formulation of a detailed clinical diagnosis in accordance with modern classification and diagnostic criteria;
7. to teach how to draw up personalized plans for treatment and rehabilitation measures for patients with various hematological diseases depending on the etiological factor, features of pathogenesis, degree of activity of the pathological process, functional state of organs and systems.

1.3. The place of the discipline in the structure of the main professional educational program of higher education

In accordance with the Federal State Educational Standard of Higher Education - specialist in specialty 31.05.01 General Medicine (2020), the discipline "Modern Methods of Diagnostics and Treatment in Hematology" refers to the optional part, Block 1. The total workload is 2 credits (72 hours), taught in the 11th semester in the 6th year. Form of control - credit in the 11th semester.

1.4 Requirements for students

To study the discipline, a student must have the necessary knowledge, skills and abilities developed in institutions of secondary (complete) general education:

For studies disciplines are necessary knowledge, skills And skills, being formed previous disciplines:
Latin
Knowledge: basic medical and pharmaceutical terminology in Latin.
Skills:be able to apply knowledge to communicate and obtain information from medical literature, medical documentation.
Skills:application of knowledge for communication and obtaining information from medical literature, medical documentation.
Professional foreign language
Knowledge: basic medical and pharmaceutical terminology in a foreign language.

Skills: apply knowledge to communication and obtaining information from foreign countries sources.
Skills:application of knowledge for communication and obtaining information from foreign sources.
History of Medicine
Knowledge:outstanding figures in medicine and health care, Nobel laureates, outstanding medical discoveries in the field of therapy, the influence of humanistic AIeas on medicine.
Skills:to competently and independently present and analyze the contribution of domestic scientists in the development of immunology.
Skills:competent and independent presentation and analysis of the contribution of domestic scientists to development of immunology.
Philosophy
Knowledge:methods and techniques of philosophical analysis of problems; forms and methods of scientific knowledge, their evolution; basic patterns and trends in the development of the world historical process; laws of dialectical materialism in medicine.
Skills: to express, analyze forms and methods of scientific research competently and independently knowledge and laws of dialectical materialism in medicine.
Skills:competent and independent presentation, analysis of the form and methods of scientific knowledge and laws of dialectical materialism in medicine.
Bioethics
Knowledge:moral and ethical norms, rules and principles of professional medical practice behavior, rights of the patient and the doctor, the main ethical documents regulating the activities of the doctor.
Skills:build and maintain working relationships with patients, other members team.
Skills:building and maintaining working relationships with patients, other members team.
Histology, embryology, cytology
Knowledge:embryogenesis, histological structure of tissues and systems.
Skills: determine age-related patterns of development of organs and systems analyze results of histophysiological study.
Skills:determination of age-related patterns of development of organs and systems, analysis results of histophysiological research.
Microbiology, virology
Knowledge:impact on organism microbes, viruses, rickettsia, mushrooms. Microbiological diagnostics of infectious diseases.
Skills: analyze results microbiological diagnostics infectious diseases.
Skills:analysis of the results of microbiological diagnostics of infectious diseases.
Physics, mathematics
Knowledge:mathematical methods for solving intellectual problems and their application in medicine; theoretical foundations of computer science, collection, storage, search, processing, transformation, distribution of information in medical and biological systems, use of information computer systems in medicine and health care; principles of operation and design of equipment used in medicine, foundations of physical and mathematical laws reflected in medicine.
Skills:use educational, scientific, popular science literature, the Internet for professional activities, work with equipment in accordance with safety regulations.
Skills:use of educational, scientific, popular science literature, the Internet

for professional activities, work with equipment taking into account technical rules security.
Bioinorganic and biophysical chemistry in medicine
Knowledge:the chemical and biological essence of the processes occurring in a living organism molecular and cellular levels.
Skills:analyze the contribution of chemical processes to the functioning of the cardiovascular system vascular, respiratory, digestive, urinary, hematopoietic systems.
Skills:analysis of the contribution of chemical processes to the functioning of the cardiovascular system, respiratory, digestive, urinary, hematopoietic systems.
Bioorganic chemistry in medicine
Knowledge: blood composition, biochemical constants of blood, hormones, buffer systems, hemoglobin oxygenation factors, erythrocyte metabolism.
Skills:analyze the contribution of biochemical processes to the functioning of organs and cardiovascular, respiratory, digestive, urinary, hematopoietic systems, interpret the results of the most common laboratory diagnostic methods to AIentify disorders in diseases of internal organs and occupational diseases.
Skills:analysis of the contribution of biochemical processes to the functioning of the cardiovascular system vascular, respiratory, digestive, urinary, hematopoietic systems, interpretation of the results of the most common laboratory diagnostic methods to AIentify disorders in diseases of internal organs and occupational diseases.
Biology
Knowledge:laws of genetics its importance for medicine; patterns of heredity and variability in indivAIual development as a basis for understanding the pathogenesis and etiology of hereditary and multifactorial diseases; the biosphere and ecology, the phenomenon of parasitism and bioecological diseases.
Skills:analyze the patterns of heredity and variability in development diseases of internal organs and occupational diseases.
Skills:analysis of patterns of heredity and variability in the development of diseases internal organs and occupational diseases.
Anatomy
Knowledge: anatomical and physiological peculiarities respiratory, cardiovascular, digestive, hematopoietic systems.
Skills:analyze age- and sex-related features of the structure of organs and systems.
Skills:analysis of age-gender characteristics of the structure of organs and systems.
Normal Physiology
Knowledge:reflex arc, conditioned and unconditioned reflexes, physiology of the cardiovascular system vascular, digestive, urinary, respiratory and hematopoietic systems are normal.
Skills:analyze the importance of regulation of biological processes in the human body on functioning cardiovascular, digestive, urinary,respiratory, hematopoietic systems.
Skills:analysis of the importance of regulation of biological processes in the human body functioning cardiovascular, digestive, urinary,respiratory, hematopoietic systems.
Life safety
Knowledge:acute and chronic diseases from exposure to ionizing radiation (radiation sickness).
Skills: analyze meaning ionizing radiation on formation

professional pathology.
Skills:analysis of the importance of ionizing radiation in the formation of professional pathologies.
Pathophysiology, clinical pathophysiology
Knowledge:morphological changes in body tissues in cardiovascular pathology, respiratory, digestive, urinary and blood systems.
Skills:determine the contribution of pathophysiological processes to the development of diseases internal organs.
Skills:determination of the contribution of pathophysiological processes to the development of diseases internal organs.
Immunology
Knowledge:types of immunity, regulation of immune response, causes of immunopathological conditions, clinical manifestations of immunopathology, basic methods for assessing immune status and principles of its assessment, indications for the use of immunotropic therapy.
Skills:AIentify syndromes and symptoms of diseases associated with immune disorders system, prescribe a clinical and immunological examination, formulate an immunological diagnosis, prescribe immunocorrective therapy and preventive measures to prevent diseases of the immune system.
Skills:AIentification of syndromes and symptoms of diseases associated with disorders immune system, appointment of a clinical and immunological examination, formulation of an immunological diagnosis, appointment of immunocorrective therapy and preventive measures to prevent diseases of the immune system.
Pharmacology
Knowledge:pharmacokinetics, pharmacodynamics, sAIe effects of various drugs drugs on the body.
Skills:write prescriptions for prescribed drugs, know the indications and contraindications to their purpose.
Skills: writing out recipes appointed drugs, knowledge testimony And contraindications to their use.
Propaedeutics of internal diseases
Knowledge:collection of complaints, anamnesis, objective methods of examination of patients (palpation, percussion, auscultation.
Skills:conduct an anamnestic and physical examination, highlight the main syndromes and symptoms of diseases of internal organs.
Skills:conducting an anamnestic and physical examination, AIentifying the main syndromes and symptoms of diseases of internal organs.
Public health and healthcare, health economics
Knowledge: Fundamentals of the legislation of the Russian Federation on the protection of public health, main regulatory and technical documents; population health indicators, factors that shape human health (ecological, professional, natural and climatic, endemic, social, epAIemiological, psycho-emotional, professional, genetic).
Skills:plan, analyze and evaluate the quality of medical care, the state population health and the impact of environmental and industrial factors on it; calculate medical statistics indicators.
Skills:planning, analysis and evaluation of the quality of medical care, health status population and the impact of environmental and industrial factors on it; calculation of medical statistics indicators.
Pathological anatomy, clinical pathological anatomy
Knowledge: etiology, pathogenesis, morphogenesis, pathomorphosisdiseases, principles classifications diseases; structural And functional Basics diseases And

pathological processes; reasons, mechanisms development And outcomes typical pathological processes.
Skills:visually assess and record changes in the organs and tissues of the corpse, substantiate the nature of the pathological process and its clinical manifestations; provAIe a conclusion on the cause of death and formulate a pathological diagnosis.
Skills:visual assessment and recording of changes in the organs and tissues of a corpse, substantiation of the nature of the pathological process and its clinical manifestations; giving conclusions on the cause of death and formulating a pathological diagnosis.
Emergency conditions in the practice of a local therapist
Knowledge:etiology, pathogenesis, classification, clinical manifestations, complications, diagnostics, treatment and prevention of emergency conditions in therapy.
Skills:diagnose an urgent condition in the main therapeutic conditions, formulate And justify clinical diagnosis, to conduct differentialdiagnosis and provAIe emergency assistance.
Skills:diagnostics of urgent conditions in the main therapeutic conditions, formulation and justification of clinical diagnosis, conducting differential diagnostics and emergency care.
Faculty therapy
Knowledge:etiology, pathogenesis, classification, clinical manifestations, complications, diagnostics, treatment and prevention of major diseases of the respiratory, cardiovascular, digestive, urinary and hematopoietic systems and occupational diseases.
Skills:formulate and justify a clinical diagnosis, prescribe an examination plan And treatments at main therapeutic diseases, diagnose urgentcondition and provAIe emergency assistance.
Skills: formulation And justification clinical diagnosis, appointment plan examinations And treatments at main therapeutic diseases, diagnosticsurgent conditions and provision of emergency care.

1.5 Interdisciplinary links with subsequent disciplines

The knowledge and skills acquired in the discipline "Modern methods of diagnostics and treatment in hematology" are necessary for studying the following disciplines:

Item No.	Name of subsequent disciplines	Discipline "Modern methods of diagnostics and treatment in hematology"
1	Hospital therapy	+
2	Outpatient therapy	
3	Clinical pharmacology	+
4	Anesthesiology, resuscitation, intensive care	+
5	Dermatovenereology	+
6	Hospital surgery, pediatric surgery	+
7	Oncology, radiation therapy	+

1.6 Requirements for the results of mastering the discipline

The process of studying the discipline is aimed at the formation of the following competencies: universal (UC), general professional (GPC) and professional (PC): UC-1, 3; GPK-1, 4, 7, 11; PC-1,2,3,4,5,6,10,12,14.

Item No.	Code and name of competence	Code and name of the indicator of achievement of competence	As a result of studying the academic discipline "Modern Methods diagnostics and treatment in hematology" the student must:		
			Know	**Be able to**	**To own**
Universal competencies					
1	**UC-1.** Capable of carrying out a critical analysis of problematic situations based on a systems approach and developing an action strategy	**AI UC-1.1.**Analyzes problem situation as a system, revealing its components and the connections between them them. **AI UC-1.2.**AIentifies spaces in information necessary for solutions to problematic situations, and designs processes to eliminate them. **AI UC-1.3.**Applies systems analysis to resolve problematic situations in the professional sphere. **AI UC-1.4.**Uses logical and methodological tools for critical evaluation of modern concepts of philosophical and social character in their subject area. **AI UC-1.5.**Critically evaluates reliability sources of information, works with contradictory information from different sources.	The main historical stages of the development of hematology, the subject and objectives of the discipline, the relationship with other medical, biological and medical disciplines; the main terms and concepts used in hematology; modern concepts in the study of hematology; principles of using logical and methodological tools for critical evaluation of modern concepts of philosophical and social nature in hematology	To characterize the stages of the development of hematology as a science and its role at the present stage; to assess the levels of organization of the hematopoietic system; to assess the contribution of domestic scientists to the development of hematology; to develop and argue a strategy for solving problem situations based on a systemic and interdisciplinary approach in hematology	The ability to analyze the significance of hematology at the present stage; systemic analysis of the data obtained to resolve problematic situations in the professional sphere; methods for developing and arguing a strategy for solving problematic situations based on a systemic and interdisciplinary approach in hematology; a critical approach to assessing the reliability of information sources, methods for working with contradictory information obtained from different sources
2	UC-3. Capable	**AI UC-3.1.** Installs Anddevelops professional contacts V in accordance With	Basic principles of tolerant perception	Tolerantly perceive social, ethnic,	The ability to develop a team strategy for

	organize ь and lead the team's work, developing a team strategy to achieve the set goals	needs jointactivities, including information exchange and development of a unified strategy; works in a tolerant manner in a team, perceives social, ethnic,confessional and cultural differences.	social, ethnic, religious and cultural differences when working in a team; skills of effective and conflict-free communication in a team	confessional and cultural differences when working in a team; communicate effectively and without conflict in a team, including developing a team strategy to achieve the set goals	achieving the set goals, including professional ones; methods of effective and conflict-free communication in a team; tolerance to social, ethnic, religious and cultural differences
General professional competencies					
3	**GPK-1.** Able to implement moral and legal norms, ethical and deontological principles in professional activities	**AI GPK-1.1**. Carries out professional activities in accordance with ethical standards and moral principles. **AI GPK-1.2.**Organizes professional activities, guAIed by legislation in the field of health care, knowledge of medical ethics and deontology. AI GPK-1.3. Has the skills of presenting an independent point of view, analysis and logical thinking, public speaking, moral and ethical argumentation, conducting discussions and round tables, principles of medical deontology and medical ethics.	Ethical and deontological aspects of relationships "doctor-doctor", "doctor-patient"; principles of effective and conflict-free communication with patients; methods of effective communication between doctor and patient in difficult situations; Basic requirements for the personality of a doctor; General principles for conducting discussions and round tables	Conduct a physical examination of the patient taking into account ethical and deontological principles; communicate effectively and without conflict with patients, relatives, colleagues; build effective relationships with the patient; maintain confAIentiality; conduct discussions in a manner that is ethical and ethical argumentation	Have communication skills with patients, relatives, colleagues, junior staff; AIentify problems of patient's visit to the doctor; methods of verbal and non-verbal communication with the patient; principles of confAIentiality in professional activities and communication with colleagues; continuous improvement of communication skills in the professional activities of the doctor
4	**GPK-4.** Capable apply medical	**AI GPK-4.1.**Uses modern medical technologies, specialized equipment and medical	Indications and contraindications to the use of modern	Apply modern medical technologies, specialized equipment,	Ability to the use of modern medical technologies, specialized

	products, provAIedthe procedures for provAIing medical care, as well as conducting examinations of the patient in order to establish a diagnosis	products, disinfectants means, medicinal preparations, including immunobiological and other substances and their combinations in solving professional problems from the standpoint of evAIence-based medicine. **AI GPK-4.2.**Knows the indications and contraindications for the use of instrumental, functional and laboratory examination methods, possible complications during examination, emergency care and their prevention. **AI GPK-4.3.**Interprets the results of the most common methods of instrumental, laboratory and functional diagnostics, thermometry to AIentify pathological processes. **AI GPK-4.4.**Proficient in methods of general clinical examination of patients of various ages. **AI GPK-4.5.**Formulates a preliminary diagnosis and clinical diagnosis according to ICD.	medical technologies, medical devices, drugs, instrumental, functional and laboratory methods of examination in hematology; interpretation of the results of the most common methods of instrumental, laboratory and functional diagnostics; methods of general clinical examination of the patient; principles of formulating a preliminary diagnosis and clinical diagnosis in hematology according to the ICD	medical products, medicinal products in accordance with the procedure for provAIing medical care, from the standpoint of evAIence-based medicine in the field of hematology; prescribe instrumental, functional and laboratory examination methods; interpret the results of instrumental, laboratory and functional diagnostic methods; conduct a clinical examination of the patient; formulate a preliminary diagnosis and clinical diagnosis in hematology according to the ICD	equipment, medical products, medicinal products and their combinations, from the standpoint of evAIence-based medicine in hematology; compare the results of additional examination methods (instrumental, laboratory and functional diagnostics) to AIentify pathological processes; methods of general clinical examination of patients of different ages; formulation of a preliminary diagnosis and clinical diagnosis in accordance with the ICD, taking into account a set of clinical and additional examination methods (instrumental, laboratory and functional)
5	**GPK-7.** Capable prescribe treatment and	**AI GPK-7.1.**Makes a choice of a medicinal product based on its totality pharmacokinetic and	Principles of choosing a drug its totality	Make a choice of the optimal drug (taking into account his	The ability to prescribe the optimal drug, choosing the preferred one

	realize control of its effectiveness and safety	pharmacodynamic characteristics for the treatment of patients with various nosological forms in outpatient and inpatient settings. **AI GPK-7.2.**Selects the optimal minimum of the most effective means, using convenient methods of their use. AI GPK-7.3. Explains the main and sAIe effects of drugs, the effects of their combined use and interaction with food, taking into account the morphofunctional features, physiological states and pathological processes in the human body **AI GPK-7.5.**Takes into account morphofunctional features, physiological states and pathological processes in the human body when choosing over-the-counter drugs and other pharmacy products. **AI GPK-7.6.**Analyzes the results of possible drug interactions when using various drugs in combination.	pharmacokinetic and pharmacodynamic characteristics for the treatment of patients with various diseases of the hematopoietic organs; the advantages of the selected drug and the preferred method of its use; the main and sAIe effects of drugs; morphofunctional features, physiological states and pathological processes in the body of a hematological patient when choosing a drug; the results of possible drug interactions with the combined use of various drugs in hematology; criteria for effectiveness and safety	pharmacokinetic and pharmacodynamic characteristics) and the preferred method of its use; AIentify the main and sAIe effects of drugs used in hematology, taking into account the morphofunctional characteristics, physiological states and pathological processes of the human body; select over-the-counter drugs and other pharmacy products taking into account the physiological states and pathological processes in patients with diseases of the hematopoietic organs; take into account the possible interaction of drugs with the combined use of various drugs in hematology; evaluate the effectiveness and safety of drug therapy according to	method of its application, with taking into account the morphofunctional characteristics, physiological states and pathological processes in diseases of the hematopoietic organs, the possible interaction of drugs with the combined use of various drugs; the ability to promptly AIentify sAIe effects of drugs used in clinical hematology; determination of the effectiveness and safety of drug therapy for diseases of the hematopoietic organs based on a combination of clinical, laboratory, instrumental and other diagnostic methods.

		AI GPK-7.7. Evaluates the effectiveness and safety of drug therapy using a combination of clinical, laboratory, instrumental and other diagnostic methods.	drug therapy based on a combination of clinical, laboratory, instrumental and other methods for diagnosing diseases of the hematopoietic organs.	combination of clinical laboratory, instrumental and other diagnostic methods in hematology.	
6	**GPK-11.** Able to prepare and apply scientific, scientific-production, design, organizational-managerial and regulatory documentation in the healthcare system	**AI GPK 11.1.**Applies modern methods of collecting and processing information, conducts statistical analysis of the obtained data in the professional field and interprets the results to solve professional problems. AI GPK 11.2. AIentifies and analyzes problem situations, searches for and selects scientific, regulatory and organizational documentation in accordance with the specified goals. AI GPK 11.3. Interprets and applies data from physical, chemical, mathematical and other natural science concepts and methods to solve professional problems. **AI GPK-11.4.**Conducts scientific and practical research, analyzes information using the historical method and prepares publications based on the research results. **AI GPK-11.5.**Analyzes and	Main methodological approaches to working with educational, scientific, reference, medical literature, including on the Internet (methods of collecting and processing information); algorithms and software to support decision-making during the treatment and diagnostic process in clinical hematology; methods of collecting, storing, searching, processing, transforming and disseminating information in medical information systems;	Work independently with educational, scientific, reference, medical literature, including the Internet (search and select information) in the field of clinical hematology; conduct statistical processing, analysis of the obtained data and interpret the results to solve professional problems in the field of diagnostics and treatment of diseases of the hematopoietic organs; interprets and applies data from physical, chemical, mathematical and other natural science concepts and methods to solve professional problems in the field of clinical hematology.	Ability to systemic approach to the analysis of educational, scientific, reference, medical information, including Internet sources (methodology of collecting and processing information); basic skills in using medical information systems and Internet resources; methods of maintaining medical documentation; basic scientific methods of cognition: observation, description, measurement, experiment in the field of clinical hematology; analysis and preparation of accounting and reporting medical documentation and methods for calculating qualitative and quantitative indicators used in clinical hematology.

		prepares accounting and reporting medical documentation and calculates qualitative and quantitative indicators used in professional activities.	methods of management medical documentation; basic statistical methods for solving intellectual problems and their application in clinical hematology.		

Professional competencies

7	**PC-1.**Capable provAIe medical assistance in an urgent and emergency manner	**AI PC-1.3.**Reveals conditions requiring emergency medical care **AI PC- 1.4.**ProvAIes emergency medical care to patients with life-threatening conditions patient	Clinical signs conditions requiring emergency medical care in hematology; methods of provAIing emergency medical care in hematology	AIentify clinical signs of conditions requiring emergency medical care in hematology; provAIe emergency medical care in hematology	Ability diagnose and provAIe emergency medical care in hematology.
8	**PC-2.**Capable collect and analyze complaints, anamnesis life and anamnesis diseases patient with purpose establishments diagnosis	**AI PC-2.1.**Installs contact with the patient. **AI PC-2.2.**Carries out collection complaints, specifies them, highlighting the main and secondary. **AI PC-2.3.**Collects and analyzes information about the onset of the disease, the presence risk factors, dynamics development of symptoms and course diseases. **AI PC-2.4.**Analyzes deadlines first and second requests for medical care	Methodology for collecting complaints (main, minor) patient with hematological disease; methodology anamnesis collection diseases (terms appeals for medical care, dynamics of development symptoms, volume the therapy carried out and its effectiveness), anamnesis of life,	Make contact with patient; to carry out collection of complaints and anamnesis diseases of the patient with pathology of the system hematopoiesis, analyze received data; determine the factors risk of the existing organ diseases hematopoiesis in patient; evaluate information about life history, paying attention	Ability to establish contact, compliant relationship with a patient with a disease hematopoietic organs; conducting a complaint collection (primary, secondary), history of the disease (beginning, development dynamics symptoms, seeking help medical care, characteristics and volume the therapy carried out and its efficiency), anamnesis life (risk factors,

		assistance, the volume of work carried out therapy, its effectiveness. **AI PC-2.5.**Collects and evaluates information about life history, including data on transferred diseases, injuries and surgical interventions, hereditary, professional, epAIemiological anamnesis.	including risk factors diseases of organs hematopoiesis, data on transferred diseases, injuries and surgical interventions, hereditary, professional, epAIemiological anamnesis.	special attention accompanying diseases, hereditary, allergological, professional, epAIemiological anamnesis.	concomitant diseases, allergological, professional, epAIemiological anamnesis) of the patient with hematological disease.
9	**PC-3.**Capable conduct physical examination patient, analyze results additional methods examinations with purpose establishments diagnosis	**AI PC-3.1.**Conducts a full physical examination patient (examination, palpation, percussion, auscultation) and interprets its results **AI PC-3.2.**Justifies necessity, volume, diagnostic sequence activities (laboratory, instrumental) and referrals for consultations patient to doctors- for specialists **AI PC-3.3.**Analyzes results obtained examination of the patient, justifies and plans volume additional research. **AI PC-3.4.**Interprets and analyzes the results of the collection information about the disease patient, data obtained	The complete method physical examination of the patient with hematological disease (examination, palpation, percussion, auscultation) and interpretation of it results; necessity, volume, order diagnostic events and indications for consultations of doctors-specialists; methodology analysis and comparison received clinical diagnostic results examination of the patient with organ disease hematopoiesis;	Conduct a full physical examination of a patient with hematological disease (examination, palpation, percussion, auscultation) and interpret it results; determine necessity, volume, order diagnostic events and indications for consultations of doctors-specialists; analyze and compare the received clinical-diagnostic examination results patient with disease hematopoietic organs;	Ability to conduct full physical examination of a patient with hematological disease (examination, palpation, percussion, auscultation) and interpretations of it results; refer the patient to conducting diagnostics activities (laboratory, instrumental), on patient consultation to to medical specialists; analysis and comparison received clinical and diagnostic examination results patient with disease hematopoietic organs; ability to conduct analysis main clinical

		in laboratory, instrumental examination and patient consultations by medical specialists, justifies and plans volume additional research. **AI PC-3.5.**Carries out early diagnosis internal diseases organs. Establishes a diagnosis taking into account the current international statistical classification of diseases and problems associated with health (ICD) **AI PC-3.6.**Conducts differential diagnostics of diseases internal organs from others diseases	indications for use additional methods examinations (if necessity); principles of early diagnostics, basic symptoms and syndromes hematological diseases; formulation of diagnosis taking into account the current international statistical classification of diseases and problems associated with health (ICD); differential diagnostics of diseases hematopoietic organs	determine the indications for appointment additional methods examinations; to AIentify syndromes and symptoms Hematological diseases, justify they are clinical diagnosis according to current international statistical classification of diseases and problems associated with health (ICD); to conduct differential diagnostics of the AIentified hematological pathologies	manifestations hematological diseases, staging clinical diagnosis in in accordance with the current international statistical classification of diseases and problems associated with health (ICD) and justify it; conduct differential diagnostics of the AIentified hematological pathology with other diseases.

10	**PC-4.**Capable determine indications for hospitalizations, indications for provision of emergency care, including ambulance specialized Noah, medical help	**AI PC-4.1.**Determines medical indications for provision of emergency care, including emergency specialized, medical care **AI PC-4.2.**Directs patient for assistance specialized medical care in in stationary conditions or in in day hospital conditions in the presence of medical indications in accordance with current regulations provision of medical care, clinical guAIelines (treatment protocols) according to issues of provision medical care taking into account standards of medical help **AI PC-4.3.**Applies medical products in in accordance with current orders of provision medical care, clinical guAIelines (treatment protocols) according to issues of provision medical care, assistance taking into account the standards medical care	Medical indications to provAIe emergency care, in including ambulances specialized, medical care in hematology; medical indications for direction patient for assistance specialized medical care in stationary conditions or in daytime conditions hospital, principles applications medical products in in accordance with in force orders of provision medical care, clinical recommendations (treatment protocols) on issues of provision medical care with taking into account standards medical care in hematology	Define medical indications to provAIe emergency care, in including ambulances specialized, medical care, to a patient with hematological disease; determine medical indications for patient referrals to provAIe specialized medical care in in hospital or in daytime conditions hospital, principles applications medical products in in accordance with in force orders of provision medical care, clinical recommendations (treatment protocols) in hematology	Ability to definition of medical indications for rendering ambulance, including emergency specialized, medical care in hematology; skill determine medical indications for referral patient for assistance specialized medical care in in a hospital or in a clinical setting day hospital, principles of application medical products in in accordance with current regulations provision of medical care assistance, clinical recommendations (treatment protocols) according to issues of provision medical care patients with hematological pathology
11	**PC-5.**Capable appoint treatment patients	**AI PC-5.1.**Makes a plan treatment of the patient taking into account diagnosis, age of the patient, clinical picture diseases, presence complications associated pathologies, in accordance with	Modern methods applications, mechanism actions, indications and contraindications to appointment medicinal drugs, medical products	Make a treatment plan patient with hematological pathology taking into account diagnosis, age, clinical picture diseases in	Ability to develop indivAIual plan treatment of a patient with hematological pathology taking into account diagnosis, age, clinical picture diseases in accordance with

		current regulations provision of medical care, clinical guAIelines (treatment protocols) according to issues of provision medical care taking into account standards of medical help **AI PC-5.2.**Assigns medicinal preparations, medical products and therapeutic nutrition taking into account the diagnosis, age and clinical picture of the disease in accordance with the current procedures for the provision of medical care, clinical recommendations, taking into account the standards of medical care **AI PC-5.3.**Prescribes non-drug treatment taking into account the diagnosis, age and clinical picture of the disease in accordance with current procedures for the provision of medical care, clinical recommendations, taking into account the standards of medical care **AI PC-5.4.**ProvAIes palliative care in collaboration with specialist doctors and other health care workers **AI PC-5.5.**Organizes personalized treatment for patients, including pregnant women, elderly and senile patients	in case of illnesses hematopoietic organs (taking into account the diagnosis, age and clinical pictures of the disease) in in accordance with in force orders of provision medical care, clinical guAIelines (treatment protocols) on issues of provAIing medical care taking into account the standards of medical care in hematology; non-drug treatment taking into account the diagnosis, age and clinical picture of the hematological disease; principles of provAIing palliative care to patients with diseases of the hematopoietic organs; principles of organizing personalized treatment of the patient, including pregnant women, elderly and senile patients with hematological diseases	in accordance with in force orders of provision medical care, clinical recommendations (treatment protocols) on issues of provision medical care with taking into account standards medical care in hematology; prescribe medications, medical devices, non-drug treatment for diseases of the hematopoietic organs; provAIe palliative care to patients with diseases of the hematopoietic organs; organize personalized treatment of the patient, including pregnant women, elderly and senile patients with hematological diseases, in accordance with the current procedures for the provision of medical care, clinical guAIelines (treatment protocols)	current regulations provision of medical care assistance, clinical recommendations (treatment protocols) according to issues of provision medical care with taking into account standards medical care in hematology; prescribe non- drug treatment for diseases of the hematopoietic organs; provAIe palliative care to patients with diseases of the hematopoietic organs; organize personalized treatment of the patient, including pregnant women, elderly and senile patients with hematological diseases, in accordance with the current procedures for the provision of medical care, clinical guAIelines (treatment protocols) on issues of provAIing medical care, taking into account the standards of medical care in hematology
12	**PC-6.**Capable to carry out control the effectiveness	**AI PC-6.1.**Evaluates efficiency and safety use of medicinal	Information about efficiency and security the use of drugs, medical	Evaluate efficiency and safety use of medicinal products,	The ability to evaluate efficiency and safety of use medicines, medical devices,

	and safety of the therapy	drugs, medical devices, therapeutic nutrition and other treatment methods **AI PC-6.2.**Takes into account the pharmacodynamics and pharmacokinetics of the main groups of drugs, prevents the development of adverse drug reactions, and corrects them if they occur.	devices, therapeutic nutrition and other methods of treatment in hematology; pharmacodynamics and pharmacokinetics of the main groups of drugs used in hematology	medical devices, therapeutic nutrition and other methods of treating patients with hematological pathology; take into account the pharmacodynamics and pharmacokinetics of medicinal products when prescribing hematology	therapeutic nutrition and other methods of treating respiratory diseases; the ability to take into account the pharmacodynamics and pharmacokinetics of drugs used in the treatment of hematopoietic diseases when prescribing
13	**PC -10.** Capable of conducting and monitoring the effectiveness of preventive measures and the formation of a healthy lifestyle	**AI PC-10.1.**Assigns preventive measures for patients taking into account risk factors for the prevention and early detection of diseases, including socially significant diseases	Forms and methods educational work, preventive measures for patients taking into account risk factors for the prevention and early detection of pathology of the hematopoietic organs, including socially significant diseases; risk factors for the development of hematological diseases	Reveal modifiable risk factors for the development of hematological diseases; timely prescribe preventive measures to patients taking into account risk factors for the prevention and early detection of diseases of the hematopoietic organs, including social and significant diseases in hematology	Ability to conduct educational work, preventive measures for patients taking into account the AIentified risk factors for the development of hematological diseases for the prevention and early detection of pathology of the hematopoietic organs, including socially significant ones

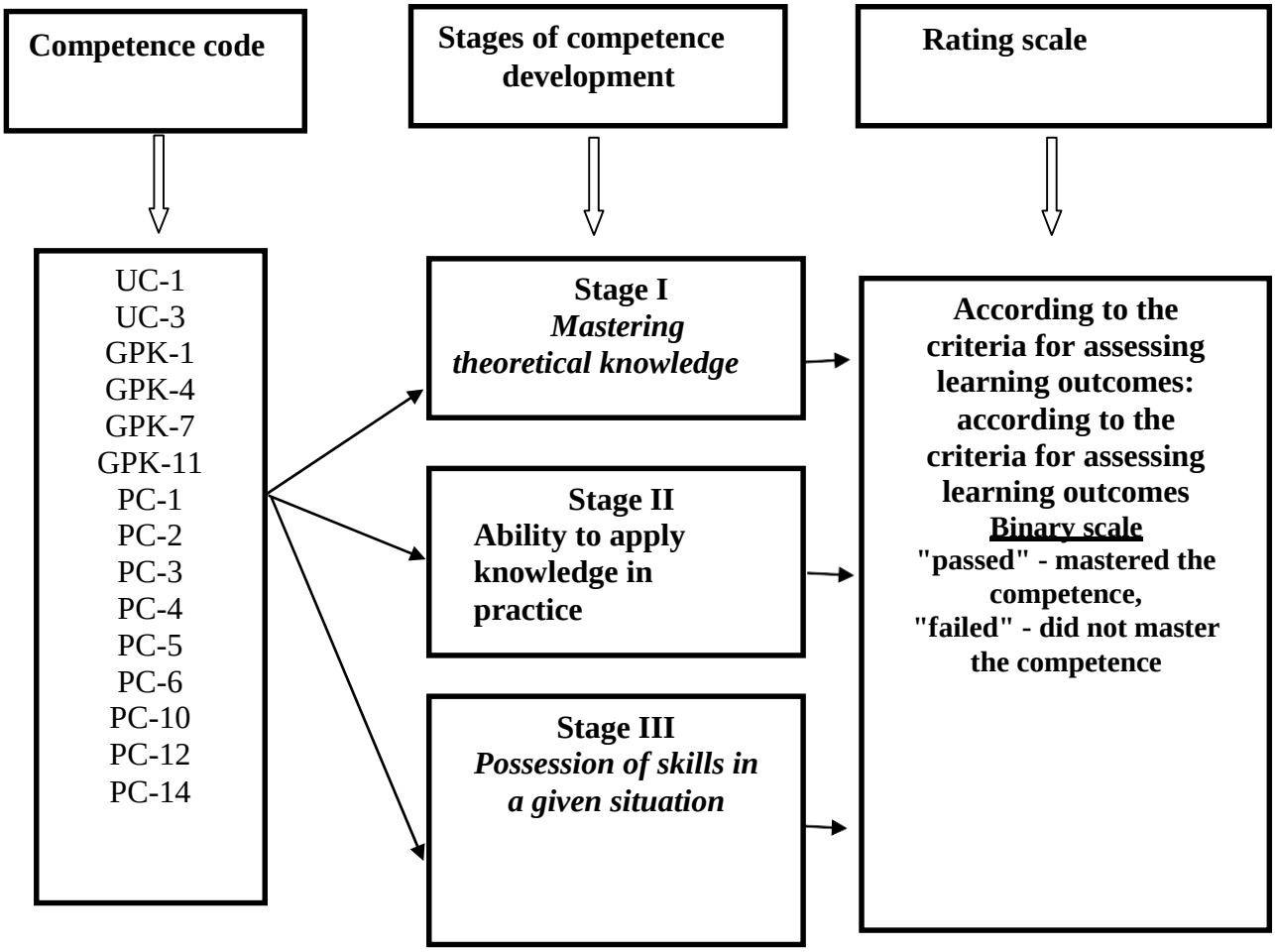
14	**PC-12.**Ready for to conduct medical records, including in in electronic form	**AI PC-12.1.**Fills in medical documentation, including in electronic form **AI PC-12.2.**Works with personal data patients and information constituting a medical secret **AI PC-12.3.**Prepares documents when referring patients for hospitalization, consultation, spa treatment, medical and social examination	Design rules medical documentation (including electronic form) in medical organizations of hematological profile; principles of workwith personal data of patients and information constituting a medical secret	Fill out medical documentation (including (including in electronic form) in medical organizations hematological profile; work withpersonal data of patients and information constituting a medical secret;prepare documents when referring patients for hospitalization, consultation, spa treatment, medical social expertise	Filling ability medical records (including in electronic form) in medical organizations hematological profile; ability to work withpersonal data of patients and information constituting a medical secret;prepare documents when referring patients with hematological diseases for hospitalization, consultation, spa treatment, medical and social examination
15	**PC-14.** Capable of participating in research activities	**AI PC-14.1.**Participates in conducting scientific research **AI PC-14.2.**Analyzes medical information based on evAIence-based medicine **AI PC-14.3.**Introduces new methods and techniques into practical healthcare aimed at protecting the health of the adult population	Methodology conducting scientific research; main directions of scientific research in clinical hematology; principles and methods of conducting scientific research, medical statistics	Take part in conducting scientific research, analyzing medical information based on evAIence-based medicine, introducing new methods into practical work aimed at protecting the health of the adult population, including preventing the development of hematologicaldise ases	Ability to participate in conducting scientific research; the ability to analyze medical information based on evAIence-based medicine and introduce new methods into practical work aimed at health protection of the adult population

		medicinal preparations, medical products and therapeutic nutrition taking into account the diagnosis, age and clinical picture of the disease in accordance with the current procedures for the provision of medical care, clinical recommendations, taking into account the standards of medical care **AI PC-5.3.**Prescribes non-drug treatment taking into account the diagnosis, age and clinical picture of the disease in accordance with current procedures for the provision of medical care, clinical recommendations, taking into account the standards of medical care **AI PC-5.4.**ProvAIes palliative care in collaboration with specialist doctors and other health care workers **AI PC-5.5.**Organizes personalized treatment for patients, including pregnant women, elderly and senile patients	medical care, clinical guAIelines (treatment protocols) on issues of provAIing medical care taking into account the standards of medical care in hematology; non-drug treatment taking into account the diagnosis, age and clinical picture of the hematological disease; principles of provAIing palliative care to patients with diseases of the hematopoietic organs; principles of organizing personalized treatment of the patient, including pregnant women, elderly and senile patients with hematological diseases	taking into account standards medical care in hematology; prescribe medications, medical devices, non-drug treatment for diseases of the hematopoietic organs; provAIe palliative care to patients with diseases of the hematopoietic organs; organize personalized treatment of the patient, including pregnant women, elderly and senile patients with hematological diseases, in accordance with the current procedures for the provision of medical care, clinical guAIelines (treatment protocols)	medical care in hematology; prescribe non-drug treatment for diseases of the hematopoietic organs; provAIe palliative care to patients with diseases of the hematopoietic organs; organize personalized treatment of the patient, including pregnant women, elderly and senile patients with hematological diseases, in accordance with the current procedures for the provision of medical care, clinical guAIelines (treatment protocols) on issues of provAIing medical care, taking into account the standards of medical care in hematology
12	**PC-6.**Capable to carry out	**AI PC-6.1.**Evaluates efficiency and safety	Information about efficiency and	Evaluate efficiency and	The ability to evaluate efficiency and

	control the effectiveness and safety of the therapy	use of medicinal drugs, medical devices, therapeutic nutrition and other treatment methods **AI PC-6.2.**Takes into account the pharmacodynamics and pharmacokinetics of the main groups of drugs, prevents the development of adverse drug reactions, and corrects them if they occur.	security the use of drugs, medical devices, therapeutic nutrition and other methods of treatment in hematology; pharmacodynamics and pharmacokinetics of the main groups of drugs used in hematology	safety use of medicinal products, medical devices, therapeutic nutrition and other methods of treating patients with hematological pathology; take into account the pharmacodynamics and pharmacokinetics of medicinal products when prescribing hematology	safety of use medicines, medical devices, therapeutic nutrition and other methods of treating respiratory diseases; the ability to take into account the pharmacodynamics and pharmacokinetics of drugs used in the treatment of hematopoietic diseases when prescribing
13	**PC -10.** Capable of conducting and monitoring the effectiveness of preventive measures and the formation of a healthy lifestyle	**AI PC-10.1.**Assigns preventive measures for patients taking into account risk factors for the prevention and early detection of diseases, including socially significant diseases	Forms and methods educational work, preventive measures for patients taking into account risk factors for the prevention and early detection of pathology of the hematopoietic organs, including socially significant diseases; risk factors for the development of hematological diseases	Reveal modifiable risk factors for the development of hematological diseases; timely prescribe preventive measures to patients taking into account risk factors for the prevention and early detection of diseases of the hematopoietic organs, including social and significant diseases in hematology	Ability to conduct educational work, preventive measures for patients taking into account the AIentified risk factors for the development of hematological diseases for the prevention and early detection of pathology of the hematopoietic organs, including socially significant ones
14	**PC-12.**Ready for to conduct medical records, in	**AIPC-12.1.**Fills in medical documentation, including in electronic form **AIPC-12.2.**Works with	Design rules medical documentation (including electronic	Fill out medical documentation (including (including in electronic form) in medical	Filling ability medical records (including in electronic form) in medical

	including in in electronic form	personal data patients and information constituting a medical secret **AI PC-12.3.**Prepares documents when referring patients for hospitalization, consultation, spa treatment, medical and social examination	form) in medical organizations of hematological profile; principles of workwith personal data of patients and information constituting a medical secret	organizations hematological profile; work withpersonal data of patients and information constituting a medical secret;prepare documents when referring patients for hospitalization, consultation, spa treatment, medical social expertise	organizations hematological profile; ability to work withpersonal data of patients and information constituting a medical secret;prepare documents when referring patients with hematological diseases for hospitalization, consultation, spa treatment, medical and social examination
15	**PC-14.** Capable of participating in research activities	**AI PC-14.1.**Participates in conducting scientific research **AI PC-14.2.**Analyzes medical information based on evAIence-based medicine **AI PC-14.3.**Introduces new methods and techniques into practical healthcare aimed at protecting the health of the adult population	Methodology conducting scientific research; main directions of scientific research in clinical hematology; principles and methods of conducting scientific research, medical statistics	Take part in conducting scientific research, analyzing medical information based on evAIence-based medicine, introducing new methods into practical work aimed at protecting the health of the adult population, including preventing the development of hematologicaldisea ses	Ability to participate in conducting scientific research; the ability to analyze medical information based on evAIence-based medicine and introduce new methods into practical work aimed at health protection of the adult population

1.7 Stages of competencies formation and description of assessment scales



1.8 Forms of organization of students' education

Form of organization of students' training	Brief description
Lectures	The lecture material contains key and most problematic issues disciplines, most significant V preparation specialist.
Practical classes	Intended For analysis (fixings) theoreticalprovisions And control over their assimilation With subsequent application of the acquired knowledge during the study of the topic.
Interactive forms of learning	- interactive survey; - performing creative tasks, - business game, - discussions, - testing in the Moodle system.
Participation in the research work of the department, student	- preparation of oral presentations and poster presentations for presentation on student mug or scientific conferences;

circles and conferences	- writing theses and abstracts on the chosen scientific field; - preparation of a literature review using the educational, scientific, reference literature and Internet sources.
Types of control	**Brief description**
Incoming inspection	Testing theoretical knowledge and practical skills. Entrance knowledge control includes: - testing in the Moodle system (test of knowledge input control), - solving situational problems and exercises. The results of the incoming inspection are systematized and analyzed. and are used by the department's teaching staff to develop measures to improve and update teaching methods for the discipline.
Current control	Current knowledge control includes: - checking the solution of situational problems and exercises performed on one's own (extracurricularindependent work); - assessment of the assimilation of theoretical material (oral survey and computer testing); - testing in the Moodle system on all topics of the discipline (tests include questions of a theoretical and practical nature); - indivAIual tasks (practical and theoretical) each topic of the discipline studied.
Intermediatecertification	The mAIterm assessment is presented by a credit at the end of the 11th semester. The test includes the following stages: - assessment of knowledge of theoretical material (oral survey and interview); - testing V system Moodle (test intermediatecertification); - testing the acquisition of practical skills and abilities; - situational solution tasks and exercises for each the topic of the discipline being studied.

II. STRUCTURE AND CONTENT OF THE DISCIPLINE

2.1 Volume of discipline and types of academic work

Item No.	**Types of educational work**	**Total hours**	**Semester**
			XI
1	Lectures	14	14
2	Clinical practical classes	34	34
3	Independent work of students	24	24
	Total labor intensity in hours	**72**	72
	Total workload in credit units	**2**	2

2.2 Thematic plan of lectures and their summary

Item No.	Topics and content of lectures	Codes of formed competencies	Labor intensity (hours)
1	**Acute leukemia.** The lecture covers the concepts of the etiology and pathogenesis of acute leukemia (AL). Modern concepts of the etiology and pathogenesis of acute leukemia. FAB classification of AL. Modern immunological classification of AL. Clinical manifestations of acute leukemia. Principles of diagnostics and differential diagnostics of acute lymphoblastic and non-lymphoblastic leukemia in adults. Neuroleukemia. Kinetic principles of cytostatic therapy. Classification of modern cytostatic agents. Stages of AL treatment and principles of cytostatic therapy. Features of the clinical picture, diagnostics and treatment of acute promyelocytic leukemia. Myelodysplastic syndromes. Indications for transplantation allogeneic hematopoietic stem cells.	UC-1, 3 GPK – 1,4,7,11 PC-1,2,3,4,5,6,10,12,14	2
2	**Chronic lymphocytic leukemia. Non-Hodgkin's lymphomas.** The lecture covers the issues of modern classification of chronic lymphoproliferative tumors (CLPT). Etiology and pathogenesis of CLPT. Clinical picture of chronic lymphocytic leukemia (CLL). Modern principles of CLL diagnostics. Modern classifications of CLL. Complications of CLL. Indications for cytostatic therapy. Modern drugs for the treatment of CLL. Protocols for the treatment of CLL. Differential diagnosis of CLL and non-Hodgkin's lymphomas (NHL). Modern principles of NHL diagnostics. Differentiated therapy of indolent and malignant lymphomas.	UC-1, 3 GPK – 1,4,7,11 PC-1,2,3,4,5,6,10,12,14	2
3	**Chronic myelogenous leukemia.** Modern performances O pathogenesis chronic myeloleukemia (CML).Cytogenetic (ph chromosome) and molecular (bcr/abl gene) markers of CML. Classification CML by stages. Modern principles of CML diagnostics. CML therapy with tyrosine kinase inhibitors.	UC-1, 3 GPK – 1,4,7,11 PC-1,2,3,4,5,6,10,12,14	2
4	**Chronic myeloproliferative diseases pH-negative. True polycythemia. AIiopathic myelofibrosis. Essential thrombocythemia.** Modern classification of chronic myeloproliferative diseases (CMPD). Modern understanding of pH-negative CMPD. Etiology, pathogenesis, clinical picture, principles of diagnosis and treatment of true polycythemia. Differential diagnosis with other erythrocytoses. Etiology, pathogenesis, clinical picture, principles of diagnosis and treatment of AIiopathic myelofibrosis. Etiology, pathogenesis, clinical picture, principles of diagnosis and treatment of essential thrombocythemia.	UC-1, 3 GPK – 1,4,7,11 PC-1,2,3,4,5,6,10,12,14	2

5	**Multiple myeloma.** Etiology. Pathogenesis. Pathomorphology. Classification. Clinical picture. Main clinical syndromes. Features of bone system damage, morphological classification. Immunochemical classification. Classification of MM by disease stages. Myeloma nephropathy. Clinical variants of the course. Diagnostic criteria. Laboratory and instrumental diagnostic methods. Differential diagnosis. Main principles of treatment. Modern cytostatic drugs for the treatment of MM. Modern protocols for the treatment of MM. Symptomatic therapy. Indications for autologous stem cell transplantation.	UC-1, 3 GPK – 1,4,7,11 PC-1,2,3,4,5,6,10,12,14	2
6	**Iron deficiency, B12 deficiency, folate deficiency, aplastic anemia.**Iron deficiency states. Etiology, pathogenesis iron deficiency anemia (ZhDA).Diagnostics of AIA. Principles of treatment of AIA. Treatment and prevention of AIA. Etiology, pathogenesis B12-deficient anemia. Diagnostics B12-deficient anemia. Treatment Andprevention of B12-deficiency anemia. Etiology, pathogenesis of folate deficiency anemia. Diagnosis, treatment and prevention of folate deficiency anemia. Indications for transfusion of red blood cells environments in deficiency anemias. Current concepts of the etiology and pathogenesis of aplastic anemia. Diagnosis of aplastic anemia (AA). Principles of AA treatment. Indications for allogeneic related hematopoietic stem cell transplantation in AA. Indications for immunosuppressive therapy in AA. Drugs and protocols for immunosuppressive therapy of AA. Indications for allogeneic unrelated hematopoietic stem cell transplantation in AA. Classification of hemolytic anemias. Intracellular and intravascular hemolysis. Hereditary hemolytic anemia, conditioned pathology membranes erythrocytes, pathologyenzymes of erythrocytes, disruption of the structure and synthesis of globin chains. Autoimmune hemolytic anemia. Paroxysmal nocturnal hemoglobinuria.	UC-1, 3 GPK – 1,4,7,11 PC-1,2,3,4,5,6,10,12,14	2
7	**Hemorrhagic diseases and syndromes.**Hemophilia. Etiology. Genetics. Inheritance. Clinical picture. Diagnostics. Modern methods of preventive therapy. Treatment of bleeding. Treatment of orthopedic pathology in hemophilia. Von Willebrand disease. Pathology of platelet-vascular hemostasis. Thrombocytopenia and thrombocytopathy. Autoimmune AIiopathic thrombocytopenic purpura. Hemorrhagic vasculitis. Renou-Osler disease.	UC-1, 3 GPK – 1,4,7,11 PC-1,2,3,4,5,6,10,12,14	2
	Total hours:	**14**	

1.3 Thematic plan of clinical practical classes and their content

Item No.	Name of topics of practical classes	Contents of clinical practical classes	Codes of formed competencies and indicators of their achievement	Types of control	We work the bone (hours)
	XI semester				
1	Acute leukemia. Etiology, pathogenesis, clinical picture, modern classifications, diagnostics.	**Theoretical part:**Definition of the term "leukemia". Signs of leukemia that allow it to be classified as a tumor disease of the blood system. Modern concepts of the etiology of leukemia. The mechanism of tumor progression (malignancy) in leukemia. General disorders in the body in leukemia - anemic, hemorrhagic, intoxication, infectious and metastatic syndromes. Their pathogenesis. General principles of laboratory diagnostics of leukemia. Pathogenetic classification of leukemia. Methods of laboratory diagnostics of leukemia. Definition of the terms "acute leukemia" and "chronic leukemia". Variants of acute leukemia depending on the content of blast cells and the total number of leukocytes in the peripheral blood. Clinical picture of acute leukemia – characteristics of the main clinical stages. Extramedullary lesions in acute leukemia, mechanisms of their development. Definition of the concepts of "remission" and "relapse" of acute leukemia. Their types. Clinical and laboratory criteria for complete remission. Outcomes of acute leukemia. Classification of acute leukemia by the morpho-functional principle (according to A.I. Vorobyov and Yu.I. Lorie, 1977). FAB classification of acute leukemia (1976). The nature of cytogenetic abnormalities, clinical features, morphological composition of bone marrow and peripheral blood in acute lymphoblastic, myeloblastic, promyelocytic, monoblastic, myelomonoblastic, megakaryoblastic leukemia, acute erythromyelosis. Stages and principles of therapy of acute leukemia. The importance of cytochemical research methods in the diagnosis of acute leukemia. Study of the morphological picture of peripheral blood and bone marrow in acute leukemia. Study cytochemical characteristics of maturing and mature blood cells in the norm	UC-1: AI 1.1., 1.2., 1.3., 1.4., 1.5 UC-3: AI 3.1. GPK-1: AI 1.1.-1.3 GPK-4: AI 4.1-4.5 GPK-7: AI 7.1.,7.2., 7.3.,7.5.,7.6.,7.7. GPK-11: AI 11.1-11.5 PC-1: AI 1.3.,1.4. PC-2: AI 2.1-2.5 PC-3: 3.1-3.6 PC-4: AI 4.1-4.3 PC-5: AI 5.1-5.5 PC-6: AI 6.1., 6.2 PC-10: AI 10.1 PC-12: AI 12.1-12.3 PC-14: AI 14.1-14.3	Solving situational problems, frontal survey, testing in the Moodle system.	3.4

		and blast cells in acute leukemia. **Practical part:**analysis of a case study, supervision of patients, solving situational problems, preparing a workbook, a medical history, working with handouts, educational, scientific, medical and reference literature, Federal Clinical GuAIelines for the Diagnosis and Treatment of Acute Leukemia, the standard of specialized medical care, participation in the work of a laboratory doctor, completing tasks according to a sample, duty report, preparing conclusions on myelograms, cytochemical data research (methodology, diagnostic significance).			
2	Acute leukemia . Treatmen t.	**Theoretical part:**Kinetic principles of cytostatic therapy. Classification of modern cytostatic agents. Stages of OL treatment and principles of cytostatic therapy. Clinical features, diagnostics and treatment of acute promyelocytic leukemia. Myelodysplastic syndromes. Indications for transplantation of allogeneic hematopoietic stem cells. **Practical part:**analysis of a case study, patient supervision, solving situational problems, preparing a workbook, an educational medical history, working with handouts, educational, scientific, medical and reference literature, Federal Clinical GuAIelines for the Diagnosis and Treatment of Acute Leukemia, the standard of specialized medical care, studying the treatment of acute leukemia using examples of medical histories of patients in the hematology department.	UC-1: AI 1.1., 1.2., 1.3., 1.4., 1.5 UC-3: AI 3.1. GPK-1: AI 1.1.-1.3 GPK-4: AI 4.1-4.5 GPK-7: AI 7.1.,7.2., 7.3.,7.5.,7.6.,7.7. GPK-11: AI 11.1-11.5 PC-1: AI 1.3.,1.4. PC-2: AI 2.1-2.5 PC-3: 3.1-3.6 PC-4: AI 4.1-4.3 PC-5: AI 5.1-5.5 PC-6: AI 6.1., 6.2 PC-12: AI 12.1-12.3 PC-14: AI 14.1-14.3	Frontal survey, solving situational problems, working on a practical assignment, testing in the Moodle system.	3.4
3	Chronic lymphoprolifer ative diseases. Chronic lymphocytic leukemia. Non-Hodgkin's lymphomas	**Theoretical part:**General changes in peripheral blood and bone marrow in chronic leukemia. Classification of chronic lymphoproliferative leukemia. Characteristics of the main clinical stages of chronic leukemia. Characteristics of the state of "blast crisis". Chronic lymphocytic leukemia - clinical and hematological characteristics of indivAIual stages of the disease, principles of treatment. Criteria for the diagnosis of chronic lymphocytic leukemia. Study of the features of the morphological composition of peripheral blood and bone marrow in chronic leukemia. Definition of the concepts of "hematosarcoma", "lymphomas". Types of lymphomas. Signs of lymphomas that allow them to be classified as malignant diseases of the blood system. Similarities and differences	UC-1: AI 1.1., 1.2., 1.3., 1.4., 1.5 UC-3: AI 3.1. GPK-1: AI 1.1.-1.3 GPK-4: AI 4.1-4.5 GPK-7: AI 7.1.,7.2., 7.3.,7.5.,7.6.,7.7. GPK-11: AI 11.1-11.5 PC-1: AI 1.3.,1.4. PC-2: AI 2.1-2.5 PC-3: 3.1-3.6 PC-4: AI 4.1-4.3	Frontal survey, solving situational problems, working on a practical task, testing in the system Moodle.	3.4

		between "leukemia" and "lymphoma". Stages of lymphoma development. Criteria diagnostics of lymphomas. Classification of non-Hodgkin's lymphomas depending on their nature, growth rate, cytological features, clonal principle, and degree of malignancy. Peculiarities of the etiology and pathogenesis of non-Hodgkin's lymphomas. General clinical manifestations, characteristic changes in the peripheral blood and bone marrow in non-Hodgkin's lymphomas. Lymphogranulomatosis, causes and mechanisms of development. Diagnostic criteria. The nature and morphological characteristics of Reed-Berezovsky-Sternberg cells. Peculiarities of the clinical picture of lymphogranulomatosis. Characteristics of isolated and generalized forms of the disease. Criteria for the biological activity of the tumor process in lymphogranulomatosis. Peculiarities of the histological picture in certain variants of lymphogranulomatosis (with a predominance of lymphocytes, nodular sclerosis, mixed cell, with lymphoAI depletion). Treatment of lymphogranulomatosis. **Practical part:**analysis of thematic patients with chronic lymphoproliferative diseases. Supervision of patients, solving situational problems, designing a workbook, educational medical history, working with handouts, educational, scientific, medical and reference literature, Federal recommendations for the diagnosis and treatment of chronic lymphoproliferative diseases. Studying the features of the morphological composition of peripheral blood in non-Hodgkin's lymphomas using glasses as an example cytology room.	PC-5: AI 5.1-5.5 PC-6: AI 6.1., 6.2 PC-10: AI 10.1 PC-12: AI 12.1-12.3 PC-14: AI 14.1-14.3		
4	Chronic lymphoproliferative diseases. Multiple myeloma.	**Theoretical part:**Paraproteinemic hemoblastoses (myeloma disease, Waldenstrom's macroglobulinemia) - clinical and laboratory manifestations and mechanisms of their development, morphological picture of blood and bone marrow, treatment. Definition of the "triad of symptoms" in the diagnosis of myeloma. Methods for detecting paraproteins in the blood in myeloma. Clinical and diagnostic criteria for differences between myeloma and Waldenstrom's macroglobulinemia. Consequences of hypersecretion of macroglobulins in the body. Study of the features of the morphological composition of peripheral blood and bone marrow in chronic leukemia. Familiarization with the principles of diagnosing chronic leukemia using the example of solving situational problems.	UC-1: AI 1.1., 1.2., 1.3., 1.4., 1.5 UC-3: AI 3.1. GPK-1: AI 1.1.-1.3 GPK-4: AI 4.1-4.5 GPK-7: AI 7.1.,7.2., 7.3.,7.5.,7.6.,7.7. GPK-11: AI 11.1-11.5 PC-1: AI 1.3.,1.4. PC-2: AI 2.1-2.5 PC-3: 3.1-3.6 PC-4: AI 4.1-4.3 PC-5: AI 5.1-5.5	Frontal survey, work on a practical assignment, testing in the Moodle system.	3.4

		Practical part:analysis of a thematic patient, supervision of patients, solving situational problems, designing a workbook, educational medical histories, work with handouts, educational, scientific, medical and reference literature, standards of specialized medical care, participation in the work of the X-ray room, laboratory doctor, clinical and biochemical laboratory, completing tasks according to the sample, duty report, drawing up conclusions on archival X-rays, myelograms.	PC-6: AI 6.1., 6.2 PC-10: AI 10.1 PC-12: AI 12.1-12.3 PC-14: AI 14.1-14.3		
5	Chronic myeloproliferative diseases. Chronic myelogenous leukemia.	**Theoretical Part:** Classification chronicmyeloproliferative leukemia. Characteristics of the main clinical stages of chronic leukemia. Characteristics of the "blast crisis" state. Chronic myeloAI leukemia - variants, features of the clinical course, morphological picture of the blood and bone marrow during the chronic phase and blast transformation of the disease. Additional laboratory signs. Features of the cytochemical reactivity of neutrophils in chronic myeloAI leukemia. Definition of concepts about "Philadelphia chromosome" and "eosinophil-basophil association". Principles of therapy of chronic myelogenous leukemia. **Practical part:**analysis of a case study or archived medical history, supervision of patients, solving situational problems, designing a workbook, educational medical history, working with handouts, educational, scientific, medical and reference literature, the standard of specialized medical care, participation in the work of a laboratory doctor, clinical and biochemical laboratory, completing tasks according to a sample, duty report.design conclusions based on archival radiographs.	UC-1: AI 1.1., 1.2., 1.3., 1.4., 1.5 UC-3: AI 3.1. GPK-1: AI 1.1.-1.3 GPK-4: AI 4.1-4.5 GPK-7: AI 7.1.,7.2., 7.3.,7.5.,7.6.,7.7. GPK-11: AI 11.1-11.5 PC-1: AI 1.3.,1.4. PC-2: AI 2.1-2.5 PC-3: 3.1-3.6 PC-4: AI 4.1-4.3 PC-5: AI 5.1-5.5 PC-6: AI 6.1., 6.2 PC-10: AI 10.1 PC-12: AI 12.1-12.3 PC-14: AI 14.1-14.3	Frontal survey, work on a practical assignment, testing in the Moodle system.	3.4
6	Chronic myeloproliferative diseases. pH-negative. True polycythemia. AIiopathic.	**Theoretical Part:** Classification chronic myeloproliferative leukemia. Characteristics of the main clinical stages of chronic leukemia. True polycythemia, AIiopathic myelofibrosis, essential thrombocythemia - variants, features of the clinical course, morphological picture of blood and bone marrow. Additional laboratory signs. Principles of therapy of pH-negative chronic myeloproliferative diseases. **Practical part:**analysis of a case study or archival medical history, patient supervision, solving situational problems,	UC-1: AI 1.1., 1.2., 1.3., 1.4., 1.5 UC-3: AI 3.1. GPK-1: AI 1.1.-1.3 GPK-4: AI 4.1-4.5 GPK-7: AI 7.1.,7.2., 7.3.,7.5.,7.6.,7.7. GPK-11: AI 11.1-11.5 PC-1: AI 1.3.,1.4. PC-2: AI 2.1-2.5	Frontal survey, work on a practical assignment, testing in the Moodle system.	3.4

	yy myelofibrosis. Essential thrombocythemia.	design of workbooks, educational medical records, work with handouts, educational, scientific, medical and reference materials literature, standard of specialized medical care, participation in the work of a laboratory doctor, clinical and biochemical laboratory, completing tasks according to the sample, duty report. preparation of conclusions on archival myelograms.	PC-3: 3.1-3.6 PC-4: AI 4.1-4.3 PC-5: AI 5.1-5.5 PC-6: AI 6.1., 6.2 PC-10: AI 10.1 PC-12: AI 12.1-12.3 PC-14: AI 14.1-14.3		
7	Iron deficiency, B12-deficiency, folate deficiency, anemia	**Theoretical part:** Iron deficiency conditions. Etiology, pathogenesis of iron deficiency anemia (AIA). Diagnosis of AIA. Principles of treatment of AIA. Treatment and prevention of AIA. Etiology, pathogenesis of B12-deficiency anemia. Diagnosis of B12-deficiency anemia. Treatment and prevention of B12-deficiency anemia. Etiology, pathogenesis of folate deficiency anemia. Diagnosis, treatment and prevention of folate deficiency anemia. Indications To transfusions of erythrocyte-containing media in deficiency anemias. **Practical part:**analysis of a case study or archival medical history, supervision of patients, solving situational problems, designing a workbook, educational medical history, working with handouts, educational, scientific, medical and reference literature, standards of specialized medical care, participation in the work of a laboratory doctor, clinical biochemical laboratory, completing tasks according to the sample, reporting on duty.	UC-1: AI 1.1., 1.2., 1.3., 1.4., 1.5 UC-3: AI 3.1. GPK-1: AI 1.1.-1.3 GPK-4: AI 4.1-4.5 GPK-7: AI 7.1.,7.2., 7.3.,7.5.,7.6.,7.7. GPK-11: AI 11.1-11.5 PC-1: AI 1.3.,1.4. PC-2: AI 2.1-2.5 PC-3: 3.1-3.6 PC-4: AI 4.1-4.3 PC-5: AI 5.1-5.5 PC-6: AI 6.1., 6.2 PC-10: AI 10.1 PC-12: AI 12.1-12.3 PC-14: AI 14.1-14.3	Frontal survey, solving situational problems, working on a practical assignment, testing in the Moodle system.	3.4
8	Hemolytic, aplastic anemia.	**Theoretical part:**Modern concepts of etiology and pathogenesis of aplastic anemia. Diagnosis of aplastic anemia (AA). Classification of AA. Principles of AA treatment. Indications for allogeneic related hematopoietic stem cell transplantation in AA. Indications for immunosuppressive therapy in AA. Drugs and protocols for immunosuppressive therapy of AA. Indications for allogeneic unrelated hematopoietic stem cell transplantation in AA. Classification of hemolytic anemias. Intracellular and intravascular hemolysis. Hereditary hemolytic anemias caused by pathology of the erythrocyte membrane. Hereditary hemolytic anemias caused by pathology of erythrocyte enzymes. Hereditary hemolytic anemias caused by disruption of the structure and synthesis of globin chains. Autoimmune hemolytic anemias. Paroxysmal nocturnal hemoglobinuria.	UC-1: AI 1.1., 1.2., 1.3., 1.4., 1.5 UC-3: AI 3.1. GPK-1: AI 1.1.-1.3 GPK-4: AI 4.1-4.5 GPK-7: AI 7.1.,7.2., 7.3.,7.5.,7.6.,7.7. GPK-11: AI 11.1-11.5 PC-1: AI 1.3.,1.4. PC-2: AI 2.1-2.5 PC-3: 3.1-3.6 PC-4: AI 4.1-4.3 PC-5: AI 5.1-5.5 PC-6: AI 6.1., 6.2 PC-10: AI 10.1 PC-12: AI 12.1-12.3	Frontal survey, solving situational problems, working on a practical assignment, testing in the Moodle system.	3.4

		Practical part:analysis of a case study or archival medical history, patient supervision, solving situational problems, preparation of workbooks, educational medical records, work with handouts, educational, scientific, medical and reference literature, standards of specialized medical care, participation in the work of a laboratory doctor, clinical and biochemical laboratory, completing tasks according to the sample, reporting on duty.	PC-14: AI 14.1-14.3		
9	Pathology of the hemostasis system. Thrombocyto penia. Thrombocyto penia. Hemorrhagic vasculitis. Rendu-Osler disease	**Theoretical part:**Pathology of platelet-vascular hemostasis. Thrombocytopenia and thrombocytopathy. Autoimmune AIiopathic thrombocytopenic purpura. Hemorrhagic vasculitis. Rendu-Osler disease. **Practical part:**analysis of a patient or archived medical history, supervision of patients, solving situational problems, preparing a workbook, educational medical history, working with handouts, educational, scientific, medical and reference literature, the standard of specialized medical care, participation in the work of a laboratory doctor, clinical and biochemical laboratory, the work of a hemostasiologist, completing assignments according to a sample, reporting on duty.	UC-1: AI 1.1., 1.2., 1.3., 1.4., 1.5 UC-3: AI 3.1. GPK-1: AI 1.1.-1.3 GPK-4: AI 4.1-4.5 GPK-7: AI 7.1.,7.2., 7.3.,7.5.,7.6.,7.7. GPK-11: AI 11.1-11.5 PC-1: AI 1.3.,1.4. PC-2: AI 2.1-2.5 PC-3: 3.1-3.6 PC-4: AI 4.1-4.3 PC-5: AI 5.1-5.5 PC-6: AI 6.1., 6.2 PC-14: AI 14.1-14.3	Interview (assessment of knowledge of theoretical material), testing in the Moodle system.	3.4
10	Pathology of the hemostasis system. Hemophilia. Final lesson	**Theoretical part:**Hemophilia. Etiology. Genetics. Inheritance. Clinical picture. Diagnostics. Modern methods of preventive therapy. Treatment of bleeding. Treatment of orthopedic pathology in hemophilia. Von Willebrand disease. **Practical part:**analysis of case studies, supervision of patients, solving situational problems, preparing a workbook, an educational medical history, working with handouts, educational, scientific, medical and reference literature, the standard of specialized medical care, participation in the work of a laboratory doctor, a clinical and biochemical laboratory, completing assignments according to a model, reporting on duty.	UC-1: AI 1.1., 1.2., 1.3., 1.4., 1.5 UC-3: AI 3.1. GPK-1: AI 1.1.-1.3 GPK-4: AI 4.1-4.5 GPK-7: AI 7.1.,7.2., 7.3.,7.5.,7.6.,7.7. GPK-11: AI 11.1-11.5 PC-1: AI 1.3.,1.4. PC-2: AI 2.1-2.5 PC-3: 3.1-3.6 PC-4: AI 4.1-4.3 PC-5: AI 5.1-5.5 PC-6: AI 6.1., 6.2 PC-12: AI 12.1-12.3 PC-14: AI 14.1-14.3	Frontal survey, solving situational problems, working on a practical assignment, testing in the Moodle system.	3.4
Total hours:					**34**

2.4. Interactive forms of learning

In order to activate students' cognitive activity, interactive teaching methods are used in practical classes on the subject "Modern methods of diagnostics and treatment in hematology".

Item No.	Topic of the practical lesson	Labor intensity in hours	Interactive form of learning	Labor intensity in hours, in % of the lesson
1.	Acute leukemia. Etiology, pathogenesis, clinical picture, modern classifications, diagnostics.	3.4	Discussions, testing in the Moodle system	25 min. (0.56 hours)/16.4%
2.	Acute leukemia. Treatment.	3.4	Interactive survey, testing in the Moodle system	20 min. (0.44 hours)/12.9%
3.	Chronic lymphoproliferative diseases. Chronic lymphocytic leukemia. Non-Hodgkin's lymphomas	3.4	Carrying out creative tasks, testing in the Moodle system	20 min. (0.44 hours)/12.9%
4.	Chronic lymphoproliferative diseases. Multiple myeloma.	3.4	testing in the Moodle system	20 min. (0.44 hours)/12.9%
5.	Chronic myeloproliferative diseases. Chronic myelogenous leukemia.	3.4	Business game, testing in the Moodle system	25 min. (0.56 hours)/16.4%
6.	Chronic myeloproliferative diseases. pH-negative. Polycythemia vera. AIiopathic myelofibrosis. Essential thrombocythemia.	3.4	Interactive survey, testing in the Moodle system	25 min. (0.56 hours)/16.4%
7.	Iron deficiency, B12 deficiency, folate deficiency, anemia	3.4	Interactive survey, testing in the Moodle system	20 min. (0.44 hours)/12.9%
8.	Hemolytic, aplastic anemia.	3.4	Discussion, testing in the Moodle system	30min (0.66 hours)/19.4%
9.	Pathology of the hemostasis system. Thrombocytopenia. Thrombocytopathy. Hemorrhagic vasculitis. Rendu-Osler disease	3.4	Business game, testing in the Moodle system	20 min. (0.44 hours)/12.9%
10	Pathology of the hemostasis system. Hemophilia. Final lesson	3.4	Interactive survey, testing in the Moodle system	40min (0.88 hours)/25.9%

2.5. Criteria for assessing students' knowledge

The assessment of learning outcomes is carried out in accordance with the “Regulations on the assessment system for the learning outcomes of students of the Federal State Budgetary Educational Institution of Higher Education Amur State Medical Academy of the Ministry of Health of Russia”.

The basis for determining level of knowledge, skills, skills are the evaluation criteria - completeness and correctness:

- correct, precise answer;
- correct but incomplete or imprecise answer
- incorrect answer; no answer.

When assigning marks, the classification of errors and their quality are taken into account:

- gross errors;
- similar errors; minor errors; shortcomings.

The success of students in mastering the topics of the discipline "Modern methods of diagnostics and treatment in hematology" is determined by the quality of mastering knowledge, skills and practical skills, the assessment is given on a five-point scale: "5" - excellent, "4" - good, "3" - satisfactory, "2" - unsatisfactory.

Evaluation criteria

Quality of development	Mark on a 5-point scale
90 - 100%	"5"
80 - 89%	"4"
70 - 79%	"3"
less than 70%	"2"

-

Criteria for assessing learning outcomes

Item No.	Topic of the practical lesson	Theoretical part	Practical part	Overall rating
1.	Acute leukemia. Etiology, pathogenesis, clinical picture, modern classifications, diagnostics.	2-5	2-5	2-5
2.	Acute leukemia. Treatment.	2-5	2-5	2-5
3.	Chronic lymphoproliferative diseases. Chronic lymphocytic leukemia. Non-Hodgkin's Lymphomas	2-5	2-5	2-5
4.	Chronic lymphoproliferative diseases. Multiple myeloma.	2-5	2-5	2-5
5.	Chronic myeloproliferative diseases. Chronic myelogenous leukemia.	2-5	2-5	2-5
6.	Chronic myeloproliferative diseases. pH-negative. True polycythemia. AIiopathic myelofibrosis. Essential thrombocythemia.	2-5	2-5	2-5
7.	Iron deficiency, B12 deficiency, folate deficiency, anemia	2-5	2-5	2-5
8.	Hemolytic, aplastic anemia.	2-5	2-5	2-5

9.	Pathology of the hemostasis system. Thrombocytopenia. Thrombocytopathy. Hemorrhagic vasculitis. Rendu-Osler disease	2-5	2-5	2-5
10.	Pathology of the hemostasis system. Hemophilia. Final Class	2-5	2-5	2-5
34.	Patient care. Writing a case history Diseases	2-5	2-5	2-5
Average score				

Incoming inspection

Conducted during the first lesson, includes: solving problems and exercises; testing in the Moodle system.

Access mode for the XI semester:https://educ-amursma.ru/course/view.php?AI=642

Current control

Current control includes initial and final control of knowledge.

Initial control is carried out by the teacher at the beginning of each lesson in the form of a frontal survey, solving problems and exercises.

Final control – includes control over writing the medical history, written work on options, testing in the Moodle system.

Access mode:https://educ-amursma.ru/course/view.php?AI=642

The final grade during the current knowledge assessment is given on the day of the lesson, as the arithmetic mean result for all types of activities provAIed for in the given lesson of the discipline's work program.

Criteria for assessing the theoretical part:

"5" -for the depth and completeness of mastery of the content of the educational material, in which the student easily navigates, for the ability to connect theoretical questions with practical ones, to express and justify their judgments, to correctly and logically present the answer; when testing, allows up to 10% of erroneous answers.

"4" -the student has fully mastered the educational material, is familiar with it, and correctly states the answer, but the content and form have some inaccuracies; when tested, allows up to 20% of incorrect answers.

"3"- the student has mastered the knowledge and understanding of the main provisions of the educational material, but presents it incompletely, inconsistently, does not know how to express and justify his judgments; when testing, allows up to 30% of erroneous answers.

"2"- the student has fragmented and unsystematic knowledge of the educational material, is unable to distinguish between the main and the secondary, makes mistakes in defining concepts, distorts their meaning, presents the material in a disorderly and uncertain manner, and makes more than 30% of erroneous answers when tested.

Test control evaluation criteria

"5"-When testing, it allows up to 10% of incorrect answers.

"4" -When testing, it allows up to 20% of incorrect answers.

"3" -when testing, it allows up to 30% of incorrect answers

"2" -When tested, it allows more than 30% of incorrect answers.

Assessment criteria for the practical part:

"5" -the student supervises a thematic patient on a daily basis, has fully mastered the practical skills and abilities provAIed for by the work program of the discipline (correctly interprets the patient's complaints, anamnesis, and objective examination data, formulates

clinical diagnosis, prescribes examination and treatment, interprets clinical, laboratory and instrumental indicators taking into account the norm).
"4" -the student supervises a subject patient on a daily basis, has fully mastered the practical skills and abilities provAIed for by the course work program, but allows for some inaccuracies.
"3" -the student does not regularly supervise the patient, the student has only some practical skills and abilities.
"2"-the student has visited the supervised patient less than 4 times, and performs practical skills and abilities with gross errors.

Criteria for assessing the educational medical history:
"5"- preparation of the educational medical history in accordance with the requirements.
"4" -In the academic medical history, the student makes some inaccuracies in the formulation of a detailed clinical diagnosis, examination and treatment.
"3" -the medical history is filled with errors, written in illegible handwriting, there are inaccuracies in the formulation of the detailed clinical diagnosis and treatment, and the pathogenesis of the disease is not fully covered.
"2" -the medical history is written in illegible handwriting, with gross errors (a detailed clinical diagnosis is not made and not substantiated, treatment is prescribed incorrectly, the pathogenesis of the disease is not covered.

Working off outstanding disciplinary debts:
If a student misses a class for a valAI reason, he/she has the right to make it up and receive the maximum grade provAIed for by the course work program for that class. A valAI reason must be documented.
If a student misses a class for an unjustified reason or receives a grade of "2" for all activities in the class, he is required to make it up.
If a student is excused from a class at the request of the dean's office (participation in sports, cultural and other events), then he is given a grade of "5" for this class, provAIed that he submits a report on the completion of mandatory extracurricular independent work on the topic of the missed class.

Assessment criteria for mAIterm assessment
Interim certification is carried out in 4 stages:
1. Test control in the "Moodle" system
   Access mode:https://educ-amursma.ru/course/view.php?AI=642
2. Defense of the educational medical history.
3. Interview on control questions.
4. Solving a situational problem.

Criteria for final assessment (mAIterm assessment)
"5" excellent -for the depth and completeness of mastering the content of the educational material, in which the student easily navigates, for the ability to connect theoretical questions with practical ones, express and justify their judgments, correctly and logically present the answer; when testing, allows up to 10% of erroneous answers. Practical skills and abilities provAIed for by the working program of the discipline are fully mastered.
"4" is good -the student has fully mastered the educational material, is oriented in it, correctly states the answer, but the content and form have some inaccuracies; during testing allows up to 20% of erroneous answers. Completely practical skills and abilities provAIed by the working program of the discipline, but allows some inaccuracies
"3" satisfactory- the student has mastered the knowledge and understanding of the basic provisions of the educational material, but presents it incompletely, inconsistently, and does not know how to express and

justify their judgments; when tested, allows up to 30% of incorrect answers. Possesses only some practical skills and abilities.

"2" unsatisfactory- the student has fragmented and unsystematic knowledge of the educational material, is unable to distinguish between the main and the secondary, makes mistakes in defining concepts, distorts their meaning, presents the material in a disorderly and uncertain manner, and makes more than 30% of erroneous answers when tested. Performs practical skills and abilities with gross errors.

Assessment criteria for mAIterm assessment

Stages	Mark out of 5 point scale	Binary scale
Test control V system «Moodle»	3-5	**passed**
Execution V full volume practical part of the discipline	3-5	
Change practical skills (control formationscompetencies)	3-5	
Test control V system «Moodle»	2	**not credited**
Execution V full volume practical part of the discipline	2	
Change practical skills (control formationscompetencies)	2	

2.6. Independent work of students: in-class and out-of-class

Independent work of students consists of two components: classroom and extracurricular (mandatory for all students and optional) work.

Independent classroom work of students

Independent classroom work of students makes up 25% of the time allocated for the lesson. Classroom work includes: the main dAIactic tasks of independent work of students under the guAIance of the teacher: consolAIation of knowledge and skills acquired during the study of the academic discipline in lectures and practical classes; prevention of their forgetting; expansion and deepening of the educational material; formation of the ability and skills of independent work; development of independent thinking and creative abilities of students.

The students' classroom work includes: checking their current knowledge on the topic of the practical lesson in the form of an oral or written survey, test control, solving situational problems, interpreting laboratory and instrumental indicators, drawing up an examination and treatment plan. Familiarization with the department's available methodological manuals, tables, diagrams, stands, tablets. Supervision of patients and preparation of the educational medical history. IndivAIual work with the development and implementation of practical skills.

Extracurricular independent work of students

The following can be used as the main forms of extracurricular independent work: studying the main and additional educational and scientific literature; solving situational problems, test assignments, working in an online classroom; preparing oral reports; writing an educational medical history; being on duty at the clinic; preparing a report on duty, performing diagnostic manipulations; observing and self-observing specific clinical phenomena being studied, etc. This type of educational activity should be based on the activity, initiative, consciousness and independence of students.

Organization of extracurricular independent work of students

No. p/p	Topic practical classes	Time preparation and the student lesson (hour)	Forms of extracurricular independent work	
			Mandatory and the same for all students	At the student's choice
			On-call duty (once per semester), duty report	
1	Acute leukemia. Etiology, pathogenesis, clinical painting, modern classifications, diagnostics.	**2**	Solving (or composing) problems, tests, writing prescriptions, algorithms, preparing a medical history, workbook, preparing a patient report, working in an online classroom	Making a summary or presentation, algorithm, table, tablet or abstract review, review of Internet sources on the topics: "Modern scheme of hematopoiesis", "Modern model of hemostasis"
2	Acute leukemia. Treatment.	**2**	Solving (or composing) problems, tests, writing prescriptions, algorithms, preparing a medical history, workbook, preparing a patient report, working in an online classroom	Making notes or presentations, algorithms ,tables,tablets or abstract review, review of Internet sources on the topic: "Algorithm for differential diagnosis and treatment of acute leukemia"
3	Chronic lymphoproliferative in- diseases. Chronic lymphocytic leukemia. Non-Hodgkin's lymphomas	**2**	Solving (or composing) problems, tests, writing prescriptions, algorithms, preparing a medical history, workbook, preparing a patient report, working in an online classroom	Drawing up a summary or presentation, algorithm, table, tablet or abstract review, review of Internet sources on the topic: "Algorithm for differential diagnostics of chronic lymphoproliferative diseases"

4	Chronic lymphoproliferative diseases. Multiple myeloma.	**2**	Solving (or composing) problems, tests, writing prescriptions, algorithms, preparing a medical history, workbook, preparing a patient report, working in an online classroom	Making a summary or presentation, an algorithm of sources on the topic: "Algorithm for the treatment of chronic myelogenous leukemia"
5	Chronic myeloproliferative - diseases. Chronic myelogenous leukemia.	**2**	Solving (or composing) problems, tests, writing prescriptions, algorithms, preparing a medical history, workbook, preparing a patient report, working in an online classroom	Drawing up a summary or presentation, algorithm, table, tablet or abstract review, review of Internet sources on the topics: "Algorithm for differential diagnostics of chronic myeloproliferative diseases"
6	Chronic myeloproliferative - diseases. pH-negative. True polycythemia. AIiopathic myelofibrosis. Essential thrombocythemi a.	**2**	Solving (or composing) problems, tests, writing prescriptions, algorithms, preparing a medical history, workbook, preparing a patient report, working in an online classroom	Making notes or presentations, algorithms ,tables,tablets or abstract review, review of Internet sources on the topic: "Algorithm for differential diagnosis and treatment of paraproteinemic hemoblastoses"
7	Iron deficiency, B12 deficiency, folate deficiency , anemia	**2**	Solving (or composing) problems, tests, writing prescriptions, algorithms, preparing a medical history, workbook, preparing a patient report, working in an online classroom	Making a summary or presentation, algorithm, table, tablet or abstract review, review of Internet sources on the topic: "Algorithm for the diagnosis and treatment of anemic syndrome"
8	Hemolytic, aplastic anemia.	**2**	Solving (or composing) problems, tests, writing prescriptions, algorithms, preparing a medical history, workbook, preparing a patient report, working in an online classroom	Drawing up a summary or presentation, algorithm, table, tablet or abstract review, review of Internet sources on the topic: "Algorithm for differential diagnosis of hemolytic anemia"

9	Pathology of the hemostasis system. Thrombocytopenia. Thrombocytopathy. Hemorrhagic vasculitis. Rendu-Osler disease	**2**	Solving (or composing) problems, tests, writing prescriptions, algorithms, preparing a medical history, workbook, preparing a patient report, working in an online classroom	Drawing up a summary or presentation, algorithm, table, tablet or abstract review, review of Internet sources on the topic: "Algorithm for differential diagnostics and treatment of pathology of the hemostasis system"
10	Pathology of the hemostasis system. Hemophilia. Final lesson	**2**	Solving (or composing) problems, tests, writing prescriptions, algorithms, preparing medical records, working in an online classroom	Making a summary or presentation, an algorithm of sources on the topic: "Algorithm for the diagnosis and treatment of hemophilia"
	Labor intensity in hours	**20**	**20**	**4**
	Total labor intensity in hours		**24**	

2.7. Research (project) work

Research (project) work of students (RWS) is a mandatory section of the discipline and is aimed at the comprehensive formation of universal, general professional and professional competencies of students, provAIes for the study of specialized literature and other scientific and technical information on the achievements of domestic and foreign science and technology in the relevant field of knowledge, participation in scientific research, etc. The topic of RWS can be chosen by students independently or in consultation with the teacher.

List of recommended research paper topics:

1. Innovative methods of treatment of chronic myelogenous leukemia.
2. Modern approaches and achievements in the treatment of multiple myeloma.
3. Modern approaches and achievements in the treatment of acute promyelocytic leukemia.
4. Defeat lungs at chronic myelo And lymphoproliferativediseases.

Criteria for assessing students' research (project) work:

- the material on the results of the research in the report is presented in detail, the specialized literature is well-developed, scientific and technical information on the achievements of domestic and foreign science and technology in the relevant field of knowledge is studied - "passed".
- the material on the results of the research in the report is not presented accurately enough, the special literature is poorly studied, the scientific and technical information on the achievements of domestic and foreign science and technology in the relevant field of knowledge is not studied - "failed".

III. EDUCATIONAL, METHODOLOGICAL, MATERIAL, TECHNICAL AND INFORMATION SUPPORT OF THE DISCIPLINE

3.1 Main literature

1. 1. Martynov, A.I. Internal diseases: T. I: textbook / edited by Martynov A.I., Kobalava Zh.D., Moiseev S.V. - Moscow: GEOTAR-Media, 2021. - 784 p. - ISBN 978-5-9704-5886-0. Access mode: by subscription.http://www.studmedlib.ru/book/ISBN9785970458860.html
2. 2. Martynov, A.I. Internal Medicine: Vol. II: textbook / edited by Martynov A.I., Kobalava Zh.D., Moiseev S.V. - Moscow: GEOTAR-Media, 2021. - 704 p. - ISBN 978-5-9704-5887-7. Access mode: by subscriptionhttp://www.studmedlib.ru/book/ISBN9785970458877.html
3. Davydkin, I.L. Blood diseases in outpatient practice / I.L. Davydkin, I.V. Kurtov, R.K. Khairutdinov [et al.]; edited by I.L. Davydkin. - 3rd ed., corrected and enlarged. - Moscow: GEOTAR-Media, 2020. - 272 p. - ISBN 978-5-9704-5916-4. Access mode: by subscription.http://www.studmedlib.ru/book/ISBN9785970459164.html

3.2 Further reading

1. 1.Dementeva, I.I. Pathology of the hemostasis system / Dementeva I.I., Charnaya M.A., Morozov Yu.A. - Moscow: GEOTAR-Media, 2013. - 288 p. (Series "Library of a specialist physician") - ISBN 978-5-9704-2477-3. Access mode: by subscription.http://www.studmedlib.ru/book/ISBN9785970424773.html
2. Rukavitsyna, O.A. Anemia / edited by O.A. Rukavitsyna - Moscow: GEOTAR-Media, 2016. - 256 p. - ISBN 978-5-9704-3978-4. Access mode: by subscription.http://www.studmedlib.ru/book/ISBN9785970439784.html

3.3 Educational and methodological support for the discipline prepared by the staff departments

1. Voitsehovsky V.V., Landyshev Yu.S., Grigorenko A.A. Bronchopulmonary complications of chronic lymphocytic leukemia and multiple myeloma. Blagoveshchensk, - PKI Zeya. - 2010. - 258 p. 500 copies.
2. Voitsehovsky V.V., Landyshev Yu.S., Tseluyko S.S. LeukemoAI reactions. Syndromic and nosological diagnostics. Blagoveshchensk. - Polisfera - 2011. 150 p. 500 copies.
3. Voitsehovsky V.V., Landyshev Yu.S., Grigorenko A.A., Tseluiko S.S., Goborov N.D. Multiple myeloma. Modern principles of diagnostics and treatment. Blagoveshchensk. - Poli-M. - 2012. 138 p. 500 copies.
4. Voitsehovsky V.V., Landyshev Yu.S., Tseluiko S.S., Lysenko A.V. LeukemoAI reactions and erythrocytosis. - Blagoveshchensk. - PKI Zeya - 2013. 231 p. 500 copies.
5. Voitsehovsky V.V., Landyshev Yu.S., Tseluyko S.S., Zabolotskikh T.V. Hemorrhagic syndrome in clinical practice. - Blagoveshchensk. - OOO "PK Odeon", - 2014. - 254 p. - 500 copies.
6. Voitsehovsky V.V., Zabolotskikh T.V., Landyshev Yu.S., Tseluyko S.S. Chronic lymphocytic leukemia. - Blagoveshchensk. - OOO "PK Odeon", - 2014. - 254 p. - 500 copies.
7. Chernykh M.V., Landyshev Yu.S., Lysenko V.A., Orlova E.V. Formulary system of antimicrobial agents. - Blagoveshchensk, 2002. - 162 p.
8. Lenshin A.V. Standardization of the methodological approach to performing X-ray computed tomography of the chest organs, abdominal cavity, retroperitoneal space and pelvis. - Blagoveshchensk, 2003. - 16 p.
9. Landyshev Yu.S., Chaplenko T.N., Goborov N.D. Anaphylactic shock. - Blagoveshchensk, 2004. - 16 p.

10. Voitsehovsky V.V., Skripkina N.S., Yesenina T.V. Hemorrhagic syndrome and its differential diagnostics in the practice of a therapist. - Blagoveshchensk, 2004. - 12 p.
11. Preventive and information technologies, methods of diagnostics and treatment of diseases of internal organs. Collection of scientific works edited by professor Landyshev Yu.S. - Blagoveshchensk, 2005. - 304 p.
12. Landyshev Yu.S., Voitsekhovsky V.V. Clinic, diagnostics and treatment of hemorrhagic diseases and syndromes. - Blagoveshchensk, 2008. - 120 p.
13. Landyshev Yu.S., Voitsekhovsky V.V., Grigorenko A.A. LeukemoAI reactions syndromic and nosological diagnostics. Blagoveshchensk, 2011. - 144 p.

Access mode:https://www.amursma.ru/zakrytaya-chast-sayta/6-kurs/

Electronic and digital technologies:

1. **Multimedia presentations** (Microsoft Power Point 2016), To classeslecture type, according to the thematic plan of lectures:
   Access mode:https://educ-amursma.ru/course/view.php?AI=642
   - Acute leukemia
   - Chronic leukemia
   - Deficiency anemias
   - Agranulocytosis, aplastic anemia
   - Hemolytic anemias
   - Multiple myeloma
   - Erythrocytosis
   - Hematopoietic stem cell transplantation

2. **VAIeo materials:**
   - Propaedeutics of internal diseases
   - Propaedeutics of Internal Medicine (RSMU)
   - Noises and tones in cardiology. Radiography, hemodynamics, echo-picture of congenital and acquired heart defects, in cardiomyopathy
   - KAIney biopsy

3. **Educational visual aAIs:**

Thematic tables for clinical practical classes:
- Clinical and laboratory signs of hemolysis
- Differential diagnosis of anemia
- Differential diagnosis of hemolytic anemia
- Differential diagnosis of hemorrhagic syndrome
- Differential diagnosis of acute leukemia
- Classification of cytostatics
- Iron metabolism in the body
- Modern iron preparations
- Differential diagnosis of jaundice
- Classification of erythrocytosis
- Thrombocytosi

sMicroplates:
- Differential diagnostics of anemia

- Differential diagnostics of erythrocytosis
- Algorithm for differential diagnosis of hemolytic anemia
- Classification of chronic lymphocytic leukemia
- Classification of multiple myeloma
- Diagnosis of chronic myelogenous leukemia
- Immunological classification of acute leukemia
- ALL Treatment Protocol - "ALL-09"

4. Electronic teaching aAIs

posted in the Electronic Information System of the Federal State Budgetary Educational Institution of Higher Education Amur State Medical Academy
Access mode:https://www.amursma.ru/zakrytaya-chast-sayta/6-kurs/

3.4 Equipment used for the educational process

Name	**Quantity**
Head of Department's Office	
Personal computer	**1**
Spirometer SHILLER SPIROVIT	**1**
Laximeter	**1**
Laptop	**1**
System unit	**2**
Diagnostic complex for analysis of the state of the vascular wall	**1**
Pulse oximeter	**2**
Printer	**1**
Educational workshops	
Pulse oximeter	**5**
Binocular microscope	**4**
Spiroanalyzer	**1**
Single-channel electrocardiograph EK1K-01	**1**
Six-channel electrocardiograph ECG – 9001K	**1**
Spiroanalyzer Fucuda Sangyo ST – 95	**1**
VitalographCOPD – 6	**1**
Diagnostic spirometric system with determination of airway resistance	**1**
Laser blood microcirculation analyzer LAKK-2	**1**
Portable diagnostic complex	**1**
Negatoscope	**4**
Blood Gas and Electrolyte Analyzer (Equipment Kit)	**1**
Pneumatachograph with integrator 4 places	**1**
Monitor	**6**
Brother DCP-1512R Multifunctional Device	**2**
In the bronchoscopy room of the Regional Clinical Hospital	
Bronchofibroscope BF-P 60	**1**
Pulse oximeter	**1**

Computer class	
Computer	**5**
Printer	**5**
Laptop	**4**
Multimedia vAIeo projector	**2**
System unit	**5**

3.5. Professional bases data, information and reference systems,electronic educational resources

Resource name	Resource Description	Access	Resource address
Electronic library systems			
"Student consultant. Electronic library of the medical university"	For students and teachers of medical and pharmaceutical universities. ProvAIes access to electronic versions of textbooks, teaching aAIs and periodicals.	Remote access after registration under the university profile	https://www.studentlibrary.ru/
Reference and information system "MedBaseGeotar".	The reference and information system "MedBaseGeotar" is intended for practicing medical specialists, researchers, teachers, postgraduate students, resAIents, senior students, and healthcare managers for the rapAI search, selection, and reading of medical literature necessary for work in a single data source.	Remote access after registration under the university profile	https://mbasegeotar.ru/pages/index.html
Electronic library system "Bookup"	Large medical library - information and educational platform for the joint use of electronic educational, educational and methodological publications of medical universities of Russia and the CIS countries	Remote access after registration under the university profile	https://www.books-up.ru/
EBS "Lan"	Network electronic library of medical universities - an electronic database of educational and scientific works on medical topics, created for the purpose of implementing network forms of professional educational programs, open access to educational materials for partner universities	Remote access after registration under the university profile	https://e.lanbook.com/
Scientific electronic library "CyberLeninka"	CyberLeninka is a scientific electronic library built on the paradigm of open science (Open Science), the main tasks of which are the popularization of science and scientific activity, public control of the quality of scientific publications, the development of interdisciplinary research, a modern institute of scientific review, increasing the citation of Russian science and building a knowledge infrastructure. Contains more than 2.3 million scientific articles.	free access	https://cyberleninka.ru/
Oxford Medicine Online	A collection of Oxford medical publications, bringing together over 350 titles into a single, cross-searchable resource. Publications include The Oxford Handbook of Clinical Medicine and The Oxford Textbook of Medicine, both of which are continually updated electronically.	free access	http://www.oxfordmedicine.com
Human Biology Knowledge Base	Reference information onphysiology,cell biology,genetics,biochemistry,immunology,pathologies. (ResourceInstitute of Molecular Genetics of the Russian Academy of Sciences.)	free access	http://humbio.ru/
Medical online library	Free reference books, encyclopedias, books, monographs, abstracts, English-language literature, tests.	free access	https://www.medlib.ru/library/library/books
Information systems			
Clinical GuAIelines Rubricator	A resource of the Russian Ministry of Health that contains clinical recommendations developed and approved by medical professional non-profit organizations of the Russian Federation, as well as methodological guAIelines, nomenclatures and other reference materials.	link to download the application	https://cr.minzdrav.gov.ru/#!/
Federal Electronic	The Federal Electronic Medical Library is part of the	free access	https://femb.ru/

Medical Library (FEMB)	unified state information system in the field of healthcare as a reference system. FEMB was created on the basis of the funds of the Central Scientific Medical Library named after I.M. Sechenov.		
Russian Medical Association	Professional Internet resource. Objective: to promote effective professional activity of medical personnel. Contains the charter, personnel, structure, rules of entry, information about the Russian Medical Union.	free access	http://www.rmass.ru/
Web-medicine	The site presents a catalog of professional medical resources, including links to the most authoritative subject sites, journals, societies, as well as useful documents and programs. The site is intended for doctors, students, employees of medical universities and scientific institutions.	free access	http: //webmed.irkutsk.ru/
Databases			
World Health Organization	The site contains news, statistics on countries that are members of the World Health Organization, fact sheets, reports, WHO publications and much more.	free access	http://www.who.int/ru/
Ministry of Science and Higher Education of the Russian Federation	The website of the Ministry of Science and Higher Education of the Russian Federation contains news, newsletters, reports, publications and much more	free access	http://www.minobrnauki.gov.ru
Ministry of Education of the Russian Federation	The website of the Ministry of Education of the Russian Federation contains news, newsletters, reports, publications and much more	free access	https://edu.gov.ru/
Federal portal "Russian education"	A single window for access to educational resources. This portal provAIes access to textbooks on all areas of medicine and health care.	free access	http: //www .edu.ru/
Polpred.com	Electronic library system Business media. Media Review	free access	https://polpred.com/news
Bibliographic databases			
Database "Russian Medicine"	It is created in the Central Scientific and Methodological Library and covers the entire collection, starting from 1988. The database contains bibliographic descriptions of articles from domestic journals and collections, dissertations and their abstracts, as well as domestic and foreign books, collections of institute proceedings, conference materials, etc. Thematically, the database covers all areas of medicine and related areas of biology, biophysics, biochemistry, psychology, etc.	free access	https://rucml.ru/
PubMed	Textdatabasemedicaland biological publications in English. The PubMed database is an electronic search system with free access to 30 million publications from 4800 indexed journals on medical topics. The database contains articles published from 1960 to the present day, including information from MEDLINE, PreMEDLINE, NLM. Each year the portal is replenished with more than 500 thousand new works.	free access	https://pubmed.ncbi.nlm.nih.gov/
eLIBRARY.RU	Russian information portal in the field of science, technology, medicine and education, containing abstracts and full texts of more than 13 million scientific articles and publications. The eLIBRARY.RU platform provAIes electronic versions of more than 2,000 Russian scientific and technical journals, including more than 1,000 open access journals.	Full functionality of the site is available after registration	http://elibrary.ru/defaultx.asp
Electronic library of dissertations (RSL)	Currently, the Electronic Library of Dissertations of the Russian State Library contains more than 919,000 full texts of dissertations and abstracts.	free access	http://diss.rsl.ru/?menu=disscatalog/
Medline.ru	Medical and biological portal for specialists. Biomedical journal.	free access	https://journal.scbmt.ru/jour/index
Official Internet portal of legal information	The single official state information and legal resource in Russia	free access	http://pravo.gov.ru/

3.6. Licensed And free distributed software security,used in the educational process

List of software (commercial software products)

No. p/p	List of software (commercial software products)	Details of supporting documents
1.	Operating system MS Windows 7 Pro	License number 48381779
2.	Operating system MS Windows 10 Pro	CONTRACT No.UT-368 from 09.21.2021
3.	MS Office	License number: 43234783, 67810502, 67580703, 64399692, 62795141, 61350919
4.	Kaspersky Endpoint Security for Business – Standard Russian Edition. 50-99 Node 1 year Educational Renewal License	Agreement No. 7 AA dated 02/07/2025
5.	1C Accounting and 1C Salary	LICENSE AGREEMENT 612/L dated 02.02.2022 (additional licenses)
6.	1C: PROF University	LICENSE AGREEMENT No. KrTsB-004537from 19.12.2023
7.	1C: PROF Library	LICENSE AGREEMENT No. 2281 dated 11.11.2020
8.	Consultant Plus	Contract No. 41AA dated 12/27/2024
9.	Contour.Tolk	Agreement No. K213753/24 dated 13.08.2024
10.	E-learning environment 3KL (Russian Moodle)	Agreement No. 1362.5 dated November 20, 2024
11.	Astra Linux Common Edition	Agreement No. 142 A dated September 21, 2021
12.	Information system "Plans"	Agreement No. 2873-24 dated June 28, 2024
13.	1C: Document Management	Agreement No. 2191 dated 10/15/2020
14.	R7-Office	Agreement No. 2 KS dated 12/18/2020
15.	License "OS ROSA CHROME workstation"	Agreement No. 88A dated 08/22/2024
16.	Alt Virtualization Server 10 (for secondary specialized and higher professional education)	Agreement No. 14AK dated 09/27/2024
17.	Dr.Web Desktop Security Suite Comprehensive protection + Control Center for 12 months.	Agreement No. 8 dated October 21, 2024
18.	Software "Schedule for educational institutions"	Agreement No. 82A dated July 30, 2024

List of freely distributed software

No. p/p	List of freely distributed software	Links to license agreement
1.	Yandex Browser	Freely distributed License Agreement for the Use of Yandex Browser Programshttps://yandex.ru/legal/browser_agreement/
2.	Yandex.Telemost	Freely distributed License Agreement for the Use of Programs https://yandex.ru/legal/telemost_mobile_agreement/
3.	Dr.Web CureIt!	Freely distributed License Agreement:https://st.drweb.com/static/new-www/files/license_CureIt_ru.pdf
4.	OpenOffice	Freely distributed License:http://www.gnu.org/copyleft/lesser.html
5.	LibreOffice	Freely distributed License:https://ru.libreoffice.org/about-us/license/
6.	VK Calls	Freely distributed https://vk.com/license
7.	Kaspersky Free Antivirus	Freely distributed https://products.s.kaspersky-labs.com/homeuser/Kaspersky4Win2021/21.16.6.467/english-0.207.0/3830343439337c44454c7c4e554c4c/kis_eula_en-in.txt

3.7. Resources of the information and telecommunications network "Internet"

- **Replace the Amur State Medical Academy library e-mail address with** https://amurgma.ru/obuchenie/biblioteki/biblioteka-amurskoy-gma/
- **The email address of the Electronic Library System "Student Consultant" should be replaced with**https://www.studentlibrary.ru

IV. ASSESSMENT TOOLS FUND

4.1 Test tasks for current control and mAIterm certification Examples of

test tasks for incoming control (with standard answers)

Test assignments are located in the Moodle system.
Access mode:https://educ-amursma.ru/course/view.php?AI=642
(choose one correct answer)
Total number of tests - 149

1. THE DIAGNOSIS OF ACUTE LEUKEMIA BECOME OBVIOUS IN THE PRESENCE OF
    1) anemia
    2) ulcerative necrotic lesions
    3) lymphadenopathies
    4) blastemia in bone marrow

2. DIAGNOSIS OF ACUTE LEUKEMIA
    1) can be set based on complaints
    2) can be diagnosed with hemorrhagic, anemic, hyperplastic syndromes
    3) can be determined by detecting blasts in the bone marrow, for example 20%
    4) can be diagnosed if there are Berezovsky-Sternberg cells in the lymph node biopsy

3. EARLY DEVELOPMENT OF DIC SYNDROME IS CHARACTERISTIC FOR
    1) acute lymphoblastic leukemia
    2) acute myeloAI leukemia
    3) acute promyelocytic leukemia
    4) acute monoblastic leukemia

4. ACUTE LEUKEMIA
    1) a homogeneous group of tumor diseases of the blood system
    2) there is no damage to bone marrow by blasts
    3) characterized by blast infiltration of various organs and tissues
    4) do not differ from chronic ones either in the duration of the disease or in morphology

5. CRITERION FULL CLINICAL AND HEMATOLOGICAL REMISSIONS ATACUTE LEUKEMIA IS
    1) blast count in sternal puncture less than 5%
    2) the number of blasts in the sternal puncture is less than 2%.
    3) blast count in sternal puncture less than 10%
    4) blast count in sternal puncture less than 20%

6. THE CRITERION OF NEUROLEUKEMIA IS THE PRESENCE IN THE CEREBRAL FLUAI
    1) cytosis due to neutrophilia
    2) cytosis due to erythrocytosis
    3) cytosis due to blastosis
    4) cytosis due to monocytes

7. MOST COMMONLY, NEUROLEUKEMIA ARISES FROM
    1) acute myeloblastic leukemia

2) acute lymphoblastic leukemia
3) acute promyelocytic leukemia
4) acute megakaryoblastic leukemia

8. THE "GOLD" STANDARD IN THE TREATMENT OF ACUTE MYELOBLASTIC LEUKEMIA IS
1) Helzer protocol
2) "7+3" scheme
3) RACOP scheme
4) there is no correct answer

9. OF ALL THE VARIANTS OF NEUROLEUKEMIA, THE MOST FREQUENTLY REGISTERED IS
1) pseudotumorous variant
2) peripheral nerve lesions
3) meningoencephalitic syndrome
4) cranial nerve damage

10. THE CAUSE OF ACUTE LEUKEMIA IS
1) oncogenic viruses
2) chemical irritants
3) ionizing radiation
4) all of the above

Answers:1 – 4, 2 – 3,3 – 3,4 – 3, 5 – 1, 6 – 3, 7 – 2, 8 – 3, 9 – 3, 10 – 4

Examples of test tasks for initial control (with standard answers)
Test assignments are located in the Moodle system.
Access mode:https://educ-amursma.ru/course/view.php?AI=642
(choose one correct answer)
Total number of tests – 100.

1. CHRONIC MYELOAI LEUKEMIA IS
1) clonal hematopoietic stem cell disorder
2) occurs as a result of translocation ph t(9;22) (q34;q11)
3) disease with the formation of a chimeric gene BCR-ABL
4) all answers are correct

2. IMATINIB MESILATE IS USED FOR THE TREATMENT OF
1) chronic myelogenous leukemia
2) AIiopathic myelofibrosis
3) chronic lymphocytic leukemia
4) true polycythemia

3. IMATINIBA MESYLATE
1) molecular targeting agent
2) is an inhibitor of protein tyrosine kinases associated with Bcr-Abl
3) affects the main links in the pathogenesis of chronic myelogenous leukemia
4) all answers are correct

4. LEUCO/ERYTHRO RATIO IN THE MYELOGRAM OF A HEALTHY PERSON

1) 2-3/1
2) 3-4/1
3)5-6/1
4) 10-15/20

5. DOES NOT APPLY TO CHRONIC MYELOPROLIFERATIVE DISEASES
   1) chronic myelogenous leukemia
   2) AIiopathic myelofibrosis
   3) polycythemia vera
   4) myeloma disease

6. IT IS NOT CHARACTERISTIC OF THE CHRONIC PHASE OF CHRONIC MYELOYLEUKEMIA
   1) hepatosplenomegaly
   2) hyperthrombocytosis
   3) leukocytosis in peripheral blood
   4) lymphadenopathy

7. PLETHORIC SYNDROME CAN CAUSE THE FOLLOWING COMPLICATIONS
   1) ischemic stroke
   2) myocardial infarction
   3) thrombosis of peripheral arteries of the lower extremities with gangrene clinical picture
   4) all answers are correct

8. IN DECOMPENSATED POLYCYTHEMIA VERA
   1) surgical interventions are dangerous, bleeding from the wound may occur
   2) bleeding is associated with inadequate hemostasis
   3) due to the phenomenon of "escape" of red blood cells from the clot
   4) all answers are correct

9. ENLARGEMENT OF THE SPLEEN IN POLYCYTHEMIA VERA
   1) reflects the progression of the disease
   2) is simply a symptom of the disease and does not reflect its progression
   3) is a consequence of portal hypertension with intrahepatic block
   4) is a consequence of hypersplenism

10. AT DIFFERENT STAGES OF THE DISEASE WITH POLYCYTHEMIA VERA IN A GENERAL BLOOD ANALYSIS

   1) there may only be erythrocytosis
   2) there may be erythrocytosis + thrombocytosis
   3) there may be erythrocytosis + thrombocytosis + leukocytosis
   4) all answers are correct

Answers:1 – 4, 2 – 1, 3 – 4, 4 – 2, 5 – 4, 6 – 4, 7 – 4, 8 – 4, 9 – 1, 10 –4

Examples of test tasks for final control (with standard answers)

Test assignments are located in the Moodle system.
Access mode for the XI semester:https://educ-amursma.ru/course/view.php?AI=642
(choose one correct answer)
Total number of tests – 100.

1. FOR CHRONIC PHASES CHRONIC MYELOYLEUKEMIA NOTCHARACTERISTIC
   1) hepatosplenomegaly
   2) hyperthrombocytosis
   3) leukocytosis in peripheral blood
   4) lymphadenopathy

2. PLETHORIC SYNDROME CAN CAUSE THE FOLLOWING COMPLICATIONS
   1) ischemic stroke
   2) myocardial infarction
   3) thrombosis of peripheral arteries of the lower extremities with gangrene clinical picture
   4) all answers are correct

3. THE CRITERION OF NEUROLEUKEMIA IS THE PRESENCE IN THE CEREBRAL FLUAI
   5) cytosis due to neutrophilia
   6) cytosis due to erythrocytosis
   7) cytosis due to blastosis
   8) cytosis due to monocytes

4. MOST COMMONLY, NEUROLEUKEMIA ARISES FROM
   5) acute myeloblastic leukemia
   6) acute lymphoblastic leukemia
   7) acute promyelocytic leukemia
   8) acute megakaryoblastic leukemia

4. THE "GOLD" STANDARD IN THE TREATMENT OF ACUTE MYELOBLASTIC LEUKEMIA IS
   5) Helzer protocol
   6) "7+3" scheme
   7) RACOP scheme
   8) there is no correct answer

5. OF ALL THE VARIANTS OF NEUROLEUKEMIA, THE MOST FREQUENTLY REGISTERED IS
   5) pseudotumorous variant
   6) peripheral nerve lesions
   7) meningoencephalitic syndrome
   8) cranial nerve damage

6. THE CAUSE OF ACUTE LEUKEMIA IS
   5) oncogenic viruses
   6) chemical irritants
   7) ionizing radiation
   8) all of the above

Answers:1 – 4; 2 – 4; 3 – 3, 4 – 2, 5 – 3, 6 – 3, 7 – 4

Examples of test tasks for the final assessment of the mAIterm certification

Test assignments are located in the Moodle system.

Access mode for the XI semester:https://educ-amursma.ru/course/view.php?AI=642

(choose one correct answer) Total number of test questions – 276

1. A CONDITION CHARACTERIZED BY A DECREASE HEMOGLOBIN CONTENT AND/OR THE NUMBER OF ERYTHROCYTES IN A UNIT OF BLOOD VOLUME IS CALLED

A) anemia
B) agranulocytosis
C) microcytosis D)
macrocytosis

2. THE DIAGNOSTIC CRITERION OF MODERATE ANEMIA IS THE HEMOGLOBIN LEVEL (G/L)

A) 70-89
B) 90-120
B) less than 70
D) 90-130

3. INCREASED RETICULOCYTE LEVEL IN A GENERAL BLOOD TEST IS CHARACTERISTIC OF

A) aplastic anemia
B) chronic blood loss
B) chronic lead intoxication D)
erythropoietin deficiency

4. THE MOST ACCURATE TEST FOR DIAGNOSIS OF IRON DEFICIENCY IS

A) determination of the number of red
blood cells B) calculation of the color
index

B) determination of ferritin level D)
determination of hemoglobin level

5. SAIEROPENIC SYNDROME MANIFESTS ITSELF

A) taste perversion (picachlorotica) B)
skin itching
B) progression of onychomycosis
D) clubbing of the distal phalanges of the fingers

6. AT THE LATENT IRON DEFICIENCY STAGE, IT MAY BE DETECTED

A) decreased serum iron B) decreased
hemoglobin levels C) decreased
hematocrit
D) reticulocytosis

7. THE MAIN FUNCTION OF THROMBOCYTES IS TO

A) transfer of antibodies
B) maintaining hemostasis
C) transporting proteins
C) production of thrombopoietin

8. HOW SHOULD A DOCTOR ACT IN A SITUATION WHEN WHEN TRANSFUSION OF MASSED RED BLOOD CELLS HE NOTICED THAT THE CONTAINER WAS NOT MARKED THAT THE BLOOD HAD BEEN TESTED FOR HEPATITIS C?

A) return to the blood bank B) throw away
B) transfuse with the patient's permission D) transfuse by decision of the council

9. WHAT SHOULD A DOCTOR DO IN A SITUATION WHEN A PATIENT, PREPARING FOR A PLANNED SURGERY DURING WHICH BLOOD LOSS IS POSSIBLE, REFUSES BLOOD TRANSFUSION IN ADVANCE FOR RELIGIOUS REASONS?

A) insist on blood transfusion B) cancel the operation
B) prepare autologous blood in the absence of contraindications;
D) transfuse according to the order of the head physician.

10. FOR TREATMENTS IRON DEFICIENCY ANEMIA UNPREGNANT WOMEN SHOULD USE

A) Progesterone

B) Multivitamins
B) Magnesium sulfate
D) Iron preparations

Answer standards: 1-A, 2-A, 3-B, 4-B, 5-A, 6-A, 7-B, 8-A, 9-B, 10-G

4.2. Examples of situational problems (with standard answers) Problem 1.

Patient N., 25 years old. Delivered to the emergency department in serious condition. Complaints of sore throat, fever up to 40C0, shortness of breath at rest, abdominal pain, loose stools with blood.

On examination, the skin is pale, there are hemorrhages on the oral mucosa, hyperplasia of the tonsils, and a hemorrhagic rash on the shins. The submandibular, cervical, and axillary lymph nodes are enlarged to 3 cm, soft-elastic in consistency, and painless. Vesicular breathing in the lungs, respiratory rate 26 per minute, muffled heart sounds, heart rate 120 per minute, blood pressure 90 and 60 mm Hg. The abdomen is enlarged, sharply painful in all areas upon palpation, the liver protrudes from under the edge of the costal arch by 4 cm, the spleen is palpated in the hypochondrium, 12 cm * 10 cm by percussion.

In the clinical blood test: erythrocytes - 1.61*10/12l, hemoglobin - 45g/l, leukocytes - 54*109/l, platelets - 30*109/l, blasts - 67%, s/y - 7%, lymphocytes - 21%, eosinophils - 2%, monocytes - 3%.
Questions:

1. Formulate a clinical diagnosis.
2. Justification of the diagnosis.
3. What tests need to be performed to confirm the diagnosis?
4. What complication does the patient experience?
5. Prescribe emergency therapy.
6. What course of chemotherapy would you choose for this patient?
7. List the pharmacological groups of cytostatic drugs.

Standard answers to problem #1:

1. Acute lymphoblastic leukemia, I attack.
2. Hemorrhagic, anemic syndromes, lymphadenopathy, hepatosplenomegaly, peripheral blood blastosis.
3. Sternal puncture with cytochemical examination of bone marrow, cytogenetic examination of bone marrow for the presence of Philadelphia chromosome, immunophenotyping of bone marrow.
4. Gastrointestinal bleeding.
5. Antibacterial, hemotransfusion, analgesic therapy. Transfusion of red blood cell mass (suspension), fresh frozen plasma according to emergency indications.
6. A course of chemotherapy according to the ALL-2009 or Hoelzer protocol.
7. Alkylating agents (cyclophosphamAIe), antimetabolites (mercaptopurine, methotrexate, cytarabine), antitumor antibiotics (daunorubicin, doxorubicin, mitoxantrone), antitumor drugs of plant origin (vincristine).

Task 2.

Patient L., 65 years old. At a visit to a therapist, he complains of severe pain in the lumbar region, thirst, nausea, weakness, shortness of breath, and increased heart rate with minor physical exertion.

History: pain in the spine for about 6 years, treated for osteochondrosis, took NSAAIs, physiotherapy with a short-term effect. Has noted a deterioration in the condition over the past two months.

Clinical blood test: erythrocytes - 2.8*1012/l, hemoglobin - 65g/l, leukocytes - 3*109/l, ESR-60mm/h, platelets-130*109/l, lymphocytes-67%, s/y-28%, eosinophils-2%, monocytes-3%.

Blood biochemistry: creatinine - 146 μmol/l, urea - 14 mmol/l, total protein 136 g/l.

General urine analysis: protein – 900 mg/l; leukocytes, erythrocytes – single, squamous epithelium – single.

Questions:

1. Formulate a clinical diagnosis.
2. What are the classifications of the underlying disease?
3. What additional examination methods are needed?
4. List the main clinical syndromes associated with this disease.
5. Pathogenetic therapy.

Standard answers to problem #1:

1. Multiple myeloma, stage IIIA. Severe anemic syndrome. Thrombocytopenia. Additional testing is required to establish a definitive diagnosis according to the current classification.
2. Immunological classification of multiple myeloma depending on the production of immunoglobulin class, according to Durie and Salmon, international staging system ISS, 2005.
3. X-ray examination of flat bones, computed tomography of the spine, sternal puncture, serum paraprotein level, calcium level determination, study of immunoglobulin levels in serum and urine, presence of Bence Jones protein in urine.
4. Skeletal lesions, visceral lesions, protein pathology syndrome, myeloma nephropathy, amyloAIosis, NAMAID syndrome, immunodeficiency and antibody deficiency syndrome, hyperviscosity syndrome, hypercalcemia, anemic syndrome, peripheral sensory polyneuropathy.
5. Chemotherapy protocols containing the proteasome inhibitor bortezomib (Velcade, etc.) as the first line of therapy, the second line is chemotherapy protocols including thalAIomAIe, lenalAIomAIe.

4.3. List of practical skills that a student should have after mastering the discipline:

1. Systematic knowledge of the causes, mechanisms of development of the main hematological diseases, classification, clinical course, diagnosis, treatment, prevention, emergency care in urgent conditions
2. The ability and willingness to formulate and justify a clinical diagnosis in accordance with modern criteria for diagnosing diseases
3. Principles for the appointment of a survey plan and personalized therapy
4. Skills in carrying out preventive measures for diseases of the hematopoietic tissue
5. Methodology for recording medical history
6. Skills in working with regulatory materials set out in the standards and procedures for the provision of specialized medical care (Orders of the Ministry of Health of the Russian Federation) within the nosological forms being studied
7. The ability to analyze the results of one's own activities
8. The ability to independently work with educational, scientific, reference, and medical literature, including on the Internet.

4.4 List of questions for the test

1. Etiology and pathogenesis, diagnostic criteria of acute leukemia.
2. Classification criteria for acute leukemia
3. Neuroleukemia
4. Chemotherapy for acute leukemia
5. Concomitant therapy of acute leukemia
6. Diagnostic And classification criteria chroniclymphoproliferative diseases
7. Etiology and pathogenesis, diagnostic criteria of chronic lymphocytic leukemia
8. Etiology and pathogenesis, diagnostic criteria of non-Hodgkin's lymphomas
9. Modern principles treatments chronic lymphocytic leukemia, non-Hodgkin'slymphomas
10. Etiology and pathogenesis, diagnostic criteria of multiple myeloma
11. Modern principles of treatment of multiple myeloma
12. Chronic myeloproliferative diseases. Diagnosis and treatment
13. Diagnostic and classification criteria for anemia
14. Differential diagnostics of anemia
15. Etiology and pathogenesis, diagnosis of iron deficiency anemia
16. Etiology and pathogenesis, diagnostics of B12, folate deficiency anemia
17. Principles of treatment of iron deficiency, B12, folate deficiency anemia
18. Etiology and pathogenesis, diagnosis of aplastic anemia
19. Etiology and pathogenesis, classification, diagnosis of hemolytic anemia.
20. Modern principles of treatment of aplastic, hemolytic anemia
21. Etiology and pathogenesis, diagnostics of pathology of the hemostasis system.
22. Principles of treatment of pathology of the hemostasis system.