MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

SUMY STATE UNIVERSITY

Academic and Research Medical Institute

Кафедра внутрішньої медицини з центром респіраторної медицини

INTERNAL MEDICINE

Higher education level	The Second
Major: study programme	222 Medicine: Medicine

Approved by Quality Council HHMI

Chairman of the Quality Council HHMI
Petrashenko Viktoriia Oleksandrivna

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DATA ON APPROVAL

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Considered and approved at the meeting of the work group of Study programme Медицина	Head of the work group (Head of the Study programme) Prystupa Liudmyla Nykodymivna
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SYLLABUS

1. General information on the course

Full course name	Internal Medicine
Full official name of a higher education institution	Sumy State University
Full name of a structural unit	Academic and Research Medical Institute. Кафедра внутрішньої медицини з центром респіраторної медицини
Author(s)	Chernatska Olha Mykolaivna, Dudchenko Iryna Oleksandrivna
Cycle/higher education level	The Second Level Of Higher Education, National Qualifications Framework Of Ukraine – The 7th Level, QF-LLL – The 7th Level, FQ-EHEA – The Second Cycle
Duration	one semester
Workload	5 ECTS, 150 hours. For full-time course 112 hours are working hours with the lecturer (4 hours of lectures, 108 hours of seminars), 38 hours of the individual study.
Language(s)	English

2. Place in the study programme

Relation to curriculum	Compulsory course available for study programme "Medicine"
Prerequisites	Krok-1, necessary knowledge of Latin, medical terminology, medical biology, medical informatics, human anatomy, physiology, histology, cytology and embryology, pathophysiology, biological and bioorganic chemistry, microbiology, virology and immunology, pathomorphology, pharmacology, hygiene and ecology, propaedeutics to internal diseases, nursing practice and radiology
Additional requirements	There are no specific requirements
Restrictions	There are no specific restrictions

3. Aims of the course

is the acquisition of modern knowledge and professional skills in internal medicine, which includes diseases of the cardiovascular system, joints, connective tissue, kidneys based on knowledge of medical biology, normal anatomy, normal physiology, histology, embryology, biochemistry, microbiology and virology, pathomorphology, pathophysiology, pharmacology and practical skills of clinical, laboratory and instrumental examination of the patient in compliance with principles of

medical ethics

4. Contents

Module 1. The principles of diagnosis, treatment, and prevention of the cardiovascular system diseases
Topic 1 Arterial hypertension Definition. The role of disorders connected with central and renal mechanisms of pressure regulation, endothelial dysfunction, and other factors. Classification. Clinical features and results of additional methods of examination. Hypertension-mediated organ damage. Differential diagnosis. Risk stratification. Complications. Isolated systolic arterial hypertension. Evidence-based treatment. Complicated and uncomplicated hypertensive crisis. Peculiarities of the treatment strategy. The leading causes, peculiarities of the clinic, diagnostic of renal (renovascular, renoparenchymatous), endocrine (Cushing's syndrome, pheochromocytoma, Conn's syndrome, diffuse toxic goiter) and haemodinamic arterial hypertension. Arterial hypertension during pregnancy and metabolic disorders (metabolic syndrome). The role of laboratory and instrumental methods in differential diagnosis and verification of diagnosis. Therapeutic and surgical treatment. Primary and secondary prevention. Prognosis and working capacity.
Topic 2 Atherosclerosis. Definition. The role of hyperlipidemias, general and local inflammation, damage of the vascular wall and platelets in the development of atherosclerosis. Risk factors. Clinical features depending on predominant localization (aorta, coronary, mesenteric and renal arteries, arteries of lower extremities). The role of laboratory, radiation and other instrumental methods of investigation. Differential diagnosis. Complications. General principles of treatment. Evidence-based treatment strategy according to different variants of course. Primary and secondary prevention. Prognosis and working capacity.
Topic 3 Chronic forms of ischaemic heart disease (IHD). Clinical and diagnostical features of different forms of stable angina. Painless forms of IHD (Painless myocardial ischaemia, postMI, diffuse cardiosclerosis). Clinical features. Diagnostic criteria. Differential therapy of different forms of IHD. Percutaneous coronary interventions in patients with IHD. Evidence-based treatment of angina attacks, acute left-sided heart failure. Prognosis and working-capacity.
Topic 4 IHD: acute myocardial infarction. Definition. The role of atherosclerosis, destabilization of atherosclerotic plague and functional factors in the pathogenesis of different forms of IHD. Classification. The peculiarities of clinic and diagnostic of acute myocardial infarction. Definition of “acute coronary syndrome”. Classification and clinical features of myocardial infarction. Diagnostic criteria. Differential diagnosis of the forms of the acute coronary syndrome. Invasive treatment of myocardial infarction. Complications of acute myocardial infarction. Evidence-based treatment strategy in different periods of acute myocardial infarction. Indications for surgical treatment. Rehabilitation. Primary and secondary prevention.

Topic 5 Heart failure.

Definition. The main causes. Pathogenesis of central and peripheral hemodynamic disorders in different forms (left-sided and right-sided heart failure). The role of neurohumoral activation and heart remodeling. Classification. Clinical manifestation and features according to the variant (systolic, diastolic), stage, and functional class. Diagnostic. Evidence-based treatment. Primary and secondary prevention. Prognosis and working-capacity.

Topic 6 Heart rhythm disorders.

Definition. Aetiology. Electrophysiological mechanisms of arrhythmias (extrasystole, atrial fibrillation and flutter, ventricular tachycardia and ventricular fibrillation). Clinical features, ECG-diagnostic and differential diagnostic. Complications. Medical and non-medical methods of Evidence-based treatment. The role of electropulse therapy. Urgent therapy in paroxysmal arrhythmias and sudden cardiac death. Primary and secondary prevention. Prognosis and ability to work. Definition, etiology, classification of conduction disorders. Clinical, ECG-diagnostic of AV-block and bundle-branch block. The strategy of acute and chronic conduction heart disorders. Emergency in Stokes-Adams syndrome. Indications and principles for pacemaker implantation (temporary, permanent). Primary and secondary prevention. Prognosis and working-capacity.

Topic 7 Acquired heart valve diseases.

Definition. Mitral, aortic, tricuspid valves diseases. Aetiology, mechanisms of hemodynamic disorders. Classification. Combined mitral and aortic valves diseases. Clinical features. The role of invasive and noninvasive methods. Differential diagnosis. Complications. Evidence-based management. Indications for surgical treatment. Primary and secondary prevention. Prognosis and working capacity.

Topic 8 Infective endocarditis. Pericarditis.

Definition. Aetiology, pathogenesis. Clinical features according to the pathogen. Diagnostic criteria. The role of laboratory methods and echocardiography in diagnosis. Complications (heart failure, embolism, abscesses). Evidence-based treatment. Regimes of antibacterial therapy. Indications for surgery. Primary and secondary prevention. Prognosis and working capacity. Definition. Aetiology, pathogenesis. Classification. Peculiarities of clinic, forms and diagnostic of different types of pericarditis. Methods of diagnosis verification. Differential diagnosis of myocardial injury. Cardiac tamponade. Indications for a pericardial puncture, it's diagnostic and treatment aim. Differentiated therapy of various forms according to etiological factors. Prevention. Prognosis and working capacity.

Topic 9 Myocarditis. Cardiomyopathies.

Definition of cardiomyopathies. Classification. Aetiology and pathogenesis of main types of cardiomyopathies. Clinical features, findings on ECG, echocardiography and other methods of investigation (X-Ray) according to aetiological factors, type, and severity. Complications. Evidence-based treatment strategy of different cardiomyopathies. Primary and secondary prevention. Prognosis and working capacity. Definition of myocarditis, classification, clinical features, findings of ECG, echocardiograhy and other methods of investigation. Treatment strategy according to the severity and aethiological factors. Primary and secondary prevention. Prognosis and working-capacity.

Topic 10 Pulmonary embolism (PE). Definition and classification of PE. Risk factors. Pathogenesis of hemodynamic disorders. Clinical features of different forms. Diagnostic criteria and differential diagnosis. Instrumental methods of diagnosis and their significance. Evidence-based treatment. Indications for surgical treatment. Primary and secondary prevention. Prognosis and working capacity.
Module 2. The principles of diagnosis, treatment, and prevention of the musculoskeletal system and connective tissue diseases
Topic 11 Rheumatoid arthritis. Definition. Etiological factors, pathogenesis. Classification and nomenclature. Clinical features according to the activity of pathological process, stage of the disease, systemic manifestations. Activity evaluation index. Laboratory and instrumental methods of diagnostic and its significance in diagnostic od disease, its stages and activity. Diagnostic criteria. Differential diagnosis. Complications. Evidence-based treatment. Basic therapy. Prevention. Prognosis and working capacity.
Topic 12 Connective tissue diseases. Systemic lupus erythematosus. Definition. Etiological factors and pathogenesis. Classification. Clinical features according to the activity of disease, disorders in organs and systems. The significance of laboratory, immunological methods of examination. Diagnostic criteria. Differential diagnosis. Complications. Evidence-based treatment strategy. Pulse therapy. Prevention. Prognosis and working capacity. Systemic sclerosis and dermatomyositis. Definition. Etiological factors and pathogenesis. Classification. Clinical features according to the disorders in organs and systems. Diagnostic criteria. Differential diagnosis. Complications. Treatment strategy. Prevention. Prognosis and working-capacity.
Topic 13 Systemic vasculitis. Classification. ANCA-associated vasculitis. Laboratory and instrumental methods of diagnostic and its significance. Differential diagnosis. Evidence-based treatment. Prognosis and working-capacity.
Topic 14 Reactive arthritis. Definition. Etiological factors and pathogenesis. Classification. Clinical features according to the etiology. Significance of laboratory and instrumental methods of diagnostic. Diagnostic criteria. Differential diagnosis. Evidence-based treatment, indications for antibacterial therapy. Prognosis and working capacity.
Topic 15 Ankylosing spondylitis. Definition. Etiological factors and pathogenesis. Classification. Clinical features. Significance of laboratory and instrumental methods. Diagnostic criteria. Differential diagnosis. Evidence-based treatment. Prevention. Prognosis and working-capacity.
Topic 16 Psoriatic arthritis. Definition. Etiological factors and pathogenesis. Classification. Clinical features. Significance of laboratory and instrumental methods. Diagnostic criteria. Differential diagnosis. Evidence-based treatment. Prevention. Prognosis and working-capacity.

Topic 17 Gout. Osteoarthritis.

Definition of gout. Aetiology and pathogenesis. Classification. Clinical features. Diagnostic Peculiarities of joint syndrome and internal organ's damage. Differential diagnosis. Evidence-based treatment. Primary and secondary prevention. Prognosis and working capacity. Definition of osteoarthritis. Aetiology and pathogenesis. Classification. Clinical features. Diagnostic criteria. Differential diagnosis. Complications. Differential treatment strategy. Prevention. Prognosis and working-capacity.

Module 3. The principles of diagnosis, treatment and prevention of the urogenital system diseases

Topic 18 Glomerulonephritis. Amyloidosis.

Definition of glomerulonephritis. Aetiology, the role of streptococcal infection and immunological disorders in disease development. Pathogenesis of main clinical syndromes. Classification. Clinical features and diagnostic of various forms. Differential diagnosis. Complications (eclampsia, acute and chronic renal failure, and others). Evidence-based treatment according to morphological variant and clinical features. Primary and secondary prevention. Prognosis and working-capacity.

Topic 19 Urinary tract infections: pyelonephritis.

Definition. The role of streptococcal infection in the development of kidney and urinary tract disorders. Primary and secondary pyelonephritis. Clinical features. Laboratory and instrumental methods of diagnostic. Differential diagnosis. Complications. Evidence-based treatment. Primary and secondary prevention. Prognosis and working capacity.

Topic 20 Acute kidney injury (AKI).

Definition. Etiological factors. Clinical features. Changes in laboratory indications. Differential diagnosis between prerenal and renal AKI. Complications. Etiological treatment. Renal replacement therapy, therapy of complications. Contrast-induced nephropathy. Prevention. Prognosis. Definition, etiology and pathogenesis of tubulointerstitial nephritis. Clinical features. Diagnostic criteria and differential diagnosis. Complications. Evidence-based treatment. Emergency for acute kidney injury. Prevention. Prognosis and working-capacity.

Topic 21 Chronic kidney disease (CKD). Chronic renal failure.

Definition. Etiological factors. Pathogenesis of organs and systems disorders, its clinical features. Classification. Clinical features and changes in laboratory indicators. Differential diagnosis. Complications. Evidence-based treatment according to different stages. Renal replacement therapy. Indications and contraindications for renal replacement therapy, complications. Primary and secondary prevention. Prognosis and working capacity.

Module 4. Military therapy

Topic 22 Organization of therapeutic care in wartime and peacetime emergencies.

General questions of therapeutic care organization in wartime. Characteristic of modern combat therapeutic pathology. Sanitary losses of therapeutic profile. Medical sorting of affected persons at the stages of first qualified and specialized therapeutic care in peacetime emergencies.

Topic 23 Radiation-related disorders. Clinical characteristic of ionizing radiation.Pathogenesis of radiation sickness. Clinical classification of ionizing radiation, acute radiation sickness. The conception of radiation trauma.

The critical links of biological effects of ionizing radiation and the pathogenesis of the main clinical forms of radiation damage. The clinic, diagnostic and treatment of radiation trauma. The definition of acute radiation sickness. Clinic and diagnostic of different forms of acute radiation sickness. The peculiarities of radiation damage in peacetime.

Topic 24 Acute radiation sickness. Bone marrow form of acute radiation sickness.

Clinic and diagnostic. Classification of bone marrow form of acute radiation sickness. Clinical features in different periods of illness. Differential and diagnostic criteria of illness degrees. Determination of life-threatening conditions in each period of the disease.

Topic 25 Step therapy of patients with acute radiation sickness. Atypical forms of acute radiation sickness.

The principles of pathogenetic treatment of acute radiation sickness according to the main features. The content of medical care for affected by ionized radiation persons on different steps of medical care. The types of atypical forms of acute radiation sickness. Clinical features of acute radiation sickness in case of external uneven irradiation, radiation combined injury, internal irradiation, coexistent irradiation, neutron radiation damage, prolonged small doses irradiation. Evidence-based medical care on different steps of medical evacuation in the case of atypical forms of acute radiation sickness.

Topic 26 Internal organs damage during combat surgical trauma and injuries during peacetime catastrophes and accidents. Complications. Prevention. Treatment.

Classification of pathological changes of internal organs in wounded persons. Syndromes of the gunshot wound. Diseases of respiratory organs in wounded persons. Diseases of circulatory organs in wounded persons. Diseases of digestive organs in wounded persons. Kidney diseases in wounded persons. Evidence-based treatment of internal organs diseases in wounded persons on different steps of medical evacuation. Prevention of internal organs diseases in wounded persons. Burn disease, definition, classification. Pathogenesis of the main clinical features and complications during different periods of diseases. Typical complications of burn disease, diagnostic. Step therapy of burn disease.

Topic 27 Emergencies, therapeutic care for life-threatening conditions during different steps of medical evacuation. Poisonous substances injury in wartime and peacetime.

General characteristic of poisonous substances injury, classification, diagnostic. Step evidence-based treatment of poisonous substances injury in wartime. The organization of emergency therapeutic care in case of acute poisoning on different steps of medical evacuation. The content of medical care. The peculiarities of poisonous substances injury in wartime and peacetime in the chemical factory.

Topic 28 Diseases caused by the action of thermal factors (warm and cold).

Definition of overheating and hypothermia. Complications of internal organs during the action of thermal factors. Peculiarities of clinic, diagnostic. Prevention and evidence-based step therapy.

Module 5. Attestation

Topic 29 Case history presentation. Case history presentation includes questions connected with the peculiarities of anamnesis collection, methodic of examination, explaining of preliminary diagnosis, creating the plan of examination and interpretation the results of laboratory and instrumental investigation, making differential diagnosis; interpretation of final clinical diagnosis, treatment and methods of secondary prevention in each case in accordance with the diseases of the patient.
Topic 30 Performance of practical skills and manipulations Carrying out a list of practical skills and manipulations
Topic 31 Practice-oriented exam Conducting the exam in accordance with the regulations

5. Intended learning outcomes of the course

After successful study of the course, the student will be able to:

LO1	To interview and to do the objective examination of patients with diseases of cardiovascular system, joints, connective tissue, kidney according to ethical aspects. Ability to justify and apply clinical methods in understanding of diseases manifestation.
LO2	To make a plan of laboratory and instrumental methods of examination of patients with heart, joint, connective tissue, kidney disorders. To justify the use of the basic invasive and non-invasive diagnostic methods in cardiology, rheumatology, nephrology, to determine the indications and contraindications for them, possible complications. To interpret the results of laboratory methods of examination.
LO3	Be able to make a differential diagnosis, interpretate and formulate the diagnosis based on analyzing of the laboratory and instrumental examination results.
LO4	To determine the necessary workmode, rest-time and diet in the treatment of heart, joints, connective tissue, kidney diseases.
LO5	To prescribe evidence-based treatment, to do prevention of heart, joints, connective tissue, kidney diseases, to do medical manipulations (ECG registration in 12 leads, measurement of blood pressure, oxygen saturation, intravenous injections, cardiopulmonary resusitation, etc.)
LO6	To diagnose and to provide emergency medical procedures in: circulatory and respiratory arrest, hypertensive crisis, paroxysmal heart rhythm disorders, Stokes-Adams syndrome, acute renal failure. To carry out medical and evacuation measures in ionizing radiation, extreme temperatures, injuries in wartime and peacetime emergencies.
LO7	To solve medical problems in new or unfamiliar situations (disasters and peacetime accidents) in the presence of incomplete or limited information according to the principles of social and ethical responsibility. To demonstrate the ability of moral and deontological principles as a medical specialist and the principles of professional subordination.
LO8	To fill in and keep medical documentation, including electronic forms.

LO9	To determine the appropriate approach in emergency medical care case of a patient with gastroenterological, pulmonological and hematological diseases.
LO10	To be able to diagnose emergency conditions, determine the tactics of providing emergency medical care, conducting treatment and evacuation measures for patients with gastroenterological, pulmonological and hematological diseases
LO11	Integrate knowledge and address complex health challenges in multidisciplinary contexts.
LO12	Be able to solve medical problems in new or unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethical responsibility.
LO13	Be able to perform medical procedures at a medical facility, at home or at work on the basis of a provisional clinical diagnosis
LO14	Be able to organize medical evacuation procedures among the population and the military under emergency and military operation conditions
LO15	Establish a final clinical diagnosis
LO16	Be able to organize an appropriate level of individual safety
LO17	To acquire skills for carrying out sanitary and hygienic and preventive measures

6. Role of the course in the achievement of programme learning outcomes

Programme learning outcomes achieved by the course.
For 222 Medicine:

PO1	To detect and identify the leading clinical symptoms and syndromes; to establish the most probable nosological or syndromic preliminary clinical diagnosis of diseases using standard methods, preliminary data of the patient's anamnesis, patient's examination data, and knowledge about a human, his organs and systems.
PO2	To collect information about the patient's general condition; to assess the patient's psychomotor and physical development and the state of organs and systems of the body; to assess information on the diagnosis based on laboratory and instrumental findings.
PO3	To order and analyze additional (mandatory and optional) examinations (laboratory, radiological, functional and/or instrumental) in order to perform a differential diagnosis of diseases.
PO4	To establish a final clinical diagnosis at a medical institution under control of a supervising doctor by means of informed decision and logical analysis of the obtained subjective and objective data of clinical and additional examinations, and differential diagnosis, following the relevant ethical and legal norms.
PO5	To detect the key clinical syndrome or the reason for patient's condition severity via informed decision and evaluation of the person's state under any circumstances (at home, in the street, at a healthcare facility), including under emergency and military operation conditions, in the field, with a lack of information and limited time.

PO6	To determine the nature and treatment principles (conservative, operative) in patients with diseases at a healthcare facility, at patient's home or during medical evacuation process (including in the field), based on the provisional clinical diagnosis and observing the relevant ethical and legal norms, by making a reasonable decision according to existing algorithms and standard procedures based on the principles of evidence-based medicine; if needed to go beyond the standard scheme, to substantiate the personalized recommendations under control of a supervising doctor at a medical facility.
PO7	To determine an appropriate work and rest mode in the treatment of diseases at a healthcare institution, at patient's home and during medical evacuation (including in the field), based on the provisional clinical diagnosis and observing the relevant ethical and legal norms, by making a reasonable decision according to existing algorithms and standard procedures.
PO8	To determine an appropriate diet in the treatment of diseases at a healthcare institution, at patient's home and during medical evacuation (including in the field), based on the provisional clinical diagnosis and observing the relevant ethical and legal norms, by making a reasonable decision according to existing algorithms and standard procedures.
PO11	To determine the appropriate approach in emergency medical care case under any circumstances, adhering to the relevant ethical and legal norms, by making an informed decision based on the main clinical syndrome (disease severity) and emergency diagnosis using standard schemes under limited time conditions based on the principles of evidence-based medicine.
PO12	To provide emergency medical assistance under any circumstances, adhering to the relevant ethical and legal norms, by making an informed decision based on the main clinical syndrome (disease severity) and emergency diagnosis using standard schemes and predetermined approach under limited time conditions based on the principles of evidence-based medicine.
PO13	To organize medical evacuation procedures among the population and the military under emergency and military operation conditions (including in the field), and during the phases of medical evacuation, given the existing system of medical evacuation provision.
PO14	To perform medical procedures at a medical facility, at home or at work on the basis of a provisional clinical diagnosis and/or health parameters through making an informed decision and adhering to the relevant ethical and legal norms.
PO15	To perform procedures related to emergency medical assistance within a limited time and under any circumstances, using standard schemes on the basis of a medical emergency diagnosis.
PO16	To plan and implement a system of sanitary and preventive measures against the occurrence and spread of diseases among the population.
PO18	To search for the necessary information in the professional literature and databases; to analyze, evaluate, and apply this information. To apply modern digital technologies, specialized software, statistical methods of data analysis to solve complex health problems.
PO19	To assess environmental impact on public health.

PO21	To organize an appropriate level of individual safety (own and of those cared for) in case of typical dangerous situations in the individual field of activity.

7. Soft Skills

SS1	Ability to abstract thinking, analysis, and synthesis.
SS2	Ability to learn, master modern knowledge, and apply the knowledge in practice.
SS3	Knowledge and understanding of the subject area and professional activity comprehension.
SS4	Ability to adapt and act in a new situation.
SS5	Ability to make reasoned decisions; teamwork ability; interpersonal skills.
SS6	Ability to use information and communication technologies.
SS7	Determination and persistence on the tasks and commitments undertaken.

8. Teaching and learning activities

Topic 1. Arterial hypertension
pr.tr.1 "Essential arterial hypertension" The definition. The role of disorders connected with central and renal mechanisms of pressure regulation, endothelial dysfunction and other factors. Classification. Clinical features and results of additional methods of examination. Hypertension-mediated organ damage. Differential diagnosis. Risk stratification. Complications. Isolated systolic arterial hypertension. Evidence-based treatment. Complicated and uncomplicated hypertensive crisis. Treatment strategy peculiarities. Prognosis and working-capacity.
pr.tr.2 "Secondary (symptomatic) arterial hypertension" The definition. The leading causes, peculiarities of clinic, diagnostic of renal (renovascular, renal parenchymal), endocrine (Cushing's syndrome, pheochromocytoma, Conn's syndrome, diffuse toxic goiter) and haemodinamic arterial hypertension. Arterial hypertension during pregnancy and metabolic disorders (metabolic syndrome). The role of laboratory and instrumental methods in differential diagnosis and verification of diagnosis. Evidence-based treatment. Primary and secondary prevention. Prognosis and working capacity. The study of this topic involves theoretical work in the classroom (testing), training of physical examination skills in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, the tonometer for blood pressure measurement. Application of virtual simulation (watching films about the methods of clinical examination of cardiovascular system, including ultrasound of the heart (echocardiography, angiography), instrumental methods (height and weight measurements, work with electrocardiograph, MRI data, brain and chest CT scan data) and laboratory examination (using of glucometer, assessment of electrolyte changes, hormone levels) with further discussing of the results for risk stratification. Acquaintance with the method of carrying out and interpretation of the obtained data of X-ray and ultrasound examination of the heart and vessels.
Topic 2. Atherosclerosis.

pr.tr.3 "Atherosclerosis"

Definition. The role of hyperlipidemias, general and local inflammation, damage of the vascular wall and platelets in the development of atherosclerosis. Risk factors. Clinical features depending on predominant localization (aorta, coronary, mesenteric and renal arteries, arteries of lower extremities). The role of laboratory, radiation and other instrumental methods of investigation. Differential diagnosis. Complications. General principles of treatment. Evidence-based treatment strategy according to different variants of course. Primary and secondary prevention. Prognosis and working capacity. The study of this topic involves theoretical work in the classroom (testing), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital using the phonendoscope, the tonometer. Application of instrumental (work with electrocardiograph, MRI data, CT scan data, ultrasound data, Doppler echocardiography) and laboratory (using of glucometer, assessment of electrolyte changes, lipid prophile levels) methods of examination with further discussing of the results for risk stratification. Discussing the management strategy and prescription of treatment.

Topic 3. Chronic forms of ischaemic heart disease (IHD).

pr.tr.4 "Chronic forms of ischaemic heart disease (IHD)"

Clinical and diagnostical features of different forms of stable angina. Painless forms of IHD (painless myocardial ischaemia, postMI, diffuse cardiosclerosis). Clinical features. Diagnostic criteria. Differential therapy of different forms of IHD. Percutaneous coronary interventions in patients with IHD.

pr.tr.5 "Chronic forms of ischaemic heart disease (IHD)" (full-time course)

Evidence-based treatment of angina attacks, acute left-sided heart failure. Prognosis and working capacity. The study of this topic involves theoretical work in the classroom (testing), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using the phonendoscope, the tonometer. Application of virtual simulation (watching films about the methods of clinical examination of cardiovascular system, including ultrasound of the heart (echocardiography, angiography), instrumental (work with electrocardiograph, ECG data, Holter monitoring, echocardiography) and laboratory (using of glucometer, assessment of electrolyte changes, hormone levels) methods of examination with further discussing of the results. Acquaintance with the method of carrying out of X-ray and ultrasound examination of the heart and blood vessels and interpretation of the obtained data in the departments of the medical institution (according to the agreement of cooperation between the medical institution and the university).

Topic 4. IHD: acute myocardial infarction.

pr.tr.6 "IHD: acute myocardial infarction"

Definition. The role of atherosclerosis, destabilization of atherosclerotic plague and functional factors in the pathogenesis of different forms of IHD. Classification. The peculiarities of clinic and diagnostic of acute myocardial infarction. Definition of “acute coronary syndrome”. Classification and clinical features of myocardial infarction. Diagnostic criteria. Differential diagnosis of the forms of the acute coronary syndrome. Complications of acute myocardial infarction.

pr.tr.7 "Treatment of acute coronary syndrome"

Evidence-based treatment strategy in different periods of acute myocardial infarction. Indications for surgical treatment. Rehabilitation. Primary and secondary prevention. The study of this topic involves theoretical work in the classroom (testing), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital using the phonendoscope, the tonometer. Application of virtual simulation (watching films about the methodic of coronary angiography, electrical cardioversion, pacing, respiratory support), instrumental (work with electrocardiograph, pulse oximeter, ECG data, coronary angiography, heart ultrasound, X-Ray data) and laboratory (using of glucometer, assessment of INR, APTT, lipid profile, biomarkers) methods of examination with further discussing of the results. Discussing the management strategy and prescription of treatment. Performing of intravenous injections and cardiopulmonary reanimation in the simulation center on phantoms. Acquaintance with the method of carrying out ultrasound examination of the heart, blood vessels, coronarography, defibrillation in the departments of the medical institution (according to the agreement of cooperation between the medical institution and the university).

Topic 5. Heart failure.

pr.tr.8 "Heart failure: diagnostic."

Definition. The main causes. Pathogenesis of central and peripheral hemodynamic disorders in different forms (left-sided and right-sided heart failure). The role of neurohumoral activation and heart remodeling. Classification. Clinical manifestation and features according to the variant (systolic, diastolic), stage and functional class. Diagnostic.

pr.tr.9 "Heart failure: treatment."

Evidence-based treatment of heart failure. Primary and secondary prevention. Prognosis and working capacity. The study of this topic involves theoretical work in the classroom (testing), training skills in collection of complaints and anamnesis data, physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer. Application of virtual simulation (watching films about the methodic of coronary angiography, electrical cardioversion, pacing, respiratory support), instrumental (work with electrocardiograph, pulse oximeter, ECG data, coronary angiography, heart ultrasound, X-Ray data) and laboratory (using of glucometer, assessment of INR, APTT, lipid profile, biomarkers) methods of examination with further discussing of the results. Discussing the management strategy and prescription of treatment. Performing of intravenous injections and cardiopulmonary reanimation in the simulation center on phantoms. Acquaintance with the methodic of carrying out and interpretation of X-Ray data, ultrasound examination of the heart in the departments of the medical institution.

Topic 6. Heart rhythm disorders.

lect.1 "Heart rhythm and conduction disorders."

Teaching is carried out in the form of a multimedia lecture. Supraventricular arrhythmias. Definition. Etiology. Electrophysiological mechanisms of arrhythmias (extrasystole, atrial fibrillation and flutter). Clinical features, ECG-diagnostic and differential diagnostic. Complications. Medical and non-medical methods of treatment. The role of electropulse therapy. Urgent therapy for paroxysmal arrhythmias and sudden cardiac death. Primary and secondary prevention. Prognosis, working capacity. Ventricular arrhythmias. Definition. Aetiology. Electrophysiological mechanisms of arrhythmias (extrasystole, ventricular tachycardia and ventricular fibrillation). Clinical features, ECG-diagnostic and differential diagnostic. Complications. Medical and non-medical methods of treatment. The role of electropulse therapy. Urgent therapy for paroxysmal arrhythmias and sudden cardiac death. Primary and secondary prevention. Prognosis, working capacity.Heart conduction disorders. Definition, aetiology, and classification of conduction disorders. Clinical, ECG-diagnostic of AV-block and bundle-branch block. The strategy of acute and chronic conduction heart disorders. Emergency in Stokes-Adams syndrome. Indications and principles for pacemaker implantation (temporary, permanent). Primary and secondary prevention. Prognosis and working capacity.

pr.tr.10 "Supraventricular arrhythmias"

Definition. Aetiology. Electrophysiological mechanisms of arrhythmias (extrasystole, atrial fibrillation and flutter). Clinical features, ECG-diagnostic and differential diagnostic. Complications. Medical and non-medical methods of treatment. The role of electropulse therapy. Urgent evidence-based therapy for paroxysmal arrhythmias and sudden cardiac death. Primary and secondary prevention. Prognosis, working capacity.

pr.tr.11 "Ventricular arrhythmias"

Definition. Aetiology. Electrophysiological mechanisms of arrhythmias (extrasystole, ventricular tachycardia and ventricular fibrillation). Clinical features, ECG-diagnostic and differential diagnostic. Complications. Medical and non-medical methods of evidence-based treatment. The role of electropulse therapy. Urgent therapy for paroxysmal arrhythmias and sudden cardiac death. Primary and secondary prevention. Prognosis, working capacity.

pr.tr.12 "Heart conduction disorders"

Definition, aetiology, and classification of conduction disorders. Clinical, ECG-diagnostic of AV-block and bundle-branch block. The strategy of acute and chronic conduction heart disorders. Emergency in Stokes-Adams syndrome. Indications and principles for pacemaker implantation (temporary, permanent). Primary and secondary prevention. Prognosis and working capacity. The study of this topic involves theoretical work in the classroom (testing), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital using the phonendoscope, the tonometer. Application of instrumental (work with electrocardiograph, ECG data) and laboratory (using of glucometer, assessment of INR, APTT, lipid profile, biomarkers) methods of examination with further discussion of the results. Discussing the management strategy and prescription of treatment. Doing of intravenous injections. Acquaintance with the methodic of carrying out and interpretation of Holter monitoring in the departments of the medical institution (according to the agreement of cooperation between the medical institution and the university). Application of virtual simulation (watching films about the methodic of radiofrequency catheter ablation, electrical cardioversion, pacing).

Topic 7. Acquired heart valve diseases.

pr.tr.13 "Acquired heart valve diseases"

Definition. Mitral, aortic, tricuspid valves diseases. Aetiology, mechanisms of hemodynamic disorders. Classification. Combined mitral and aortic valves diseases. Clinical features. The role of invasive and noninvasive methods. Differential diagnosis. Complications. Evidence-based treatment. Indications for surgical treatment. Primary and secondary prevention. Prognosis and working capacity. The study of this topic involves theoretical work in the classroom (testing), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer. Application of virtual simulation (watching videos about the methodic of electrical cardioversion, respiratory support), instrumental (work with electrocardiograph, pulse oximeter, ECG data, ultrasound of the heart data, X-Ray data) and laboratory (using of glucometer, assessment of INR, APTT) methods of examination with further discussing of the results. Discussing the management strategy and prescription of treatment. Doing of intravenous injections. Acquaintance with the methodic of carrying out and interpretation of X-ray data, ultrasound examination of the heart in the departments of the medical institution (according to the agreement of cooperation between the medical institution and the university).

Topic 8. Infective endocarditis. Pericarditis.

pr.tr.14 "Infective endocarditis."

Definition. Aetiology, pathogenesis. Clinical features according to the pathogen. Diagnostic criteria. The role of laboratory and instrumental methods in diagnostic. Differential diagnosis. Complications (heart failure, embolism, abscesses). Evidence-based treatment. Antibacterial therapy regimens. Indications for surgery. Primary and secondary prevention. Prognosis and working-capacity. The study of this topic involves theoretical work in the classroom (testing), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital using the stethoscope, the tonometer, instrumental (work with an electrocardiograph, pulse oximeter, ECG data, ultrasound of the heart data, X-ray data) and laboratory methods of examination with further discussion of the results. Application of virtual simulation (watching films about the methodic of ultrasound heart diagnostic). Acquaintance with the methodic of carrying out and interpretation of ultrasound examination of the heart and CT scan of the brain in the departments of the medical institution (according to the agreement of cooperation between the medical institution and the university). Discussing the management strategy and prescription of treatment.

pr.tr.15 "Pericarditis."

Definition. Aetiology, pathogenesis. Clinical features according to the pathogen. Diagnostic criteria. The role of laboratory and instrumental methods in diagnostic. Differential diagnosis. Complications (heart failure, embolism, abscesses). Evidence-based treatment. Antibacterial therapy regimens. Indications for surgery. Primary and secondary prevention. Prognosis and working-capacity. The study of this topic involves theoretical work in the classroom (testing), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital using the stethoscope, the tonometer, instrumental (work with an electrocardiograph, pulse oximeter, ECG data, ultrasound of the heart data, X-ray data) and laboratory methods of examination with further discussion of the results. Application of virtual simulation (watching films about the methodic of ultrasound heart diagnostic). Acquaintance with the methodic of carrying out and interpretation of ultrasound examination of the heart and CT scan of the brain in the departments of the medical institution (according to the agreement of cooperation between the medical institution and the university). Discussing the management strategy and prescription of treatment.

Topic 9. Myocarditis. Cardiomyopathies.

pr.tr.16 "Myocarditis."

Definition of myocarditis. Classification. Etiology and pathogenesis of main types of cardiomyopathies. The role of laboratory and instrumental methods of investigation in diagnostic. Diagnostic criteria and differential diagnosis. Complications. Evidence-based treatment of different cardiomyopathies. Primary and secondary prevention. Prognosis, working capacity. Definition of myocarditis, classification, clinical features, laboratory and instrumental methods of investigation. Treatment strategy according to the severity and etiological factors. Primary and secondary prevention. Prognosis, working capacity. The study of this topic involves theoretical work in the classroom (testing), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital using the phonendoscope, the tonometer. Application of virtual simulation (watching films about the methodic of echocardiography), instrumental (work with electrocardiograph, pulse oximeter, ECG data, ultrasound of the heart data, X-Ray data) and laboratory methods of examination with further discussion of the results. Discussing the management strategy and prescription of treatment. Acquaintance with the methodic of carrying out and interpretation of X-Ray and ultrasound examination of the heart in the departments of the medical institution

pr.tr.17 "Cardiomyopathies"

Definition of cardiomyopathies. Classification. Etiology and pathogenesis of main types of cardiomyopathies. The role of laboratory and instrumental methods of investigation in diagnostic. Diagnostic criteria and differential diagnosis. Complications. Evidence-based treatment of different cardiomyopathies. Primary and secondary prevention. Prognosis, working capacity. Definition of myocarditis, classification, clinical features, laboratory and instrumental methods of investigation. Treatment strategy according to the severity and etiological factors. Primary and secondary prevention. Prognosis, working capacity. The study of this topic involves theoretical work in the classroom (testing), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital using the phonendoscope, the tonometer. Application of virtual simulation (watching films about the methodic of echocardiography), instrumental (work with electrocardiograph, pulse oximeter, ECG data, ultrasound of the heart data, X-Ray data) and laboratory methods of examination with further discussion of the results. Discussing the management strategy and prescription of treatment. Acquaintance with the methodic of carrying out and interpretation of X-Ray and ultrasound examination of the heart in the departments of the medical institution

Topic 10. Pulmonary embolism (PE).

pr.tr.18 "Pulmonary embolism (PE)."

Definition and classification of PE. Risk factors. Pathogenesis of hemodynamic disorders. Clinical features of different forms. Diagnostic criteria and differential diagnosis. The diagnostic significance of instrumental methods of investigation.

pr.tr.19 "Treatment of pulmonary embolism."

Evidence-based treatment. Indications for surgical treatment. Primary and secondary prevention. Prognosis and working capacity. The study of this topic involves theoretical work in the classroom (testing), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer. Work in simulation center with electrocardiograph, pulse oximeter, ECG data, cardiac ultrasound data, X-Ray data). The assessment of laboratory data (D-dimer, INR, APTT) with further discussion of the results. Application of virtual simulation (watching videos about the methodic of CT pulmonary angiography, respiratory support). Discussing the management strategy and prescription of treatment. Performing intravenous injections.

Topic 11. Rheumatoid arthritis.

pr.tr.20 "Rheumatoid arthritis."

Definition. Etiological factors, pathogenesis. Classification and nomenclature. Clinical features according to the activity of pathological process, stage of the disease, systemic manifestations. Activity evaluation index. The significance of laboratory and instrumental methods in diagnostic of the disease, its stages and activity. Diagnostic criteria. Differential diagnosis. Complications.

pr.tr.21 "Treatment of rheumatoid arthritis."

Evidence-based treatment. Basic therapy. The assessment of the effectiveness of basic therapy. Prevention. Prognosis and working capacity. The study of this topic involves theoretical work in the classroom (testing), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer, questionnaires. Application of virtual simulation (watching videos about the determination of rheumatoid arthritis activity), instrumental (work with X-Ray of joints, densitometry data) and laboratory (using of glucometer, assessment of serological markers) methods of examination with further discussion of the results. Discussing of the management strategy and prescription of treatment with infusomat. Acquaintance with the methodic of carrying out and interpretation of X-Ray and ultrasound examination of joints in the departments of the medical institution (according to the agreement of cooperation between the medical institution and the university).

Topic 12. Connective tissue diseases.

lect.2 "Connective tissue disease." (full-time course)

Teaching is carried out in the form of a multimedia lecture.

pr.tr.22 "Systemic lupus erythematosus"

Definition. Etiological factors and pathogenesis. Classification. Clinical features according to the disorders in organs and systems, the assessment of the disease activity. The significance of laboratory, including immunological methods of examination. Diagnostic criteria. Differential diagnosis. Complications. Evidence-based treatment. Pulse therapy. Prevention. Prognosis and working capacity.

pr.tr.23 "Systemic sclerosis and dermatomyositis."

Definition. Etiological factors and pathogenesis. Classification. Clinical features according to the disorders in organs and systems. Diagnostic criteria. Differential diagnosis. Complications. Treatment strategy. Prevention. Prognosis and working-capacity. The study of this topic involves theoretical work in the classroom (testing), training skills of complaints and anamnesis data collection, of physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, tonometer, questionnaires, capillaroscope. Application of instrumental (work with X-ray of joints) and laboratory (assessment of serological markers) methods of examination with further discussion of the results. Discussing the management strategy and prescription of treatment with infusomat. Acquaintance with the methodic of carrying out and interpretation of X-Ray and ultrasound examination in the departments of the medical institution.

pr.tr.24 "Systemic sclerosis and dermatomyositis." (full-time course)

Definition. Etiological factors and pathogenesis. Classification. Clinical features according to the disorders in organs and systems. Diagnostic criteria. Differential diagnosis. Complications. Treatment strategy. Prevention. Prognosis and working-capacity. The study of this topic involves theoretical work in the classroom (testing), training skills of complaints and anamnesis data collection, of physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, tonometer, questionnaires, capillaroscope. Application of instrumental (work with X-ray of joints) and laboratory (assessment of serological markers) methods of examination with further discussion of the results. Discussing the management strategy and prescription of treatment with infusomat. Acquaintance with the methodic of carrying out and interpretation of X-Ray and ultrasound examination in the departments of the medical institution.

Topic 13. Systemic vasculitis.

pr.tr.25 "Medium- and large-vessel vasculitis"

Classification of vasculitis. Etiology, pathogenesis, clinic. Diagnostic criteria of giant cell arteritis, Takayasu's arteritis, polyarteritis nodosa. Laboratory and instrumental methods of diagnostic. Differential diagnosis. Evidence-based treatment strategies. Prognosis and working-capacity.

pr.tr.26 "Medium- and large-vessel vasculitis" (full-time course)

Classification of vasculitis. Etiology, pathogenesis, clinic. Diagnostic criteria of giant cell arteritis, Takayasu's arteritis, polyarteritis nodosa. Laboratory and instrumental methods of diagnostic. Differential diagnosis. Evidence-based treatment strategies. Prognosis and working-capacity.

pr.tr.27 "Small-vessel vasculitis"

ANCA-associated and immune complex vasculitis. Clinic. Laboratory and instrumental methods of diagnostic. Differential diagnosis. Evidence-based treatment. Prognosis and working capacity. The study of this topic involves theoretical work in the classroom (testing), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care/hospital or applying role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer, questionnaires. Application of instrumental (work with chest X-ray) and laboratory (assessment of serological markers, blood analysis, urine dipstick test) methods of examination with further discussing of the results. Virtual simulation (watching the video on punch skin biopsy procedure). Discussing the management strategy and prescription of treatment with infusomat. Acquaintance with the methodic of carrying out and interpretation of CT scans in the departments of the medical institution (according to the agreement of cooperation between the medical institution and the university).

Topic 14. Reactive arthritis.

pr.tr.28 "Reactive arthritis"

Definition. Etiological factors and pathogenesis. Classification. Clinical features according to the etiology. Significance of laboratory and instrumental methods of diagnostic. Diagnostic criteria. Differential diagnosis. Evidence-based treatment, indications for antibacterial therapy. Prognosis and working capacity. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using the phonendoscope, the tonometer. Application of instrumental (work with X-ray of joints) and laboratory (assessment of serological markers, blood analysis, urine dipstick test) methods of examination with further discussion of the results. Discussing the management strategy and prescription of treatment.

Topic 15. Ankylosing spondylitis.

pr.tr.29 "Ankylosing spondylitis"

Definition. Etiological factors and pathogenesis. Classification. Clinical features. Significance of laboratory and instrumental methods. Diagnostic criteria. Differential diagnosis. Evidence-based treatment. Prevention. Prognosis and working-capacity. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using the phonendoscope, the tonometer. Application of instrumental (work with X-Ray of joints) and laboratory (assessment of serological markers, blood analysis, urine dipstick test) methods of examination with further discussion of the results. Discussing the management strategy and prescription of treatment. Acquaintance with the methodic of carrying out and interpretation of X-ray and MRI of joints in the departments of the medical institution (according to the agreement of cooperation between the medical institution and the university).

Topic 16. Psoriatic arthritis.

pr.tr.30 "Psoriatic arthritis"

Definition. Etiological factors and pathogenesis. Classification. Clinical features. Significance of laboratory and instrumental methods. Diagnostic criteria. Differential diagnosis. Evidence-based treatment. Prevention. Prognosis and working-capacity. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks), training skills of complaints and anamnesis data collection, of physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer, assessment scores. Application of instrumental (work with X-ray of joints) and laboratory (assessment of blood analysis, urine dipstick test) methods of examination with further discussing of the results. Discussing of the management strategy and prescription of treatment. Acquaintance with the methodic of carrying out and interpretation of X-ray, MRI and ultrasound diagnostic of joints in the units of the medical institution.

Topic 17. Gout. Osteoarthritis.

pr.tr.31 "Gout"

Definition of gout. Etiology and pathogenesis. Classification. Clinical features. Diagnostic. Peculiarities of joint syndrome and internal organ damage. Differential diagnosis. Evidence-based treatment. Primary and secondary prevention. Prognosis and working-capacity. Pr 27. Osteoarthritis Definition of osteoarthritis. Aetiology and pathogenesis. Classification. Clinical features. Diagnostic criteria. Differential diagnosis. Complications. Differential treatment strategy. Prevention. Prognosis and working capacity. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital using the phonendoscope, the tonometer. Application of instrumental (work with X-ray of joints) and laboratory (assessment of blood analysis, urine dipstick test) methods of examination with further discussion of the results. Discussing the management strategy and prescription of treatment. Acquaintance with the methodic of arthrocentesis in the departments of the medical institution (according to the agreement of cooperation between the medical institution and the university) or with the help of virtual simulation.

pr.tr.32 "Osteoarthritis"

Definition of osteoarthritis. Etiology and pathogenesis. Classification. Clinical features. Diagnostic criteria. Differential diagnosis. Complications. Differential evidence-based treatment strategy. Prevention. Prognosis and working-capacity. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital using the phonendoscope, the tonometer. Application of instrumental (work with X-ray of joints) and laboratory (assessment of blood analysis, urine dipstick test) methods of examination with further discussion of the results. Discussing the management strategy and prescription of treatment. Acquaintance with the methodic of arthrocentesis in the departments of the medical institution (according to the agreement of cooperation between the medical institution and the university) or with the help of virtual simulation.

Topic 18. Glomerulonephritis. Amyloidosis.

pr.tr.33 "Glomerulonephritis"

Definition of glomerulonephritis. Aetiology, the role of streptococcal infection and immunological disorders in disease development. Pathogenesis of main clinical syndromes. Classification. Clinical features and diagnostic of various forms. Clinical features of nephrotic syndrome. Differential diagnosis.

pr.tr.34 "Glomerulonephritis. Amyloidosis."

Complications (eclampsia, acute and chronic renal failure, and others). Evidence-based treatment according to morphological variant and clinical features. Primary and secondary prevention. Prognosis and working capacity. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer. Application of virtual simulation (watching videos about kidney biopsy), instrumental (assessment the results of kidney biopsy) and laboratory (assessment of blood analysis, urine dipstick test) methods of examination with further discussion of the results. Discussing the management strategy and prescription of treatment.

Topic 19. Urinary tract infections: pyelonephritis.

pr.tr.35 "Urinary tract infections: pyelonephritis"

Definition. The role of streptococcal infection in the development of kidney and urinary tract inflammatory disorders. Primary and secondary pyelonephritis. Clinical features. Instrumental and laboratory methods of diagnostic. Differential diagnosis. Complications. Evidence-based treatment. Primary and secondary prevention. Prognosis and working capacity. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer. Application of instrumental (ultrasound interpretation) and laboratory (assessment of blood analysis, urine dipstick test) methods of examination with further discussion of the results and prescription of treatment. Acquaintance with the methodic of kidneys ultrasound in the departments of a medical institution or with the help of a virtual simulation.

pr.tr.36 "Urinary tract infections: pyelonephritis" (full-time course)

lDefinition. The role of streptococcal infection in the development of kidney and urinary tract inflammatory disorders. Primary and secondary pyelonephritis. Clinical features. Instrumental and laboratory methods of diagnostic. Differential diagnosis. Complications. Evidence-based treatment. Primary and secondary prevention. Prognosis and working capacity. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer. Application of instrumental (ultrasound interpretation) and laboratory (assessment of blood analysis, urine dipstick test) methods of examination with further discussion of the results and prescription of treatment. Acquaintance with the methodic of kidneys ultrasound in the departments of a medical institution or with the help of a virtual simulation.

Topic 20. Acute kidney injury (AKI).

pr.tr.37 "Acute kidney injury"

Definition. Etiological factors. Clinical features and changes in laboratory indications. Differential diagnosis between prerenal and renal AKI. Complications. Etiological treatment. Renal replacement therapy, therapy of complications. Contrast-induced nephropathy. Prevention. Prognosis. Definition, etiology and pathogenesis of tubulointerstitial nephritis. Clinical features. Diagnostic criteria and differential diagnosis. Complications. Evidence-based treatment. Emergency in acute kidney injury. Prevention. Prognosis and working-capacity. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer. Application of laboratory (assessment of blood analysis, urine dipstick test) methods of examination with further discussion of the results, management strategy and prescription of treatment. Acquaintance with the methodic of hemodialysis in the departments of a medical institution or with the help of a virtual simulation.

Topic 21. Chronic kidney disease (CKD). Chronic renal failure.

pr.tr.38 "Treatment of chronic renal failure"

Nephroprotection. Renal replacement therapy. Indications and contraindications for renal replacement therapy, complications. Primary and secondary prevention. Prognosis and working-capacity. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer. Application of virtual simulation (watching videos about peritoneal dialysis), instrumental and laboratory (assessment of blood analysis, urine dipstick test) methods of examination with further discussion of the results. Discussing the management strategy and prescription of treatment. Acquaintance with the methodic of peritoneal dialysis in the nephrological department of the medical institution.

pr.tr.39 "Chronic kidney disease"

Definition of CKD. Aetiology, pathogenesis. Classification. Clinical features of different stages of CKD and diagnostic. The definition of chronic renal failure. Etiological factors. Pathogenesis of the disorders of organs and systems, their clinical features. Classification. Clinic and changes in laboratory indicators. Differential diagnosis. Complications.

Topic 22. Organization of therapeutic care in wartime and peacetime emergencies.

pr.tr.40 "Organization of therapeutic care in wartime and in peacetime emergencies"

General questions of therapeutic care organization in wartime. Characteristic of modern combat therapeutic pathology. Sanitary losses of therapeutic profile. Medical sorting of affected persons at the stages of first qualified and specialized therapeutic care in peacetime emergencies. The study of this topic involves theoretical work in the classroom (discussion of situational tasks in the organization of therapeutic care), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer. Application of instrumental (work with X-ray, chest CT scan, ECG) and laboratory (assessment of blood analysis, urine dipstick test) methods of examination with further discussion of the results. The discussion of management strategy.

Topic 23. Radiation-related disorders. Clinical characteristic of ionizing radiation.Pathogenesis of radiation sickness. Clinical classification of ionizing radiation, acute radiation sickness. The conception of radiation trauma.

pr.tr.41 "Radiation-related disorders. Clinical characteristics of ionizing radiation. Pathogenesis of radiation sickness."

The critical links of biological effects of ionizing radiation and pathogenesis of the main clinical forms of radiation damage.

pr.tr.42 "Clinical classification of ionizing radiation, acute radiation sickness. The conception of radiation trauma"

Clinic and diagnostic of different forms of acute radiation sickness. The peculiarities of radiation damage in peacetime The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer. Application of instrumental (work with chest CT scans, ECG) and laboratory (assessment of blood analysis, urine dipstick test) methods of examination with further discussion of the results. The discussing of management strategy and emergency care for patients with radiation injuries.

Topic 24. Acute radiation sickness. Bone marrow form of acute radiation sickness.

pr.tr.43 "Bone marrow form of acute radiation sickness"

Clinic and diagnostic. Classification of bone marrow form of acute radiation sickness. Clinical features in different periods of sickness.

pr.tr.44 "Differential and diagnostic criteria of degrees of severity of acute radiation sickness"

Differential and diagnostic criteria of degrees of severity of acute radiation sickness. Determination of life-threatening conditions in each period of the disease. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer. Application of instrumental (work with chest CT scan, ECG) and laboratory (assessment of blood analysis, urine dipstick test) methods of examination with further discussion of the results. Acquaintance with the methodic of CT scan, ECG in the departments of a medical institution (according to the agreement of cooperation between the medical institution and the university).

Topic 25. Step therapy of patients with acute radiation sickness. Atypical forms of acute radiation sickness.

pr.tr.45 "Step therapy of patients with acute radiation sickness."

The principles of pathogenetic treatment of acute radiation sickness according to the main features. The content of medical care for affected by ionized radiation persons on different steps of medical care. The types of atypical forms of acute radiation sickness. Clinical features of acute radiation sickness in the case of external uneven irradiation, radiation combined injury, internal irradiation, coexistent irradiation, neutron radiation damage, prolonged small doses irradiation. Medical care on different steps of medical evacuation in the case of atypical forms of acute radiation sickness. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer. Application of virtual simulation (watching a video with the bone marrow puncture) and laboratory (assessment of blood analysis, urine dipstick test) methods of examination with further discussion of the results. The discussing of management strategy and prescription of treatment.

pr.tr.46 "Atypical forms of acute radiation sickness."

The principles of pathogenetic treatment of acute radiation sickness according to the main features. The content of medical care for affected by ionized radiation persons on different steps of medical care. The types of atypical forms of acute radiation sickness. Clinical features of acute radiation sickness in the case of external uneven irradiation, radiation combined injury, internal irradiation, coexistent irradiation, neutron radiation damage, prolonged small doses irradiation. Medical care on different steps of medical evacuation in the case of atypical forms of acute radiation sickness. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer. Application of virtual simulation (watching a video with the bone marrow puncture) and laboratory (assessment of blood analysis, urine dipstick test) methods of examination with further discussion of the results. The discussing of management strategy and prescription of treatment.

Topic 26. Internal organs damage during combat surgical trauma and injuries during peacetime catastrophes and accidents. Complications. Prevention. Treatment.

pr.tr.47 "Internal organs damage during combat surgical trauma and injuries during peacetime catastrophes and accidents"

Classification of pathological changes of internal organs in wounded persons. Syndromes of gunshot wound. Diseases of respiratory organs in wounded persons. Diseases of circulatory organs in wounded persons. Diseases of digestive organs in wounded persons. Kidney diseases in wounded persons. Evidence-based treatment of internal organs diseases in wounded persons on different steps of medical evacuation. Prevention of internal organs diseases in wounded persons.

pr.tr.48 "Burn disease"

Definition, classification. Pathogenesis of the main clinical features and complications during different periods of diseases. Typical complications of burn disease, diagnostic. Step therapy of burn disease. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer, pulse oximeter. Work in a simulation class with phantoms for training of medical care during the second step of medical sorting (Safar's triple airway manoeuvre; manual cleaning of the mouth and larynx; cleaning of oropharynx with the aspirator; air duct introduction; performing of artificial respiration, including use a bag valve mask "AMBU"; oxygen inhalation; indirect cardiac massage; defibrillation; stopping of external bleeding (venous, arterial); cervical collar imposition; mobilization of fractures by tires; fixation of the patient on a transport board; applying of bandages). Using of instrumental (work with chest X-ray films, CT scans, ECG) and laboratory (assessment of blood analysis, urine dipstick test) methods of examination with further discussion of the results. The discussing of management strategy and prescription of treatment.

Topic 27. Emergencies, therapeutic care for life-threatening conditions during different steps of medical evacuation. Poisonous substances injury in wartime and peacetime.

pr.tr.49 "Emergencies, therapeutic care for life-threatening conditions during different steps of medical evacuation. Poisonous substances injury in wartime and peacetime"

General characteristics of poisonous substances injury, classification, diagnostic. Step treatment of poisonous substances injury in wartime. The organization of emergency therapeutic care in the case of acute poisoning in different steps of medical evacuation. The peculiarities of poisonous substances injury in wartime and in peacetime. The content of evidence-based medical care. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks about the organization of therapeutic care), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer, pulse oximeter. Work in a simulation class with phantoms for training of medical care during the second step of medical sorting (Safar's triple airway manoeuvre; manual cleaning of the mouth and larynx; cleaning of oropharynx with the aspirator; air duct introduction; endotracheal intubation; cricotomy (conicotomy); endotracheal intubation; cricothyroid ligament puncture; tracheostomy; doing of artificial respiration, including using a bag valve mask "AMBU"; oxygen inhalation; indirect cardiac massage; defibrillation). Discussion of management strategy and prescription of treatment.

Topic 28. Diseases caused by the action of thermal factors (warm and cold).

pr.tr.50 "Diseases caused by the action of thermal factors (warm and cold)." Definition of overheating and hypothermia. Changes in internal organs during the influence of warm. Peculiarities of clinic, diagnostic. Prevention and step therapy. Changes in internal organs in cold influence. Peculiarities of clinic, diagnostic. Prevention and evidence-based therapy. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks about the organization of therapeutic care), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital, or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer. Application of instrumental (work with chest CT scan, ECG) and laboratory (assessment of blood analysis, urine dipstick test) methods of examination with further discussion of the results. Discussion of management strategy and prescription of treatment.
pr.tr.51 "Diseases caused by the action of thermal factors (warm and cold)" (full-time course) Definition of overheating and hypothermia. Changes in internal organs during the influence of warm. Peculiarities of clinic, diagnostic. Prevention and step therapy. Changes in internal organs in cold influence. Peculiarities of clinic, diagnostic. Prevention and evidence-based therapy. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks about the organization of therapeutic care), training skills in complaints and anamnesis data collection, physical examination skills in ambulatory care and hospital, or applying of role-playing games in the case of quarantine in the hospital with using of the phonendoscope, the tonometer. Application of instrumental (work with chest CT scan, ECG) and laboratory (assessment of blood analysis, urine dipstick test) methods of examination with further discussion of the results. Discussion of management strategy and prescription of treatment.
Topic 29. Case history presentation.
pr.tr.52 "Case history presentation" Case history presentation is based on supervision of the patient with registration of the results of examination, interpretation of preliminary diagnosis, making the plan of examination, interpreting the results of laboratory and instrumental methods of examination, making the differential diagnosis, interpretation of final diagnosis, treatment and recommendation of secondary prevention in each case in accordance with the diagnosed disease of the patient.
Topic 30. Performance of practical skills and manipulations
pr.tr.53 "Performance of practical skills and manipulations" Performance of practical skills and manipulations
pr.tr.54 "Performance of practical skills and manipulations" Performance of practical skills and manipulations
Topic 31. Practice-oriented exam
assessm.55 "Practice-oriented exam" Conducting the exam in accordance with the regulations

9. Teaching methods

9.1 Teaching methods

Course involves learning through:

TM1	Case-based learning
TM2	Lecture teaching
TM3	Team Based Learning
TM4	Practical training
TM5	Self-study
TM6	Electronic learning
TM7	Research Based Learning

The discipline is taught using advanced teaching methods that contribute to developing professional skills aimed at training practice-oriented specialists and stimulating scientific activity.

Ability to abstract thinking, analysis and synthesis. Ability to learn and master modern knowledge, applying it in practice. Knowledge and understanding of the subject area and professional activity comprehension. Ability to adapt and act in a new situation. Ability to make reasonев decisions; work in a team; skills in interpersonal relationship. Ability to use information and communication technologies. Determination and persistence to the tasks and commitments undertaken.

9.2 Learning activities

LA1	Examination of patients at the suitable specialized department.
LA2	The interpretation of instrumental (spirograms, ECG, echocardiography, coronary angiography, X-Ray/CT/ultrasound/MRI of joints, chest, abdomen, endoscopy of GIT) and laboratory results (blood, sputum, urine, bone marrow).
LA3	E-learning on platforms (MIX.sumdu.edu.ua).
LA4	Writing and defense of case history.
LA5	Solving of situational clinical tasks.
LA6	Preparing to practice-oriented exam.
LA7	Preparing multimedia presentation and reporting.
LA8	Working with textbooks and relevant information sources
LA9	Performing a group practical task
LA10	Individual research project (student scientific work, article, abstracts, report)
LA11	Practicing practical skills in the simulation center
LA12	Preparation for practical classes

10. Methods and criteria for assessment

10.1. Assessment criteria

Definition	National scale	Rating scale
Outstanding performance without errors	5 (Excellent)	$170 \leq RD \leq 200$
Above the average standard but with minor errors	4 (Good)	$140 \leq RD < 169$

Fair but with significant shortcomings	3 (Satisfactory)	120 ≤ RD < 139
Fail – some more work required before the credit can be awarded	2 (Fail)	0 ≤ RD < 119

10.2 Formative assessment

	Description	**Deadline, weeks**	**Feedback**
FA1 Defence of case history	Writing a medical history involves demonstrating the ability to work with a patient, consolidating the practical skills of physical examination of a patient, evaluating and analyzing medical documentation, establishing a clinical diagnosis with elements of differential diagnosis, prescribing treatment. The defense of the medical history is provided, when the student must provide answers to questions about the patient he treated, the causes and provoking factors of the disease, modern methods of	Writing during the cycle, defense - in accordance with the calendar and thematic plan	Counseling of the teacher during the writing of the medical history with oral comments. The applicant receives a grade for writing a medical history (5 points maximum) and defense (5 points maximum)
FA2 Surveys and oral comments of the teacher on its results	The instructions reveal methods of pedagogical control over the professional activities of applicants. Efficiency is determined by compliance with all stages of practical tasks. The effectiveness of the formation of the necessary practical skills and abilities depends on the level of formation of practical competence.	During the entire period of studying the discipline	Counseling of students in working with a standardized patient, direct and indirect observation of the work of applicants "at the bedside" of the patient with subsequent determination of the level of practical training

FA3 Solving situational tasks	The case method allows you to reveal and form the qualities and abilities of medical students necessary for further work, forms clinical thinking, analytical abilities, independence in decision-making, communication, skills for working with a sufficiently large amount of information.	During the entire period of studying the discipline	Assessment of student abilities to clinical thinking, substantiating one's decisions, expressing one's opinions clearly, determining the level of theoretical trai
FA4 Testing	A method of effectively checking the level of assimilation of knowledge, abilities and skills in an educational discipline. Testing allows you to check the results of learning after completing the topic.	During the entire period of studying the discipline	The minimum percentage of successful passing of tests is 60% of correct answers.
FA5 Consulting the teacher during the preparation of an individual research project (speech at a conference, competition of scientific papers)	An important factor in the formation of professional qualities of future specialists is the research work of students. Involvement of the latter in research activities contributes to the formation of their scientific worldview, diligence, capacity for work, initiative, etc. Teacher's oral comments. The stude	During the entire period of studying the discipline	Teacher's oral comments. The student is given additional incentive points (from 5 to 10), depending on the type of research project
FA6 Discussions in focus groups	The method makes it possible to involve all participants in the process of discussion and justification of one's own opinion through multilateral communication, to develop the ability to conduct a professional discussion, to cultivate respect for colleagues and the ability to generate alternative ideas and proposals.	During the entire period of studying the discipline	Assessment of the student's ability to work in a team, ability to justify their decisions, determination of the level of theoretical training, which is reflected in the corresponding assessment

FA7 Practical skills test	Practicing practical skills on various mannequins and simulators.	During the entire period of study. At the last lesson, the student must successfully perform practic	Feedback is aimed at supporting students' independent work, identifying shortcomings and assessing the level of acquired practical skills
FA8 Analysis of understanding indicators of laboratory and instrumental examination methods	A key factor in conducting differential diagnosis is a comprehensive assessment of the patient's condition, taking into account the results of laboratory and instrumental examinations.	During the entire period of studying the discipline	Providing comments by the teacher on the correctness of the applicant's interpretation of the examination results and further discussion of disagreements.
FA9 Survey and teacher's oral comments based on his results	The instructions reveal methods of pedagogical control over the professional activities of applicants. Efficiency is determined by compliance with all stages of practical tasks. The effectiveness of the formation of the necessary practical skills and abilities depends on the level of formation of practical competence.	During the entire period of studying the discipline	Counseling of students in working with a standardized patient, direct and indirect observation of the work of applicants "at the bedside" of the patient with subsequent determination of the level of practical training

FA10 The task of assessing the level of theoretical training	Assessment of acquired theoretical knowledge on the subject of the discipline. It is conducted at each practical session in accordance with the specific goals of each topic based on a comprehensive assessment of the student's activity, which includes monitoring the level of theoretical training, performing independent work according to the thematic plan	During the entire period of studying the discipline	Feedback is aimed at supporting students' independent work, identifying shortcomings and assessing the level of acquired theoretical knowledge
FA11 Counseling of the teacher during the preparation of the presentation and speech	An important factor in the formation of professional qualities of future specialists is the ability to clearly formulate and express one's opinion, the use of modern techniques of oratory. Involvement of applicants in the preparation of their own reports contributes to the formation of the above-mentioned skills.	During the entire period of studying the discipline	Correction together with the applicants of approaches to the preparation of the report and speech plan.
FA12 Peer assessment	Partnership interaction aimed at improving the results of educational activities by comparing one's own current level of success with previous indicators. Provides an opportunity to analyze one's own educational activities	During the entire period of studying the discipline	Adjustment of approaches to learning together with students, taking into account the results of the assessment

10.3 Summative assessment

	Description	**Deadline, weeks**	**Feedback**
SA1 Final control: exam	Passing a practical-oriented exam. Candidates who have successfully mastered the material of the discipline, passed practical skills and final computer testing, and defended their medical history are allowed to take the exam.	According to the schedule	The applicant can get 80 points for the exam. The minimum number of points a student must receive is 48 points

SA2 Assessment of medical history writing and defense	Writing a medical history involves demonstrating the ability to work with a patient, consolidating the practical skills of physical examination of a patient, evaluating and analyzing medical documentation, establishing a clinical diagnosis with elements of differential diagnosis, prescribing treatment. The defense of the medical history is provided, when the student must provide answers to questions about the patient he treated, the causes and provoking factors of the disease, modern methods of	According to the calendar and thematic plan	A student can get a maximum of 10 points. 5 points are awarded for writing, 5 points for defense. The minimum number of points for a successful defense is 6 points
SA3 Assessment of practical skills and manipulations	Complex practice of the practical component of the programs of educational disciplines in a safe simulation environment for those seeking education. Provides an opportunity to learn skills from a variety of emergency situations.	During the entire period of studying the discipline	The entire period of studying the discipline. At the last lesson, the student must complete practical skills
SA4 Assessment of the level of theoretical and practical training	Includes the oral examination, interpretation of laboratory and instrumental research methods, solving of clinical individual and group cases, ongoing testing, the opportunity to present the results of own research in conferences, competitions	During the entire period of studying the discipline	Held at each class, the result of performing the LO affects the comprehensive assessment for the practical class

Form of assessment:

	Points	Можливість перескладання з метою підвищення оцінки
The first semester of teaching	**200 scores**	
SA1. Final control: exam	**80**	
Performing a practical task	20	No
Answering theoretical questions (4x15)	60	No
SA2. Assessment of medical history writing and defense	**10**	
Writing and defense of medical history	10	No
SA3. Assessment of practical skills and manipulations	**55**	
	55	No
SA4. Assessment of the level of theoretical and practical training	**55**	

		55	No

The total mark of discipline is defined as the summarizing of points for current educational activities (not less than 72) and points for exam (not less than 48). The general mark of the discipline must be not more than 200. The calculation of the number of points for the current performance is based on the student's marks on the traditional 4-point rating scale by the arithmetic mean calculating. The resulting value is converted into points by the formula: 110 multiplied by the arithmetic mean and divided by 5. The following marks for case history writing are: "5" - 5 points, "4" - 4 points, "3" - 3 points, "2" - 0 points. The following marks for case history presentation are: "5" - 5 points, "4" - 4 points, "3" - 3 points, "2" - 0 points. In general, for case history student can get the maximum of 10 points, the minimum required score is 6. The maximum number of points for the current educational activities of the student - 120. The final testing of the discipline is an exam done at the end of the study semester according to the schedule completed by the dean's office of the medical institute. Students who have a current educational score of at least 72 points (66.0 points during practical classes and 6.0 points for case history), who have not missed lectures and practical classes, who have defended their medical history are admitted to the exam. The exam consists of 4 theoretical questions, each is graded at 9, 12 or 15 points, which corresponds to the traditional 4-point system "3", "4" or "5" respectively. The practical question is evaluated in 12, 16 or 20 points, which corresponds to the traditional 4-point system "3", "4" or "5". Having summarized all the points for 5 questions, the exam is credited to the student if he scored at least 48 points out of 80 possible. Encouragement points are added: for a prize place in the 2nd tour of the student's Olympiad or a prize place in the competition of student research work -12 points; for participation in students` scientific forum in oral report form - 5 points; in poster form - 4 points; in the case of abstract publication - 3 points; for selection of audio or video material from sections of the discipline - 2 points; for writing an abstract, video reports with literature review connected with problematic issues according to topics of modules 1 point (1 point for 1 presentation, the maximum quantity of presentations is 4). The recalculation of the results obtained in non-formal education is carried out on a voluntary basis and provides confirmation that the applicant has achieved the learning outcomes provided by the educational-professional program.

11. Learning resources

11.1 Material and technical support

MTS1	Information and communication systems
MTS2	Library fund, archive of radiographs, spirograms, electrocardiograms, coronary angiograms, computed tomograms, results of laboratory methods of examination
MTS3	Medical facilities / premises and equipment (Municipal Non-Commercial Enterprise of Sumy Regional Council "Sumy Regional Clinical Hospital","Sumy Clinical Cardiology Dispensary", "Clinical hospital St.Panteleymon", "Clinical hospital № 4", "Clinical hospital № 5")
MTS4	Computers, computer systems and networks
MTS5	Medical equipment (spirometer, peakflowmeter, electrocardiograph, height meter, scales, tonometer, fibrogastroscope, phonendoscope, capillaroscope, glucometer, infusomat)

MTS6	Software (to support the distance learning, online surveys, virtual laboratories, virtual patients, to create computer graphics, etc.)
MTS7	Multimedia, video and audio, projection equipment (video cameras, projectors, screens, smart boards, etc.)

11.2 Information and methodical support

Essential Reading	
1	Pogorielova, O. S. Acute coronary syndrome [Текст] : study guide / O. S. Pogorielova. — Sumy : Sumy State University, 2021. — 73 p.
2	Skills in Rheumatology [Електронний ресурс] / ed.: H. Almoallim, M. Cheikh. — Singapore : Springer, 2021. — 566 p. — URL: https://library.oapen.org/handle/20.500.12657/46098
3	USMLE Step 2 CK: Internal Medicine [Текст]: Lecture Notes / Editors J.J. Lieber, F.P. Noto. — New York: Kaplan, 2019. — 503 p.
4	Internal medicine [Текст] = Внутрішня медицина : textbook. P. 2 : Pulmonology. Gastroenterology. Nephrology. Diseases of the internal organs in countries with hot climate / K. M. Amosova, O. Ya. Babak, I. P. Katerenchuk et al. ; eds. : M. A. Stanislavchuk, V. K. Sierkova. — Vinnytsya : Nova Knyha, 2019. — 360 p.
5	Internal Medicine [Текст] : textbook: in 2 books. Book 1 : Diseases of the Cardiovascular and Respiratory Systems / I. P. Vakaliuk, R. I. Yatsyshyn, M. M. Ostrovskyy et al. — K. : Medicine, 2019. — 664 c. + Гриф МОН; Гриф МОЗ.
Supplemental Reading	
1	Goldman-Cecil medicine [Текст]. V.1 / L. Goldman, L. Schafer, M. Crow etc. —25-th ed. — Saunders: Saunders Elsevier, 2016. — 1489 p.
2	Goldman-Cecil medicine [Текст]. V.2 / L. Goldman, L. Schafer, M. Crow etc. —25-th ed. — Saunders: Saunders Elsevier, 2016. — 1129 p
3	O.M. Chernatska, L.N. Prystupa, H.A. Fadieieva, A.V. liashenko, Y.O. Smiianova Arterial hypertension, associated with hyperuricemia: features of heart damage // J. Wiadomosci Lekarskie (Польща). – 2020. – tom LXXIII, № 5. – P. 943-946.
4	Internal Medicine [Електронний ресурс] : An Illustrated Radiological Guide / J. A. Al-Tubaikh ; by Jarrah Ali Al-Tubaikh. — 2nd ed. 2017. — Cham : Springer International Publishing, 2017. — XVI, 592 p.
5	Integrative Cardiology [Електронний ресурс] : A New Therapeutic Vision / edited by Massimo Fioranelli. – 1st ed. 2017. – Cham : Springer International Publishing, 2017. – XII, 276 p.
6	Cardiology Procedures [Електронний ресурс]: A Clinical Primer / edited by Robert C. Hendel, Carey Kimmelstiel. – 1st ed. 2017. – London: Springer London, 2017. – XI, 347 p.
7	Macleod’s Clinical Examination. 13th Edition // Edited from Graham Douglas, Fiona Nicol, Colin Robectson. – Publisher: London Elsevier Health Sciences UK, 2013. – Pages: 472.

8	Braunwald's heart disease: A textbook of cardiovascular medicine, 2-Volume Set 10th Edition. International edition. // by Douglas L. Mann, Douglas P. Zipes, Peter Libby, Robert O. Bonow. – Publisher: Elsevier, 2015. – 2136 pages.
9	Internal Medicine: Critical Care: textbook (III-IV a.l.) / O.Ya. Babak, O.M. Bilovol, N.M. Zhelezniakova et al.; edited by O.Ya. Babak, O.M. Bilovol. – K.: Медицина, 2018. – 368c.
10	Kyrychenko N., Opolonska N., Stepanets O. Effects of type 2 diabetes mellitus on clinical and laboratory status of women with arterial hypertension, obesity, and left ventricular diastolic dysfunction // Eastern Ukrainian Medical Journal, 2019;7(4): 358-364.
Web-based and electronic resources	
1	https://empendium.com/mcmtextbook/
2	https://www.mdcalc.com/
3	https://reference.medscape.com/guide/medical-calculators
4	https://library.oapen.org/handle/20.500.12657/46098
5	https://www.escardio.org/Education/E-Learning/basic-tools-in-general-cardiology
6	https://cprguidelines.eu/

COURSE DESCRIPTOR

№	Course Bescriptor	Total hours	Classroom work, hours				Independent work of students, hours								
			Total hours	Lectures	Workshops (seminars)	Labs	Total hours	Self-study of the material	Preparation for workshops (seminars)	Preparation for labs	Preparation for assesment	Independent extracurricular tasks			
1	2		3	4	5	6	7	8	9	10	11	12	13		
full-time course															
Module 1. The principles of diagnosis, treatment, and prevention of the cardiovascular system diseases															
1	Arterial hypertension	5	4	0	4	0	1	0	1	0	0	0			
2	Atherosclerosis.	2.5	2	0	2	0	0.5	0	0.5	0	0	0			
3	Chronic forms of ischaemic heart disease (IHD).	5	4	0	4	0	1	0	1	0	0	0			
4	IHD: acute myocardial infarction.	5	4	0	4	0	1	0	1	0	0	0			
5	Heart failure.	5	4	0	4	0	1	0	1	0	0	0			
6	Heart rhythm disorders.	10	8	2	6	0	2	0.5	1.5	0	0	0			
7	Acquired heart valve diseases.	2.5	2	0	2	0	0.5	0	0.5	0	0	0			
8	Infective endocarditis. Pericarditis.	5	4	0	4	0	1	0	1	0	0	0			
9	Myocarditis. Cardiomyopathies.	5	4	0	4	0	1	0	1	0	0	0			
10	Pulmonary embolism (PE).	5	4	0	4	0	1	0	1	0	0	0			
Module 2. The principles of diagnosis, treatment, and prevention of the musculoskeletal system and connective tissue diseases															
1	Rheumatoid arthritis.	5	4	0	4	0	1	0	1	0	0	0			
2	Connective tissue diseases.	10	8	2	6	0	2	0.5	1.5	0	0	0			
3	Systemic vasculitis.	7.5	6	0	6	0	1.5	0	1.5	0	0	0			
4	Reactive arthritis.	2.5	2	0	2	0	0.5	0	0.5	0	0	0			
5	Ankylosing spondylitis.	2.5	2	0	2	0	0.5	0	0.5	0	0	0			

1	2	3	4	5	6	7	8	9	10	11	12	13
6	Psoriatic arthritis.	2.5	2	0	2	0	0.5	0	0.5	0	0	0
7	Gout. Osteoarthritis.	5	4	0	4	0	1	0	1	0	0	0
Module 3. The principles of diagnosis, treatment and prevention of the urogenital system diseases												
1	Glomerulonephritis. Amyloidosis.	5	4	0	4	0	1	0	1	0	0	0
2	Urinary tract infections: pyelonephritis.	5	4	0	4	0	1	0	1	0	0	0
3	Acute kidney injury (AKI).	2.5	2	0	2	0	0.5	0	0.5	0	0	0
4	Chronic kidney disease (CKD). Chronic renal failure.	5	4	0	4	0	1	0	1	0	0	0
Module 4. Military therapy												
1	Organization of therapeutic care in wartime and peacetime emergencies.	2.5	2	0	2	0	0.5	0	0.5	0	0	0
2	Radiation-related disorders. Clinical characteristic of ionizing radiation.Pathogenesis of radiation sickness. Clinical classification of ionizing radiation, acute radiation sickness. The conception of radiation trauma.	5	4	0	4	0	1	0	1	0	0	0
3	Acute radiation sickness. Bone marrow form of acute radiation sickness.	5	4	0	4	0	1	0	1	0	0	0
4	Step therapy of patients with acute radiation sickness. Atypical forms of acute radiation sickness.	5	4	0	4	0	1	0	1	0	0	0
5	Internal organs damage during combat surgical trauma and injuries during peacetime catastrophes and accidents. Complications. Prevention. Treatment.	5	4	0	4	0	1	0	1	0	0	0
6	Emergencies, therapeutic care for life-threatening conditions during different steps of medical evacuation. Poisonous substances injury in wartime and peacetime.	2.5	2	0	2	0	0.5	0	0.5	0	0	0
7	Diseases caused by the action of thermal factors (warm and cold).	5	4	0	4	0	1	0	1	0	0	0
Module 5. Attestation												
1	Case history presentation.	2.5	2	0	2	0	0.5	0	0.5	0	0	0
2	Performance of practical skills and manipulations	5	4	0	4	0	1	0	1	0	0	0
3	Practice-oriented exam	0	0	0	0	0	0	0	0	0	0	0
Assesment												

1	2	3	4	5	6	7	8	9	10	11	12	13
1	Exam	30	0	0	0	0	30	0	0	0	30	0
Independent extracurricular tasks												
Total (full-time course)		*150*	*112*	*4*	*108*	*0*	*38*	*1*	*27*	*0*	*30*	*0*

	UNIVERISTY POLICIES FOR THE COURSE «Internal Medicine» **Higher education level** The Second Level Of Higher Education, National Qualifications Framework Of Ukraine – The 7th Level, QF-LLL – The 7th Level, FQ-EHEA – The Second Cycle **Major: Educational programme** 222 Medicine: Medicine **Year of study** 2024 **Duration** one semester **Mode of study** full-time course **Language of instruction** English
Teacher(s)	Chernatska Olha Mykolaivna, Dudchenko Iryna Oleksandrivna
Contact	Iryna Dudchenko, Ph.D., Associate Professor of Internal Medicine department , e-mail i.dudchenko@med.sumdu.edu.ua
Time and room for giving consultations	18, Kovpaka str., Sumy Regional Clinical Hospital on Thursdays, 15.00-17.00
Links to online educational platforms	https://elearning.sumdu.edu.ua/works/3192/nodes/586692
Syllabus	https://pg.cabinet.sumdu.edu.ua/report/course/7d5988140760acbf58a054a03e2afd4a4434935
Channels for maintaining contact with the group for receiving and working on materials	Mix.sumdu.edu.ua, e-mail, Viber

POLICIES

Academic integrity policy

Participants must complete all tasks according to the course requirements independently. Participants are not allowed to cheat during the written module or summative test. The assignments should not contain plagiarism, facts of fabrication, falsification, cheating. Manifestations of other types of academic dishonesty determined by the Academic Integrity policy are also unacceptable. If a teacher reveals violations of academic integrity by students during the course, the former have the right to take one of the following actions: - to reduce points by up to 40% for practical assignments; - to give recommendations for improving and resubmitting mandatory homework assignments with the reduction of points by up to 25%; - to not accept mandatory homework assignments without the right to resubmit; - set a date for retaking the written module or the summative test with a reduction of points by up to 15%; - to not allow to retake the written module or the summative test.

Політика щодо використання інструментів штучного інтелекту при виконанні завдань навчальної дисципліни

Політика використання інструментів штучного інтелекту (ChatGPT, Tome тощо) оголошується викладачем на початку курсу.

Несанкціоноване використання інструментів штучного інтелекту є порушенням академічної доброчесності.

Політика щодо використання матеріалів з джерел відкритого доступу

При використанні здобувачами освіти матеріалів з джерел відкритого доступу для підготовки робіт, визначених силабусом та регламентом навчальної дисципліни, вони обов'язково мають дотримуватись умов ліцензій Creative Commons на використання об'єктів авторського права.

Attendance policy

Students are required to attend 100% of practical lessons and 60% of lectures. In case of skipping the classes, the student must rework missed class by the schedule of reworks, which the department approved according to the relevant Dean's office instructions.

Deadlines and course retake policy

In the case of an unsatisfactory exam result, the student has the right to retake the semester exam twice: the first time - to the examiner, who is appointed by the Head of the department, the second - to the Commission, which the Dean's office creates. Re-examination is carried out by an individual schedule which the dean's office approves. Students who did not come to the exam without valid reason are considered as those who received an unsatisfactory grade. A student`s refusal to perform examination tasks is considered an unsatisfactory answer. The student has the right to get an explanation concerning the received grade.

Assessment appeals policy

The results of the module and semester assessment are subject to appeal. A student must lodge an appeal to the director/dean on the day of certification or after announcing the results, but no later than the next working day. The appeal commission is established by the director/dean’s order. The appeal commission's decision may change the grade in case of violations revealed during the attestation.

Assessment criteria

Assessment policy

Total mark of discipline is defined as the summarizing of points for current educational activities (not less than 72) and points for exam (not less than 48). General mark of the discipline must be not more than 200. The calculation of the number of points for the current performance is based on the student's marks on the traditional 4-point rating scale by arithmetic mean calculating. The resulting value is converted into points by the formula: 110 multiplied by the arithmetic mean and divided by 5. The following marks for case history writing are: "5" - 5 points, "4" - 4 points, "3" - 3 points, "2" - 0 points. The following marks for case history presentation are: "5" - 5 points, "4" - 4 points, "3" - 3 points, "2" - 0 points. In general, for case history student can get the maximum of 10 points, the minimum required score is 6. The maximum number of points for the current educational activities of the student - 120. The final assessment of the discipline is an exam done at the end of the study semester according to the schedule completed by the dean's office of the medical institute. Students who have a current educational score of at least 72 points (66.0 points during practical classes and 6.0 points for case history), who have not missed lectures and practical classes, who have defended their medical history are admitted to the exam. The exam consists of 4 theoretical questions, each is graded at 9, 12 or 15 points, which corresponds to the traditional 4-point system "3", "4" or "5" respectively. The practical question is evaluated in 12, 16 or 20 points, which corresponds to the traditional 4-point system "3", "4" or "5". Having summarized all the points for 5 questions, the exam is credited to the student if he scored at least 48 points out of 80 possible. Encouragement points are added: for a prize place in the 2nd tour of the student's Olympiad or a prize place in the competition of student research work -12 points; for participation in students` sci

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