

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	Medical Institute. Department of Internal Medicine with a Center of respiratory medicine
Author(s)	Fadieieva Hanna Anatoliivna
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
Semester	10 weeks across 11 semester
Workload	10 ECTS credits, 300 hours, which include 204 hours of contact work with the teacher, 96 hours of self-work
Language(s)	English

2. Place in the study programme

Relation to curriculum	Compulsory course available for study programme "Medicine"
Prerequisites	Step-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 formation of ability to apply knowledge, observations, skills in internal medicine for solving of typical problems of doctors activities in the field of health care, the scope of which is provided by certain lists of symptoms and syndromes, diseases and emergencies that require special management of the patients in compliance with the principles of medical ethics and deontology

4. Contents

Module 1. Modern practice in Internal Medicine

Topic 1 Management of patient with arterial hypertension.

Differential diagnosis of arterial hypertension: essential and secondary (renal, endocrine, haemodynamic, central, etc.). Risk stratification of cardiovascular complications and determination of prognosis. Development of a plan of examination. Management strategy according to the risk categories. Principles of non-pharmacological and pharmacological treatment of hypertension. Evidence-based recommendations for the choice of antihypertensive drugs. Updated standards of treatment. Side effects of antihypertensive drugs. Primary and secondary prevention. Prognosis and working-capacity. Classification, criteria of diagnosis and differential diagnosis of secondary endocrine and renal arterial hypertension. Development of examination plan, the role of instrumental and laboratory methods of examination. The management of patients, non-pharmacological and pharmacological treatment.

Topic 2 Management of patient with cardialgia.

Differential diagnosis of angina pectoris and cardialgia in diseases of the heart, musculoskeletal system, respiratory, digestive organs. Development of plan of examination, additional laboratory and instrumental methods of examination. The management of patients according to the genesis of cardialgia. Evidence-based treatment of pain syndrome of non-coronary myocardial diseases.

Topic 3 Management of patient with heart rhythm disorders.

The differential diagnosis of atrial and ventricular extrasystole, fibrillation, sick sinus syndrome and Wolff-Parkinson-White syndrome. Development of plan of examination, additional laboratory and instrumental methods of examination (ECG, daily ECG- monitoring, echocardiography, electrophysiological examination). The management of patients. The main classes of antiarrhythmic drugs, indications for their prescription, side effects. Updated standards of evidence-based treatment. Electropulse therapy. Surgical methods of treatment of arrhythmias. Primary and secondary prevention. Prognosis and working capacity.

Topic 4 Management of patient with heart conduction disorders.

Atrioventricular conduction disorders, different degrees of AV-block. Frederick's syndrome. ECG-diagnostic of bundle-branch block. Evidence-based management of patients, additional laboratory and instrumental methods of examination. Pharmacological treatment. Methods and indications for pacing; artificial rhythm drivers. Primary and secondary prevention. Prognosis and working-capacity.

Topic 5 Management of patient with chronic coronary syndrome (CCS).

Typical and atypical angina pectoris, diagnostic criteria. Development of plan of examination, additional laboratory and instrumental methods of examination (exercise ECG, daily ECG-monitoring, stress echocardiography, coronary angiography). The management according to functional class. Pharmacological treatment of CCS: evidence-based treatment of symptoms of angina/ischemia. Endovascular and surgical methods of treatment. Primary and secondary prevention. Prognosis and working-capacity. CCS and comorbidity (arterial hypertension, heart valve diseases, diabetes mellitus, chronic kidney disease).

Topic 6 Management of patient with cardiomegaly, heart failure.

The differential diagnosis of cardiomegaly in the case of heart defects, myocarditis, cardiomyopathies, ischaemic heart disease (IHD). Development of plan of examination, additional instrumental methods of examination (ECG, echocardiography, heart magnetic resonance imaging (MRI), coronary angiography). Evidence-based management of patients. Non-pharmacological, pharmacological and surgical treatment. Treatment of thromboembolic complications and arrhythmias. Primary and secondary prevention. Prognosis and working-capacity. Left-sided, right-sided and biventricular heart failure. Differential diagnosis according to the etiology. Development of plan of examination, additional instrumental methods of examination (heart and chest X-ray, ECG, echocardiography, coronary angiography). Algorithms for management of patients according to the standards of chronic heart failure (CHF) treatment. Non-pharmacological, pharmacological, and surgical treatment. Primary and secondary prevention. Prognosis and working capacity.

Topic 7 Management of patient with heart murmurs.

The differential diagnosis of functional, organic, systolic and diastolic murmurs. Development of plan of examination, additional instrumental methods of examination (heart and chest X-ray, ECG, echocardiography, coronary angiography). Evidence-based management of patients according to the cause of heart murmurs, severity of cardiomegaly, presence of heart failure and other complications. Non-pharmacological, pharmacological and surgical treatment. Primary and secondary prevention. Prognosis and working-capacity.

Topic 8 Management of patient with connective tissue diseases (CTD).

The differential diagnosis of CTD. Laboratory and instrumental methods of examination for CTD verification, assessment of activity, and degree of organs and systems disorders. Clinical manifestation of systemic lupus erythematosus, systemic sclerosis, dermatomyositis, Sjogren's syndrome, and antiphospholipid syndrome. Evidence-based treatment. Biological therapy. Pregnancy planning.

Topic 9 Management of patient with joint syndrome and myalgias.

Clinical features of joint syndrome according to the main disease. Differential diagnosis of the joint syndrome. Development of examination plan, the interpretation of laboratory and instrumental methods of examination in the case of the joint syndrome and myalgias. The management of patients according to the main cause. EULAR treatment standards. Basic treatment of rheumatic diseases with joint manifestations. Indications and contraindications for steroids. Primary and secondary prevention. Prognosis and working capacity. The differential diagnosis of myalgias during neurogenic myopathy; chronic inflammatory demyelinating polyneuropathy; disorders at the level of neuromuscular synapses; vessels disorders; the action of toxic substances; primary inflammatory diseases of muscle tissue (idiopathic inflammatory myopathies); infectious myositis (viral myositis, toxoplasmosis, trichinosis, cysticercosis, echinococcosis); congenital metabolic disorders (metabolic myopathies: disorders of muscle glycogen and lipid metabolism); mitochondrial myopathies; endocrine diseases (acromegaly, Addison's disease, hypercorticism, hyperparathyroidism, hypothyroidism, thyrotoxicosis, diabetes mellitus); electrolyte disorders (decrease of blood concentration of potassium, calcium, magnesium, sodium, phosphorus); primary muscle diseases, cancer. Laboratory and instrumental methods of examination in the case of myalgias, management of patients.

Topic 10 Management of patient with degenerative diseases of the joints.

Clinical features of osteoarthritis according to localization. Differential diagnosis of joint syndrome for patients with osteoarthritis and other diseases with damage of joints. Development of plan of examination, the interpretation of laboratory and instrumental methods of examination for osteoarthritis (X-Ray, sonography, arthroscopy, MRI). Evidence-based management of patients. EULAR treatment standards. Diagnostic and management of patients with aseptic necrosis.

Topic 11 Management of patient with pulmonary hypertension (PH).

Clinical features of PH. Diagnostic meaning of instrumental methods of examination (ECG, X-Ray, echocardiography, examination of the function of external respiration, pulse oximetry, lung perfusion scintigraphy, CT, catheterization of the right parts of the heart). Indications and assessment of vasoreactivity test. Differential diagnosis of diseases, accompanied by PE. Complications. Evidence-based treatment of PE. Prognosis and working-capacity.

Topic 12 Management of patient with osteoporosis.

Mechanisms of development. Diagnostic of osteoporosis (dual-energy X-Ray absorptiometry, FRAX scale, laboratory methods). Densitometric criteria. Risk factors for osteoporosis. Differential diagnosis. Pharmacological treatment, treatment monitoring (densitometry, biochemical markers). Prevention. Management of patients with osteoporosis in the case of multiple myeloma, malabsorption syndrome, hypercorticism, hyperparathyroidism. Management of patients with postmenopausal osteoporosis.

Topic 13 Management of patient with the fever of unknown origin.

Differential diagnostic of conditions accompanied by the presence of prolonged fever. Updated standards of diagnostic. Development of plan of examination, the role of instrumental and laboratory methods of examination (X-Ray, CT, bronchoscopy, ultrasound, clinical and biochemical tests, blood cultures, urine, and sputum analysis). Evidence-based management of patients according to the cause, differentiated therapy. Indications for consultations with other specialists (phthysiologist, oncologist, rheumatologist, infectious disease specialist). Non-pharmacological and pharmacological treatment.

Topic 14 Management of patient with gastric dyspepsia and abdominal pain.

Definition, organic and functional dyspepsia, main causes and differential diagnostic. Red flag symptoms. Development of plan of examination, the role of instrumental and laboratory methods of examination. Specific methods of examination (breath tests, pH-metry, video capsule endoscopy, X-ray methods). Differentiated approaches to the treatment of dyspeptic syndrome. Updated treatment standards. Primary and secondary prevention. Prognosis and working-capacity. Differential diagnostic of chronic abdominal pain. Development of plan of examination, additional instrumental and laboratory methods of examination (GIT X-Ray, CT, upper and lower endoscopy, ultrasound, clinical and biochemical tests). The management of patients according to the cause. Conservative and surgical treatment. Primary and secondary prevention. Prognosis and working-capacity. Indications for surgery in the case of abdominal pain.

Topic 15 Management of patient with jaundice, hepatomegaly, and portal hypertension.

Differential diagnostic of subhepatic, hepatic and suprahepatic jaundice. Clinical and biochemical criteria for benign hyperbilirubinemia. Development of plan of examination, the role of instrumental and laboratory methods of examination (ultrasound, endosonography, CT, biochemical blood tests, viral markers). The management of patients according to the cause, differentiated therapy. Updated treatment standards. Primary and secondary prevention. Prognosis and working-capacity. Differential diagnostic of hepatolienal syndrome in the case of diseases of the liver, liver blood vessels, blood. Development of plan of examination, the role of instrumental and laboratory methods of examination (ultrasound, Doppler ultrasonography, CT, liver biopsy, liver tests, viral markers). The management of patients according to the cause, differentiated therapy. Indications for surgical treatment. Differential diagnosis of conditions caused portal hypertension. Development of plan of examination, the role of instrumental and laboratory methods of examination (endoscopy, ultrasound, Doppler ultrasonography, CT, liver biopsy, viral markers). The management of patients according to the cause, differentiated therapy. Treatment standards. Indications for endoscopic and surgical treatment (laparocentesis, shunt surgery, liver transplantation).

Topic 16 Management of patient with bronchoobstructive syndrome.

Differential diagnosis of conditions accompanied by bronchoobstructive syndrome: bronchial asthma, COPD, bronchiectasis. Development of plan of examination, the role of instrumental and laboratory methods of examination (peak flow and spirometry, spirometry, X-Ray, CT, bronchoscopy). Evidence-based management of patients according to the cause, differentiated therapy. Non-pharmacological and pharmacological treatment. Primary and secondary prevention. Prognosis and working-capacity.

Topic 17 Management of patient with infiltrative pulmonary obscuration, pleural effusion.

Differential diagnosis of conditions accompanied with the presence of pulmonary infiltrate. Development of plan of examination, the role of instrumental and laboratory methods of examination (X-Ray, CT, bronchoscopy, biopsy, sputum cultures). Evidence-based management of patients according to the cause, differentiated therapy. Indications for consultations by other specialists (phthisiologist, oncologist, etc.). Non-pharmacological and pharmacological treatment. Primary and secondary prevention. Prognosis and working-capacity. Differential diagnosis of conditions accompanied by the presence of pleural effusion. (tuberculosis, bronchial tumors, thromboembolism of the branches of the pulmonary artery, heart failure, acute pancreatitis, liver cirrhosis, trauma, diffuse connective tissue diseases, etc.). Updated standards of diagnostic. Development of plan of examination, the role of X-ray, instrumental and laboratory methods of examination (X-Ray, CT, bronchoscopy, ultrasound, echocardiography, clinical and biochemical tests). The management of patients according to the cause, differentiated therapy. Relative and absolute indications for pleural puncture. Non-pharmacological and pharmacological treatment.

Topic 18 Management of patient with pneumonia.

Differential diagnosis of bacterial and viral pneumonia, differential diagnosis of pneumonia in patients with tuberculosis, lung tumors, pulmonary infarction, etc. Algorithms for diagnosing pneumonia. Development of plan of examination, instrumental and laboratory methods of examination (X-Ray, CT, bronchoscopy, clinical and biochemical tests, sowing sputum). Evidence-based management of patients according to the cause, therapy of pregnant women. Treatment standards. Primary and secondary prevention. Prognosis and working-capacity. The management of patient with hospital-acquired pneumonia. Definition. Differential diagnosis of pneumonia with different causes. Development of plan of examination, instrumental and laboratory methods of examination (X-Ray, CT, bronchoscopy, clinical and biochemical tests, sowing sputum). The management of patients according to the resistance of the microflora, differentiated therapy. First-line and second-line antibiotics. Primary and secondary prevention. Prognosis and working-capacity. The management of patients with pneumonia in the case of immunodeficiency.

Topic 19 Management of patient with chronic complications of diabetes mellitus.

Diabetic micro- and macroangiopathy. Diabetic nephropathy, stages, diagnosis, differential diagnosis, evidence-based treatment and prevention. Diabetic retinopathy: stages of the process, diagnosis, prevention and treatment. Diabetic neuropathy, classification, diagnosis and treatment. Diabetic foot: classification, diagnosis, treatment. Principles of treatment of pregnant women with diabetes. Features of urgent and planned surgical interventions in patients with diabetes mellitus. Regimens of insulin therapy: traditional and intensified insulin therapy. Complications of insulin therapy.

Topic 20 Management of patient with metabolic syndrome.

Definition, classification, diagnostic criteria, the topicality of the problem in the world. Development of plan of examination, instrumental and laboratory methods of examination. The management of patients. Non-pharmacological and pharmacological treatment. Primary and secondary prevention. Prognosis and working-capacity.

Topic 21 Management of patient with Goiter

Methods of assessment of thyroid gland function and additional examination in the case of nodules in the thyroid gland. The interpretation of the diagnosis of hypothyroidism, thyrotoxicosis. Medical, surgical treatment of toxic goiter, use of ¹³¹-iodine for therapeutic aim. Differential diagnosis of Graves' disease and functional autonomy of the thyroid gland. Differential diagnosis of thyroiditis with acute and subacute clinical course. Chronic thyroiditis. The interpretation of the diagnosis of autoimmune thyroiditis. Nodular forms of goiter. Monitoring of patients with thyroid nodules. Pathomorphological classification of thyroid tumors. Differentiated evidence-based treatment of patients with Goiter.

Topic 22 Management of patient with urinary syndrome, nephrotic syndrome.

Definition and characteristics of components of urinary syndrome. Differential diagnosis of hematuria, leukocyturia, and proteinuria. Development of plan of examination, instrumental and laboratory methods of examination. The management of patients according to the cause, differentiated therapy. Non-pharmacological and pharmacological treatment. Evidence-based treatment standards. Primary and secondary prevention. Prognosis and working-capacity. Characteristics of the urinary syndrome in the case of pyelonephritis, glomerulonephritis, myeloma. Differential diagnosis of edema with different causes (cardiac, renal, alimentary, etc.). Development of plan of examination, instrumental and laboratory methods of examination (ultrasound, X-Ray, ECG, clinical and biochemical blood tests, Zimnitsky urine test, Nechyporenko urine test). The management of patients according to the cause, differentiated therapy. Non-pharmacological and pharmacological treatment. Advantages and disadvantages of diuretic therapy. Treatment standards. Primary and secondary prevention. Prognosis and working-capacity. Definition, etiology, pathogenesis of nephrotic syndrome. Clinical features. Development of plan of examination, instrumental and laboratory methods of examination. Diagnostic criteria and differential diagnosis. The management of patients, non-pharmacological and pharmacological treatment. Treatment standards. Primary and secondary prevention.

Topic 23 Management of patient with chronic kidney disease.

The definition of «chronic kidney disease». Pathogenesis of organs and systems disorders, its clinical features. Clinical features and changes in laboratory parameters according to the stage. Differential evidence-based treatment according to different stages. Treatment of hypertensive syndrome. Treatment of anemia, infectious complications. Renal replacement therapy: hemodialysis, kidney transplantation. Indications and contraindications for hemodialysis. Complications. Primary and secondary prevention.

Topic 24 Management of patient with anemia.

Diagnostic and differential diagnostic criteria of iron deficiency and B12 deficiency anemia. The main causes of iron deficiency. Development of plan of examination, instrumental and laboratory methods of examination of iron deficiency and B12 deficiency anemia. Diagnostic criteria and management of patients with chronic inflammatory anemia. Differential diagnosis of microcytic anemias. The management of patients, non-pharmacological and pharmacological treatment. Indications for blood transfusion. Evidence-based treatment standards. Primary and secondary prevention. Prognosis and working-capacity. Diagnostic criteria and management of patients with acquired hemolytic anemia. Diagnostic criteria and management of patients with aplastic anemia.

Topic 25 Management of patient with leukemoid reaction and leukemia.

The definition, main causes, classification. Differential diagnosis of leukemia and leukemoid reaction. Principles of differentiated evidence-based treatment. Diagnostic criteria and management of patients with acute lymphoblastic leukemia, acute myeloblastic leukemia. Management of patients with chronic myeloid leukemia, chronic lymphocytic leukemia. Bone marrow transplantation. Supportive therapy. Primary and secondary prevention. Prognosis and working-capacity. Complications on the background of treatment of hematological diseases. Management of a patient with tumor lysis syndrome, anemia caused by chemotherapy, with febrile neutropenia. Management of a patient with extravasation at the site of chemotherapy. Management of a patient with dyspeptic disorders on the background of chemotherapy. Complications on the background of treatment of hematological diseases. Management of a patient with tumor lysis syndrome, anemia caused by chemotherapy with febrile neutropenia. Management of the patient with extravasation in the place of chemotherapy. Management of the patient with dyspeptic disorders on the background of chemotherapy.

Topic 26 Management of patient with polycythemia.

Diagnostic criteria for true polycythemia. Differential diagnosis between true and secondary polycythemia. Differential diagnosis of true polycythemia with chronic myelogenous leukemia, essential thrombocythemia, osteomyelofibrosis. Evidence-based treatment of true polycythemia. Indications to phlebotomy. Cytoreductive therapy. Prognosis (survival and risk of transformation to myelofibrosis and acute myeloid leukemia). Working-capacity.

Topic 27 Management of patient with hemorrhagic syndrome

Differential diagnosis of hemorrhagic syndrome. Development of plan of examination, instrumental and laboratory methods of examination (clinical blood test, autoimmune markers, coagulogram, blood culture). The management of patients according to the cause. Evidence-based management of patients with coagulopathies (congenital - hemophilia A and B, Willebrand's disease and acquired). Management of a patient with disorders of platelet and vascular stasis. Differential diagnosis of thrombocytopenia in CTD, allergic reactions, leukemias and hypoplastic anemia, disseminated intravascular coagulation (DIC) syndrome, sepsis, HIV. The management of patients, updated treatment standards. Management of patients with thrombocytopenic purpura (Werlhof's disease). Hemorrhagic diathesis caused by impaired coagulation and platelet stasis. Diagnostic criteria and management of a patient with DIC syndrome. Hemorrhagic diathesis caused by vascular wall damage. Management of patients with hemorrhagic telangiectasia, hemorrhagic vasculitis

Topic 28 Management of patient with lymphadenopathy.

The main causes of lymphadenopathy. Differential diagnosis of Hodgkin's and non-Hodgkin's lymphoma, lymph node enlargement in the case of other diseases (tuberculosis, sarcoidosis, metastasis of malignant tumors, SLE, etc.). The evidence-based treatment strategy, non-pharmacological and pharmacological treatment. Primary and secondary prevention. Prognosis and working capacity. Final assessment: graded test.

Module 2. Emergencies in the clinic of Internal Medicine

Topic 29 Curation of the patient with Hypertensive emergency.

Criteria of emergency hypertensive crisis. Evidence-based management of patients with a hypertensive emergency. Algorithm of emergency care. The prevention of complicated arterial hypertension. Differential approach to the prescription of emergency drugs. Treatment features of hypertensive crisis complicated by acute coronary failure. Therapeutic approach to emergency care in patients with stratifying aortic aneurysm. Pharmacological tactics in patients with hypertensive crisis complicated by ischemic brain injury and subarachnoid hemorrhage. Standards for the diagnosis and emergency treatment of pulmonary edema at pre-hospital and hospital care. Treatment strategy according to the level of blood pressure. Further management of patients.

Topic 30 Curation of the patient with acute coronary syndrome and myocardial infarction (MI).

Criteria of diagnosis verification. Emergency evidence-based care in the pre-hospital and hospital stages in patients with ST-segment elevation myocardial infarction and non-ST segment elevation myocardial infarction with unstable angina. Invasive treatment strategy (indications for percutaneous coronary interventions, contraindications, possible complications). Indications and contraindications to thrombolytic therapy. Schemes of thrombolytic agents prescription. Prognosis, primary, secondary prevention and rehabilitation measures.

Topic 31 Curation of the patient with myocardial infarction complications.

The interpretation of the results of the main laboratory and instrumental examination during cardiogenic shock and other MI complications. Standards of emergency care of cardiogenic shock in pre-hospital and hospital stages. Further evidence-based management of the patients. Emergency care of heart rhythm and conduction disorders.

Topic 32 Curation of the patient with acute thrombosis, pulmonary embolism. Treatment strategy in sudden cardiac death (SCD).

Diagnostic criteria of mesenteric vascular thrombosis. Evidence-based management of patients with mesenteric vascular thrombosis. Diagnostic criteria of deep vein thrombosis of lower extremity. Evidence-based management of patient with deep vein thrombosis of the lower extremity. Diagnostic criteria of thrombosis of the superior vena cava. Management of patient with thrombosis of the superior vena cava. Standards of emergency diagnostic and treatment of pulmonary embolism in pre-hospital and hospital stages. Further evidence-based management of the patients. Standards of emergency diagnostic and treatment of sudden cardiac death in pre-hospital and hospital stages. The technique of resuscitation measures. Defibrillation. Further management of the patients.

Topic 33 Curation of the patient with paroxysmal heart rhythm and conduction disorders.

The role of instrumental and laboratory methods of examination. Algorithm of diagnostic of paroxysmal rhythm and conduction disorders. Management strategy of patients with paroxysmal heart rhythm and conduction disorders at the pre-hospital and hospital stages. Differential diagnosis. Non-pharmacological and pharmacological treatment. Electropulse therapy. Standards of primary and secondary prevention, prognosis and working-capacity.

Topic 34 Curation of the patient with emergencies in rheumatology.

Indications and principle of evidence-based emergency care in rheumatology. The interpretation of results of laboratory and instrumental investigation, objective signs of severe and terminal stage of systemic lupus erythematosus, antiphospholipid syndrome, dermato- and polymyositis, systemic vasculitis. Pulse therapy with corticosteroids and cytostatics in patients with connective tissue diseases and systemic vasculitis. Indications and methods of extracorporeal blood purification. Indications and methods of intravenous immunoglobulins injection.

Topic 35 Curation of the patient with acute back pain.

Differential diagnostic of acute back pain in diseases of the heart, aorta, respiratory system, gastrointestinal tract, kidneys, urinary tract and pelvic. Differential diagnostic of acute back pain in patients with musculoskeletal disorders and peripheral nervous system diseases. Updated diagnostic and treatment standards. Tactics of treatment according to the location and character of disorders. The role of radiological and laboratory methods of examination.

Topic 36 Curation of the patient with severe exacerbation of bronchial asthma (BA), acute allergic reactions.

Assessment of asthma exacerbation severity. Self-management during asthma exacerbation and assessment of response to therapy. Evidence-based treatment of asthma exacerbations in general practice, in the emergency department. Criteria for hospitalization, for discharge from the emergency department of the patient with severe exacerbation of asthma. Management of a patient with generalized urticaria and Quincke's edema. Evidence-based management of a patient with anaphylactic shock.

Topic 37 Curation of the patient with syncope.

Criteria of syncope, associated with heart rhythm and conduction disorders. Criteria of syncope, associated with cardiovascular diseases. Criteria of syncope, associated with orthostatic hypotension. Criteria of neurogenic syncope. Instrumental methods for verification of syncope. Differential diagnosis of syncope. Treatment of reflex syncope, orthostatic hypotension. Evidence-based treatment of arrhythmogenic syncope. The place of pacing, catheter ablation, antiarrhythmic therapy of implantable cardioverter-defibrillator. The essence of performing maneuvers to prevent syncope (horizontal position, techniques with physical pressure, cough suppression, sneezing, tilt- training).

Topic 38 Curation of the patient with acute adrenal insufficiency, thyrotoxic crisis, myxedema coma.

Diagnostic criteria and evidence-based management of patients with acute adrenal insufficiency. Peculiarities of clinical manifestations of Waterhouse-Friderichsen syndrome. Diagnostic criteria and management of patients with thyrotoxic crisis. Diagnostic criteria and management of patients with severe hypothyroidism (myxedema coma).

Topic 39 Curation of the patient with emergencies in diabetes mellitus.

Diagnostic criteria and management of patients with hypoglycemic coma. Complications and consequences of severe hypoglycemia. Diagnostic criteria and evidence-based management of patients with ketoacidotic coma. Diagnostic criteria and management of patients with hyperglycemic hyperosmolar non-ketoacidotic coma. Diagnostic criteria and management of patients with lactic acidemic coma. The differential diagnostic of different variants of coma in diabetic patients.

Topic 40 Curation of the patients with acute kidney injury (AKI).

The differential diagnostic of conditions caused acute kidney injury. Diagnostic criteria and causes of prerenal, renal, postrenal AKI. The management of patients according to the cause. The role of instrumental and laboratory methods of examination. Evidence-based treatment, indications for hemodialysis. The prevention of AKI. Final assessment: graded test.

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 and respiratory system, blood, joints, connective tissue, kidney, gastrointestinal tract 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, blood, pulmonary, joint, connective tissue, kidney, gastrointestinal tract disorders. To justify the use of the basic invasive and non-invasive diagnostic methods in cardiology, pulmonology, endocrinology, haematology, rheumatology, nephrology, gastroenterology 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. To determine the necessary workmode, rest-time and diet in the treatment of heart, vessels, blood, joints, connective tissue, kidney, and gastrointestinal tract diseases.
LO4	To determine the necessary workmode, rest-time and diet in the treatment of heart, vessels, blood, joints, connective tissue, kidney, and gastrointestinal tract 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 resuscitation, 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, and injuries in wartime and peacetime emergencies. To do differential diagnosis of main syndromes during emergencies practically.
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 implement the sanitary, hygienic and preventive measures in the case of pathological changes.
LO9	To determine disability status in patients with cardiological, joints, connective tissue, kidneys, gastrointestinal tract, pulmonary, and blood diseases.

LO10	To fill in medical documentation, including electronic forms.
LO11	To evaluate the environmental impact, social, economic, biological determinants on the health of the patient with cardiological, pulmonological, rheumatological nephrological, and gastroenterological diseases.
LO12	To integrate knowledge and to solve complex healthcare issues in multidisciplinary contexts.

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 (according to the List 1); to establish the most probable nosological or syndromic preliminary clinical diagnosis of diseases (according to the List 2) 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 (according to the List 4) based on laboratory and instrumental findings.
PO3	To order and analyze additional (mandatory and optional) examinations (laboratory, radiological, functional and/or instrumental) (according to the List 4) in order to perform a differential diagnosis of diseases (according to the List 2).
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 (according to the List 2).
PO5	To detect the key clinical syndrome or the reason for patient's condition severity (according to the List 3) 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 (according to the List 2) 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 (according to the List 2) 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 (according to the List 2) 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 (according to the List 3) 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 (according to the List 3) 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 (according to the List 5) 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 (according to the List 3).
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. Teaching and learning activities

7.1 Types of training

<p>Topic 1. Management of patient with arterial hypertension.</p> <p>pr.tr.1 "Management of patient with arterial hypertension." (full-time course)</p> <p>Differential diagnosis of arterial hypertension: essential and secondary (renal, endocrine, haemodynamic, central, etc.). Risk stratification of cardiovascular complications and determination of prognosis. Development of plan of examination. Management strategy according to the risk categories.</p>

pr.tr.2 "Updated recommendations for the choice of antihypertensive drugs." (full-time course)
Evidence-based treatment. Side effects of antihypertensive drugs. Primary and secondary prevention. Prognosis and working-capacity.

pr.tr.3 "Diagnostic of renal hypertension" (full-time course)
Clinical and diagnostic features of renal (renovascular, renal parenchymal) arterial hypertension.

pr.tr.4 "Diagnostic of endocrine hypertension" (full-time course)
Clinical and diagnostic features of endocrine (Cushing's syndrome, pheochromocytoma, Conn's syndrome, diffuse toxic goiter) and haemodynamic 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.

pr.tr.5 "Evidence-based treatment of secondary arterial hypertension" (full-time course)
Therapeutic and surgical treatment of secondary arterial hypertension. Primary and secondary prevention. Prognosis and working capacity. The study of this topic involves training of skills connected with the collection of complaints, anamnesis, physical examination of patients in ambulatory care/hospital, theoretical work in the classroom (ECG interpretation, discussion of situational tasks), or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, the tonometer. Application of instrumental methods (work with electrocardiograph, ECG data, coronary angiography) and laboratory examination (using of glucometer, assessment of INR, APTT, lipid profile, biomarkers) with further discussing of the results. Carrying out intravenous injections. Carrying out and interpretation of the received data of Holter monitoring, stress tests in the departments of the medical institution (according to the agreement of cooperation between medical institution and university). Using of virtual simulation (watching video about the methodic of coronary angiography, stress tests). Discussion of tactics and prescription of treatment.

Topic 2. Management of patient with cardialgia.

pr.tr.6 "The management of patient with cardialgia." (full-time course)
Differential diagnosis of angina pectoris and cardialgia in diseases of the heart, musculoskeletal system, respiratory, digestive organs. Development of plan of examination, additional laboratory and instrumental methods of examination. Evidence-based management of patients according to the genesis of cardialgia. The drugs for the treatment of pain syndrome of non-coronary myocardial diseases. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks), 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 instrumental methods (work with electrocardiograph, ECG and Holter monitoring data, ultrasound of the heart) and laboratory examination (using of glucometer, assessment of electrolyte changes, hormone levels) with further discussing of the results for risk stratification. Carrying out and interpretation of the obtained data of X-ray and ultrasound examination of the heart and blood vessels in the departments of the medical institution (according to the agreement of cooperation), using of virtual simulation (watching video about the methodic of Cardiac stress test).

Topic 3. Management of patient with heart rhythm disorders.

pr.tr.7 "The management of patient with heart rhythm disorders." (full-time course)

The differential diagnosis of atrial and ventricular extrasystole, fibrillation, sick sinus syndrome and Wolff-Parkinson-White syndrome.

pr.tr.8 "Methods of examination in patients with heart rhythm disorders." (full-time course)

Development of plan of examination, additional laboratory and instrumental methods of examination (ECG, daily ECG- monitoring, echocardiography, electrophysiological examination). The management of patients.

pr.tr.9 "Evidence-based treatment standards" (full-time course)

The main classes of antiarrhythmic drugs, indications for their prescription, side effects. Updated standards of treatment. Electropulse therapy. Surgical methods of treatment of arrhythmias. Primary and secondary prevention. Prognosis and working-capacity. The study of this topic involves theoretical work in the classroom (testing, discussion of situational tasks, ECG), training of skills connected with collection of complaints, anamnesis, physical examination in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, the tonometer. Application of instrumental methods (work with electrocardiograph, ECG and Holter monitoring data, ultrasound of the heart) and laboratory examination (using of glucometer, assessment of electrolyte changes, lipid profile) with further discussing of the results. Carrying out and interpretation of the obtained data of ultrasound examination of the heart and blood vessels in the departments of the medical institution, using of virtual simulation (watching video about the methodic of radiofrequency catheter ablation, electrical cardioversion). Discussion of tactics and prescription of treatment (use of the defibrillator).

Topic 4. Management of patient with heart conduction disorders.

pr.tr.10 "The management of patient with heart conduction disorders." (full-time course)

Atrioventricular conduction disorders, different degrees of AV-block (Mobitz type I and type II second degree heart blocks). Frederick's syndrome. ECG-diagnostic of bundle-branch block.

pr.tr.11 "Pharmacological treatment." (full-time course)

The management of patients, additional laboratory and instrumental methods of examination. Pharmacological evidence-based treatment.

pr.tr.12 "Cardiac pacing" (full-time course)

Artificial rhythm drivers (pace-makers, indications). Primary and secondary prevention of heart conduction disorders. Prognosis and working capacity. The study of this topic involves theoretical work in the classroom (ECG interpretation, solving of situational tasks), training of skills connected with the collection of complaints, anamnesis, physical examination in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, the tonometer. Application of instrumental methods (work with an electrocardiograph, ECG data) and laboratory examination (using of glucometer, assessment of INR, APTT, lipid profile, biomarkers) with further discussing of the results. Carrying out intravenous injections. Acquaintance with a technique of carrying out and interpretation of the received data of Holter monitoring in the departments of the medical institution (according to the agreement of cooperation between medical institution and university). Using virtual simulation (watching video about the methodic of cardiostimulation). Discussion of tactics and prescription of treatment.

Topic 5. Management of patient with chronic coronary syndrome (CCS).

pr.tr.13 "The management of patient with stable angina." (full-time course)

Typical and atypical angina pectoris, diagnostic criteria. Development of plan of examination, additional laboratory and instrumental methods of examination (exercise ECG, daily ECG-monitoring, stress echocardiography, coronary angiography).

pr.tr.14 "The management of patients according to functional class." (full-time course)

Updated evidence-based treatment. Endovascular and surgical methods of treatment. Primary and secondary prevention. Prognosis and working capacity.

pr.tr.15 "CCS and comorbidity (arterial hypertension, heart valve diseases, diabetes mellitus, chronic kidney disease)."

The peculiarities of management patients with CCS and coexistent arterial hypertension, heart valve diseases, diabetes mellitus, and chronic kidney disease. The study of this topic involves training of skills connected with collection of complaints, anamnesis, physical examination of patients in ambulatory care/hospital, theoretical work in the classroom (ECG interpretation, solving of situational tasks), or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, the tonometer. Application of instrumental methods (work with electrocardiograph, ECG data, coronary angiography) and laboratory examination (using of glucometer, assessment of INR, APTT, lipid profile, biomarkers) with further discussing of the results. Carrying out of intravenous injections. Carrying out and interpretation of the received data of holter monitoring, stress tests in the departments of the medical institution (according to the agreement of cooperation between medical institution and university). Using of virtual simulation (watching video about the methodic of coronary angiography, stress tests). Discussion of tactics and prescription of treatment.

Topic 6. Management of patient with cardiomegaly, heart failure.

pr.tr.16 "The management of patient with cardiomegaly." (full-time course)

The differential diagnosis of cardiomegaly in the case of heart defects, myocarditis, cardiomyopathies, ischaemic heart disease (IHD). Development of plan of examination, additional instrumental methods of examination (ECG, echocardiography, heart magnetic resonance imaging (MRI), coronary angiography). The management of patients. Primary and secondary prevention. Prognosis and working capacity.

pr.tr.17 "The management of patient with heart failure." (full-time course)

Left-sided, right-sided and biventricular heart failure. Differential diagnosis according to the aetiology. Development of plan of examination, additional instrumental methods of examination (heart and chest X-ray, ECG, echocardiography, coronary angiography).

pr.tr.18 "Treatment of patients with heart failure" (full-time course)

Management of patients according to the cause, functional classes, and stages of heart failure. Non-pharmacological, pharmacological, and surgical treatment. Updated evidence-based treatment. Primary and secondary prevention. Prognosis and working-capacity. The study of this topic involves theoretical work in the classroom (ECG interpretation, discussion of situational tasks), training of skills connected with collection of complaints, anamnesis, physical examination in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, the tonometer. Using of virtual simulation (watching video about the methodic of cardiostimulation, cardioversion, respiratory support), instrumental methods (work with electrocardiograph, ECG data, chest X-Ray, pulse oximeter) and laboratory examination (using of glucometer, assessment of INR, APTT, lipid profile, biomarkers) with further discussing of the results. Carrying out of intravenous injections. Acquaintance with a technique of carrying out and interpretation of the received data of echocardiography in the departments of the medical institution.

Topic 7. Management of patient with heart murmurs.

pr.tr.19 "Differential diagnosis of heart murmurs" (full-time course)

The differential diagnosis of functional, organic, systolic and diastolic murmurs. Development of plan of examination, additional instrumental methods of examination (heart and chest X-ray, ECG, echocardiography, coronary angiography).

pr.tr.20 "Evidence-based management of patients" (full-time course)

The management of patients according to the cause of heart murmurs, severity of cardiomegaly, presence of heart failure and other complications.

pr.tr.21 "Treatment of patients with heart defects" (full-time course)

Non-pharmacological, pharmacological and surgical treatment. Primary and secondary prevention. Prognosis and working-capacity. The study of this topic involves training of skills connected with the collection of complaints, anamnesis, physical examination of patients in ambulatory care/hospital, theoretical work in the classroom (ECG interpretation, solving of situational tasks), or applying role-playing games in the case of quarantine in the hospital using of phonendoscope, the tonometer. Application of instrumental methods (work with electrocardiograph, ECG data, coronary angiography) and laboratory examination (using of glucometer, assessment of INR, APTT, lipid profile, biomarkers) with further discussing of the results. Carrying out and interpretation of the received data of Holter monitoring, ultrasound of the heart in the departments of the medical institution. Using of virtual simulation (watching video about the methodic of coronary angiography, stress tests). Discussion of management and prescription of treatment.

Topic 8. Management of patient with connective tissue diseases (CTD).

pr.tr.22 "The differential diagnosis of CTD." (full-time course)

Laboratory and instrumental methods of examination for CTD verification, assessment of activity and degree of organs and systems disorders.

pr.tr.23 "Clinical manifestations of CTD." (full-time course)

Clinical manifestation of systemic lupus erythematosus, systemic sclerosis, dermatomyositis, Sjogren's syndrome, and antiphospholipid syndrome.

pr.tr.24 "Treatment of CTD." (full-time course)

Evidence-based treatment of CTD. Biological therapy. Pulse therapy. Pregnancy planning. Conditions of vaccination. The study of this topic involves theoretical work in the classroom (tests, discussion of situational tasks), training of skills connected with collection of complaints, anamnesis, physical examination in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, the tonometer, questionnaires, the capillaroscope. Using of instrumental (work with electrocardiograph, chest X-Ray and X-Ray of joint) and laboratory (assessment of serological markers) methods examination with further discussing of the results. Discussion of management and prescription of treatment using infusomat. Acquaintance with a technique of carrying out and interpretation of the received data of X-Ray and ultrasound examination in the departments of the medical institution.

Topic 9. Management of patient with joint syndrome and myalgias.

pr.tr.25 "Clinical features of joint syndrome according to main disease." (full-time course)

Differential diagnosis of joint syndrome. Development of plan of examination, the interpretation of laboratory and instrumental methods of examination in the case of joint syndrome and myalgias.

pr.tr.26 "The management of patients according to the main cause."

EULAR treatment standards. Basic treatment of rheumatic diseases with joint manifestations. Indications and contraindications for steroids. Primary and secondary prevention. Prognosis and working-capacity.

pr.tr.27 "The differential diagnosis of myalgias"

The differential diagnosis of myalgias during neurogenic myopathy; chronic inflammatory demyelinating polyneuropathy; disorders at the level of neuromuscular synapses; vessels disorders; action of toxic substances; primary inflammatory diseases of muscle tissue (idiopathic inflammatory myopathies); infectious myositis (viral myositis, toxoplasmosis, trichinosis, cysticercosis, echinococcosis); congenital metabolic disorders (metabolic myopathies: disorders of muscle glycogen and lipid metabolism); mitochondrial myopathies; endocrine diseases (acromegaly, Addison's disease, hypercorticism, hyperparathyroidism, hypothyroidism, thyrotoxicosis, diabetes mellitus). Management of patients. The study of this topic involves theoretical work in the classroom (testing, solving of situational tasks), training of skills connected with collection of complaints, anamnesis, physical examination in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, the tonometer, activity assessment scales. Using of instrumental (work with X-Ray of joint, bone densitometry) and laboratory (using of glucometer, assessment of serological markers) methods examination with further discussing of the results. Acquaintance with a technique of carrying out and interpretation of the received data of X-Ray, MRI and ultrasound examination of joints in the departments of the medical institution.

Topic 10. Management of patient with degenerative diseases of the joints.

pr.tr.28 "Clinical features of osteoarthritis according to localization." (full-time course)

Differential diagnosis of joint syndrome for patients with osteoarthritis and other diseases with damage of joints. Development of plan of examination, the interpretation of laboratory and instrumental methods of examination for osteoarthritis (X-Ray, sonography, arthroscopy, MRI).

pr.tr.29 "The management of patients."

EULAR treatment standards. Diagnostic and management of patients with aseptic necrosis. The study of this topic involves theoretical work in the classroom (tests, discussion of situational tasks), training of skills connected with collection of complaints, anamnesis, physical examination in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, the tonometer, activity assessment scales. Using of instrumental (work with X-Ray of joint, bone densitometry) and laboratory (using of glucometer, assessment of serological markers) methods examination with further discussing of the results. Acquaintance with a technique of carrying out and interpretation of the received data of X-Ray, MRI and ultrasound examination of joints, arthrocentesis in the departments of the medical institution (according to the agreement of cooperation between medical institution and university) or using of virtual stimulation.

Topic 11. Management of patient with pulmonary hypertension (PH).

pr.tr.30 "Management of patient with pulmonary hypertension (PH)." (full-time course)

Clinical features of PH. Diagnostic meaning of instrumental methods of examination (ECG, X-Ray, echocardiography, examination of the function of external respiration, CT, catheterization of the right parts of the heart). Indications and assessment of vasoreactivity test. Differential diagnosis of diseases, accompanied by PH. Complications. Evidence-based treatment of PH. Prognosis and working capacity. The study of this topic involves theoretical work in the classroom (testing, solving of situational tasks), training of skills connected with collection of complaints, anamnesis, physical examination in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, the tonometer, pulse oximeter. Using of instrumental (work with X-Ray of joint, ultrasound of the heart) and laboratory (using of glucometer, assessment of serological markers) methods examination with further discussing of the results. Acquaintance with a technique of carrying out of X-Ray and ultrasound examination in the departments of the medical institution, methodic of catheterization of the right parts of the heart by virtual simulation.

Topic 12. Management of patient with osteoporosis.

pr.tr.31 "The diagnostic of osteoporosis." (full-time course)

Risk factors of osteoporosis. Mechanisms of development. Diagnostic of osteoporosis (dual-energy X-Ray absorptiometry, FRAX scale, laboratory methods). Densitometric criteria. Risk factors for osteoporosis. Differential diagnosis.

pr.tr.32 "Evidence-based management of patient with osteoporosis."

Pharmacological treatment, treatment monitoring (densitometry, biochemical markers). Prevention. Management of patients with osteoporosis in the case of multiple myeloma, malabsorption syndrome, hypercorticism, hyperparathyroidism. Management of patients with postmenopausal osteoporosis. The study of this topic involves training of skills connected with collection of complaints, anamnesis, physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, the tonometer, assessment scale, theoretical work in the classroom (discussion of situational tasks). Using of instrumental (work with X-Ray of joints, densitometry) and laboratory (assessment of biochemical markers of bone marrow metabolism) methods examination with further discussing of the results. Using of virtual simulation of densitometry.

Topic 13. Management of patient with the fever of unknown origin.

pr.tr.33 "The management of patient with the fever of unknown origin." (full-time course)

Differential diagnostic of conditions accompanied by the presence of prolonged fever. Updated standards of diagnostic. Development of plan of examination, the role of instrumental and laboratory methods of examination (X-Ray, CT, bronchoscopy, ultrasound, clinical and biochemical tests, blood cultures, urine, and sputum analysis). The management of patients according to the cause, differentiated therapy. Evidence-based treatment. The study of this topic involves theoretical work in the classroom (solving of situational tasks), training of skills connected with the collection of complaints, anamnesis, physical examination in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, the tonometer. Using of instrumental (work with electrocardiograph, pulse oximeter, ECG data, X-Ray of joint, ultrasound of the heart) and laboratory methods of examination with further discussing of the results. Acquaintance with a technique of carrying out of heart ultrasound, chest CT in the departments of the medical institution. Discussion of management and prescription of treatment.

Topic 14. Management of patient with gastric dyspepsia and abdominal pain.

pr.tr.34 "The management of patient with gastric dyspepsia." (full-time course)

Definition, organic and functional dyspepsia, main causes and differential diagnostic. Red flag symptoms. Development of plan of examination, the role of instrumental and laboratory methods of examination. Specific methods of examination (breath tests, pH-metry, video capsule endoscopy, X-ray methods).

pr.tr.35 "The management of patient with abdominal pain."

Differential diagnostic of chronic abdominal pain. Development of plan of examination, additional instrumental and laboratory methods of examination (GIT X-Ray, upper and lower endoscopy, ultrasound, clinical and biochemical tests).

pr.tr.36 "Differentiated approaches to the treatment of dyspeptic and pain syndrome."

Evidence-based treatment standards of dyspepsia. The management of patients according to the cause of pain. Conservative and surgical treatment. Primary and secondary prevention. Prognosis and working capacity. Indications for surgery in the case of abdominal pain. The study of this topic involves training of skills connected with collection of complaints, anamnesis, physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, theoretical work in the classroom (solving of situational tasks). Using of instrumental (work with X-Ray, ultrasound data) and laboratory methods examination with further discussing of the results. Acquaintance with a technique of carrying out and interpretation of ultrasound, CT of abdominal cavity and small pelvis in the departments of the medical institution. Using of virtual simulation of gastroduodenoscopy, colonoscopy.

Topic 15. Management of patient with jaundice, hepatomegaly, and portal hypertension.

pr.tr.37 "The management of patient with jaundice." (full-time course)

Differential diagnostic of subhepatic, hepatic and suprahepatic jaundice. Clinical and biochemical criteria for benign hyperbilirubinemia. Development of plan of examination, the role of instrumental and laboratory methods of examination (ultrasound, endosonography, CT, biochemical blood tests, viral markers). The management of patients according to the cause, differentiated therapy. Updated treatment standards. Primary and secondary prevention. Prognosis and working-capacity.

pr.tr.38 "The management of patient with hepatomegaly and hepatolienal syndrome."

Differential diagnostic of hepatolienal syndrome in the case of diseases of the liver, liver blood vessels, blood. Development of plan of examination, the role of instrumental and laboratory methods of examination (ultrasound, Doppler ultrasonography, CT, liver biopsy, liver tests, viral markers). The management of patients according to the cause, differentiated therapy. Indications for surgical treatment. Primary and secondary prevention. Prognosis and working-capacity.

pr.tr.39 "The management of patient with portal hypertension."

Differential diagnosis of conditions caused portal hypertension. Development of plan of examination, the role of instrumental and laboratory methods of examination (endoscopy, ultrasound, Doppler ultrasonography, CT, liver biopsy, viral markers). The management of patients according to the cause, differentiated therapy. Evidence-based treatment standards. Indications for endoscopic and surgical treatment (laparocentesis, shunt surgery, liver transplantation). Primary and secondary prevention. Prognosis and working-capacity. The study of this topic involves training of skills connected with the collection of complaints, anamnesis, physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, theoretical work in the classroom (discussion of situational tasks). Using instrumental (work with EFGDS, ultrasound data) and laboratory methods examination with further discussing of the results. Acquaintance with a technique of carrying out and interpretation of ultrasound, CT of the abdominal cavity and small pelvis, EFGDS in the departments of the medical institution. Using a virtual simulation of gastroduodenoscopy.

Topic 16. Management of patient with bronchoobstructive syndrome.

pr.tr.40 "Methods of examination for patients with bronchoobstructive syndrome." (full-time course)

Development of plan of examination, the role of instrumental and laboratory methods of examination (peak flow and spirometry, spirometry, X-Ray, CT, bronchoscopy).

pr.tr.41 "Differential diagnosis of conditions accompanied by bronchoobstructive syndrome."

Differential diagnosis of bronchial asthma, COPD, bronchiectasis.

pr.tr.42 "Evidence-based management of patients with bronchoobstructive syndrome."

The management of patients according to the cause, differentiated therapy. Non-pharmacological and pharmacological treatment. Primary and secondary prevention. Prognosis and working-capacity. The study of this topic involves training of skills connected with collection of complaints, anamnesis, physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, questionnaires, theoretical work in the classroom (solving of situational tasks). Using of instrumental (doing spirometry, peak flowmetry, work with X-Ray and chest CT) and laboratory methods examination with further discussing of the results. Using virtual simulation of bronchoscopy.

Topic 17. Management of patient with infiltrative pulmonary obscurity, pleural effusion.

pr.tr.43 "Differential diagnosis of conditions accompanied with the presence of pulmonary infiltrate" (full-time course)

Development of plan of examination, the role of instrumental and laboratory methods of examination (X-Ray, CT, bronchoscopy, biopsy, sputum cultures).

pr.tr.44 "The management of patients with infiltrative pulmonary opacities."

The management of patients according to the cause, differentiated therapy. Evidence-based treatment. Primary and secondary prevention. Prognosis and working capacity.

pr.tr.45 "The management of patient with pleural effusion."

Differential diagnosis of conditions accompanied by the presence of pleural effusion. (tuberculosis, bronchial tumors, thromboembolism of the branches of the pulmonary artery, heart failure, acute pancreatitis, liver cirrhosis, trauma, diffuse connective tissue diseases, etc.). Updated standards of diagnostic. Development of plan of examination, instrumental and laboratory methods of examination (X-Ray, CT, bronchoscopy, ultrasound, echocardiography, clinical and biochemical tests). The management of patients according to the cause, differentiated therapy. Relative and absolute indications for pleural puncture. Non-pharmacological and pharmacological treatment. The study of this topic involves training of skills connected with collection of complaints, anamnesis, physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, theoretical work in the classroom (discussion of situational tasks). Using of instrumental (doing spirometry, work with X-Ray and chest CT) and laboratory methods examination with further discussing of the results.

Topic 18. Management of patient with pneumonia.

pr.tr.46 "The management of patient with community-acquired pneumonia." (full-time course)

Differential diagnosis between bacterial and viral pneumonia, between pneumonia and tuberculosis, lung tumors, pulmonary infarction, etc. Development of plan of examination, instrumental and laboratory methods of examination (X-Ray, CT, bronchoscopy, clinical and biochemical tests, sowing sputum). The management of patients according to the cause, therapy of pregnant women. Evidence-based treatment standards. Primary and secondary prevention. Prognosis and working capacity.

pr.tr.47 "The management of patient with hospital-acquired pneumonia."

Risk factors of hospital-acquired pneumonia. The plan of examination, instrumental and laboratory methods of examination (X-Ray, CT, pulse oximetry, clinical and biochemical tests, sowing sputum). The management of patients according to the resistance of the microflora, differentiated therapy. Methods of respiratory support. Primary and secondary prevention. Prognosis and working-capacity.

pr.tr.48 "The management of patient with pneumonia in the case of immunodeficiency."

Diagnosis and treatment of a patient with systemic candidosis, pneumocystis pneumonia. The study of this topic involves training of skills connected with collection of complaints, anamnesis, physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, pulse oximeter, questionnaires, theoretical work in the classroom (discussion of situational tasks). Using of instrumental (doing spirometry, work with X-Ray and chest CT) and laboratory methods examination with further discussing of the results.

Topic 19. Management of patient with chronic complications of diabetes mellitus.

pr.tr.49 "Chronic complications of diabetes mellitus." (full-time course)

Diabetic nephropathy, stages, diagnosis, differential diagnosis, treatment and prevention. Diabetic retinopathy: stages of the process, diagnosis, prevention and treatment. Diabetic neuropathy, classification, diagnosis and treatment. Diabetic angiopathy of the vessels of the lower extremities. Diabetic foot: classification, diagnosis, treatment. Bone, joint and skin complications. Detection of concomitant diseases in patients with diabetes.

pr.tr.50 "Evidence-based treatment of patients with diabetes."

Lifestyle modification. Antidiabetic drugs for the treatment of type 2 diabetes. Regimens of insulin therapy: traditional and intensified insulin therapy. Complications of insulin therapy.

pr.tr.51 "The management of some categories of patients with diabetes mellitus."

Principles of treatment of pregnant women with diabetes. Features of urgent and planned surgical interventions in patients with diabetes mellitus. The study of this topic involves curation of patients with diabetes or applying of role-playing games in the case of quarantine in the hospital using of height meter, tonometer, glucometer, theoretical work in the classroom (solving of situational tasks). Using of laboratory (microalbuminuria) and instrumental methods of examination (using of capillaroscope, pulse examination on a. dorsalis pedis, a. tibialis posterior, shin-shoulder (ischemic) index. Assessment of vibration sensitivity by tuning fork, proprioceptive, pain sensation by pin, tactile sensitivity by a piece of cotton wool, discriminant, and temperature sensitivity. Assessment of muscle resistance, tendon reflexes, detection of contractures. Detection of orthostatic hypotension with further discussing of the results. To interpret the data of body mass index, ophthalmoscopy, capillaroscopy, urine tests, condition of nitrogen-releasing renal function, renal blood flow, tubular reabsorption

Topic 20. Management of patient with metabolic syndrome.

pr.tr.52 "The management of patient with metabolic syndrome." (full-time course)

Definition, classification, diagnostic criteria, the topicality of the problem in the world. Development of plan of examination, instrumental and laboratory methods of examination.

pr.tr.53 "The management of patients with metabolic syndrome."

Non-pharmacological and pharmacological treatment. Primary and secondary prevention. Prognosis and working-capacity. The study of this topic involves curation of patients with metabolic syndrome or applying of role-playing games in the case of quarantine in the hospital using of height meter, scales, tonometer, glucometer, theoretical work in the classroom (discussion of situational tasks). Using of laboratory (microalbuminuria, lipid profile) and instrumental methods of examination (using of capillaroscope, pulse examination on a. dorsalis pedis, a. tibialis posterior, shin-shoulder (ischemic) index. Assessment of vibration sensitivity by tuning fork, proprioceptive, pain sensation by pin, tactile sensitivity by a piece of cotton wool, discriminant, and temperature sensitivity. Assessment of muscle resistance, tendon reflexes, detection of contractures. Detection of orthostatic hypotension with further discussing of the results. To interpret the data of body mass index, ophthalmoscopy, capillaroscopy, urine tests, condition of nitrogen-releasing renal function, renal blood flow, tubular reabsorption with further discussing of the results.

Topic 21. Management of patient with Goiter

pr.tr.54 "The management of patient with Goiter." (full-time course)

Methods of assessment of functional condition of the thyroid gland and additional examination in the case of presence of nodules in the thyroid glands. The interpretation of the diagnosis of hypothyroidism, thyrotoxicosis. Medical, surgical treatment of toxic goiter, use of ¹³¹I-iodine for therapeutic aim. Differential diagnosis of Graves' disease and functional autonomy of the thyroid gland. Differential diagnosis of thyroiditis with acute and subacute clinical course. Chronic thyroiditis. The interpretation of the diagnosis of autoimmune thyroiditis. Nodular forms of goiter. Monitoring of patients with thyroid nodules. Pathomorphological classification of thyroid tumors. Differentiated treatment of patients with Goiter. The study of this topic involves training of skills connected with the collection of complaints, anamnesis, and physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, tonometer, and theoretical work in the classroom (solving of situational tasks in differential diagnosis and management). Using of instrumental (ultrasound) and laboratory methods of examination (assessment of blood) with further discussion of the results.

Topic 22. Management of patient with urinary syndrome, nephrotic syndrome.

pr.tr.55 "Definition and characteristics of components of urinary syndrome." (full-time course)

Differential diagnosis of hematuria, leukocyturia, and proteinuria. Development of plan of examination, instrumental and laboratory methods of examination. The management of patients according to the cause, differentiated therapy. Non-pharmacological and pharmacological treatment. Treatment standards. Primary and secondary prevention. Prognosis and working-capacity. Characteristics of the urinary syndrome in the case of pyelonephritis, glomerulonephritis, myeloma.

pr.tr.56 "The management of patient with edema."

Differential diagnosis of edema with different causes (cardiac, renal, alimentary, etc.). Development of plan of examination, the role of instrumental and laboratory methods of examination (ultrasound, X-Ray, ECG, clinical and biochemical blood and urine tests). The management of patients according to the cause, differentiated therapy. Treatment. Advantages and disadvantages of diuretic therapy. Treatment standards. Primary and secondary prevention. Prognosis and working-capacity.

pr.tr.57 "The management of patient with nephrotic syndrome."

Definition, etiology, pathogenesis of nephrotic syndrome. Clinical features. Development of plan of examination, instrumental and laboratory methods of examination. Diagnostic criteria and differential diagnosis. The management of patients, non-pharmacological and pharmacological treatment. Evidence-based treatment standards. Primary and secondary prevention. Prognosis and working capacity. The study of this topic involves training of skills connected with collection of complaints, anamnesis, and physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, tonometer, and theoretical work in the classroom (solving of situational tasks). Using of instrumental and laboratory methods of examination (assessment of blood and urine dipstick tests) with further discussion of the results. Applying of peritoneal dialysis in nephrological department of the medical institution (according to the agreement of cooperation between medical institution and university).

Topic 23. Management of patient with chronic kidney disease.

pr.tr.58 "The definition of «chronic kidney disease»." (full-time course)

Pathogenesis of organs and systems disorders, its clinical features. Clinical features and changes in laboratory parameters according to the stage.

pr.tr.59 "Differential treatment of chronic kidney disease according to different stages."

Evidence-based treatment of hypertensive syndrome, anemias, infectious complications, calcium metabolism disturbances, and osteodystrophy.

pr.tr.60 "Renal replacement therapy: hemodialysis, kidney transplantation."

Indications and contraindications for hemodialysis. Complications. Primary and secondary prevention. Prognosis and working-capacity. The study of this topic involves training of skills connected with collection of complaints, anamnesis, and physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, tonometer, and theoretical work in the classroom (discussion of situational tasks). Using of instrumental and laboratory methods of examination (assessment of blood and urine dipstick tests) with further discussion of the results. Applying of hemodialysis, peritoneal dialysis in the nephrological department of the medical institution (according to the cooperation agreement between medical institution and university), virtual simulation (watching video about hemodialysis).

Topic 24. Management of patient with anemia.

pr.tr.61 "Diagnostic of anemias." (full-time course)

Diagnostic and differential diagnostic criteria of iron deficiency and B12 deficiency anemia. The main causes of iron deficiency. Development of plan of examination, the role of laboratory methods of examination of iron deficiency and B12 deficiency anemia. Diagnostic criteria and management of patients with chronic inflammatory anemia. Differential diagnosis of microcytic anemias.

pr.tr.62 "The management of patients with anemia caused by hematopoietic disorders."

Non-pharmacological and pharmacological treatment. Indications for blood transfusion. Evidence-based treatment standards. Primary and secondary prevention. Prognosis and working-capacity.

pr.tr.63 "The management of patients with hemolytic anemias."

Diagnostic criteria and evidence-based management of patients with acquired hemolytic anemias. The study of this topic involves training of skills connected with the collection of complaints, anamnesis, and physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital, and theoretical work in the classroom (discussion of situational tasks). Using instrumental and laboratory (assessment of blood analysis) methods of examination with further discussing of the results. Applying transfusions of blood components, plasma, bone marrow biopsy called sternal puncture in the hematological department of the medical institution (according to the agreement of cooperation between medical institution and university), virtual simulation (watching video about sternal puncture).

Topic 25. Management of patient with leukemoid reaction and leukemia.

pr.tr.64 "The management of patients with acute leukemias." (full-time course)

The differential diagnosis of leukemia and leukemoid reaction. Principles of differentiated treatment. Diagnostic criteria and evidence-based management of patients with acute lymphoblastic leukemia, acute myeloblastic leukemia.

pr.tr.65 "The management of patients with chronic leukemias."

Evidence-based management of patients with chronic myeloid leukemia, chronic lymphocytic leukemia. Bone marrow transplantation. Supportive therapy. Primary and secondary prevention. Prognosis and working-capacity.

pr.tr.66 "Complications on the background of treatment of hematological diseases."

The management of patient with tumor lysis syndrome, anemia caused by chemotherapy, with febrile neutropenia. The management of a patient with extravasation in the place of chemotherapy. The management of a patient with dyspeptic disorders on the background of chemotherapy. The study of this topic involves training of skills connected with collection of complaints, anamnesis, and physical examination of patients in ambulatory care/hospital with using of phonendoscope, tonometer or applying of role-playing games in the case of quarantine in the hospital, and theoretical work in the classroom (discussion of situational tasks). The using of instrumental (ultrasound) and laboratory (assessment of blood analysis, bone marrow examination) methods of examination with further discussing of the results. Applying of bone marrow biopsy (trephine biopsy) in hematological department of the medical institution (according to the agreement of cooperation between medical institution and university), virtual simulation (watching video about trephine biopsy).

Topic 26. Management of patient with polycythemia.

pr.tr.67 "Diagnostic criteria and treatment of polycythemia vera." (full-time course)

Differential diagnosis between polycythemia vera and secondary polycythemia. Differential diagnosis between polycythemia vera and chronic myelogenous leukemia, essential thrombocythemia, osteomyelofibrosis. Evidence-based treatment of polycythemia vera. Indications to phlebotomy. Cytoreductive therapy. Prognosis (survival and risk of transformation to myelofibrosis and acute myeloid leukemia). Working-capacity. The study of this topic involves training of skills connected with the collection of complaints, anamnesis, and physical examination of patients in ambulatory care/hospital or applying role-playing in the case of quarantine in the hospital with using of phonendoscope, tonometer, and theoretical work in the classroom (discussion of situational tasks). The using of instrumental and laboratory (assessment of blood analysis, bone marrow examination) methods of examination with further discussion of the results. Applying bone marrow biopsy in the medical institution or by virtual simulation.

Topic 27. Management of patient with hemorrhagic syndrome

pr.tr.68 "The differential diagnosis of hemorrhagic syndrome." (full-time course)

Development of plan of examination, instrumental and laboratory methods of examination (clinical blood test, autoimmune markers, coagulogram, blood culture). Evidence-based management of patients according to the cause. The management of patients with coagulopathies (congenital - hemophilia A and B, Willebrand's disease, and acquired). Management of a patient with disorders of platelets and vascular stasis. Differential diagnosis of thrombocytopenia in CTD, allergic reactions, leukemias and hypoplastic anemia, disseminated intravascular coagulation (DIC) syndrome, sepsis, HIV. The management of patients, updated treatment standards. Management of patients with thrombocytopenic purpura (Werlhof's disease). Hemorrhagic diathesis caused by the impaired coagulation and platelet stasis. Diagnostic criteria and management of a patient with DIC syndrome.

pr.tr.69 "Hemorrhagic diathesis caused by vascular wall damage." (full-time course)

Management of patients with hemorrhagic telangiectasia, hemorrhagic vasculitis such as Henoch-Sch

Topic 28. Management of patient with lymphadenopathy.

pr.tr.70 "The main causes of lymphadenopathy." (full-time course)

Differential diagnosis of Hodgkin's and non-Hodgkin's lymphoma, lymph node enlargement in the case of other diseases (tuberculosis, sarcoidosis, metastasis of malignant tumors, SLE, etc.).

pr.tr.71 "Evidence-based treatment." (full-time course)

The treatment strategy, non-pharmacological and pharmacological treatment. Primary and secondary prevention. Prognosis and working capacity. The study of this topic involves training of skills connected with the collection of complaints, anamnesis, and physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital, and theoretical work in the classroom (discussion of situational tasks). The using of instrumental (CT) and laboratory (assessment of blood and urine dipstick tests) methods of examination with further discussion of the results. Discussion of management and prescription of treatment with infusomat. The interpretation of CT data in the medical institution.

pr.tr.72 "Final assessment: graded test." (full-time course)

Evaluation of theoretical answers (solving of situational tasks, differential diagnosis, treatment, further tactics) and practical training of applicants: skills of collecting complaints, anamnesis, physical examination of an outpatient/inpatient or using role-playing, interpretation of instrumental and laboratory methods.

Topic 29. Curation of the patient with Hypertensive emergency.

pr.tr.73 "Criteria for hypertensive emergency." (full-time course)

The management of patients with emergency hypertensive crisis. Evidence-based algorithm of emergency care. The prevention of complicated arterial hypertension. Differential approach to the prescription of emergency drugs.

pr.tr.74 "Therapeutic approach to emergency care in patients with hypertensive emergency."

Treatment of hypertensive crisis complicated with acute coronary failure, aortic aneurysm dissection. Pharmacological tactics in patients with hypertensive crisis complicated by ischemic brain injury and subarachnoid hemorrhage.

pr.tr.75 "Emergency care for patients with pulmonary edema."

Standards for diagnosis and emergency treatment of pulmonary edema at pre-hospital and hospital care. Treatment strategy according to the level of blood pressure. Further management of patients. The study of this topic involves training of skills connected with collection of complaints, anamnesis, and physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of phonendoscope, tonometer, and theoretical work in the classroom (discussion of situational tasks). The using of instrumental (ECG, chest CT) and laboratory (applying of glucometer, assessment of electrolyte changes, levels of hormones) methods of examination with further discussing of the results for risk stratification. Applying oxygen therapy, interpretation of the results of X-ray, heart, and vessels ultrasound in the departments of the medical institution. Doing of intravenous injections.

Topic 30. Curation of the patient with acute coronary syndrome and myocardial infarction (MI).

pr.tr.76 "The diagnostic and emergency care for patients with ACS."

Criteria of diagnosis verification. Evidence-based emergency care in the pre-hospital and hospital stages in patients with ST-segment elevation myocardial infarction and non-ST segment elevation myocardial infarction with unstable angina.

pr.tr.77 "Invasive treatment strategy in ACS."

Indications for percutaneous coronary interventions, contraindications, possible complications.

pr.tr.78 "Thrombolytic therapy."

Indications and contraindications. Schemes of thrombolytic agents prescription. Prognosis, primary, secondary prevention and rehabilitation measures. The study of this topic involves training of skills connected with the collection of complaints, anamnesis, and physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of phonendoscope, tonometer for blood pressure measurement, pulse oximeter and theoretical work in the classroom (solving of situational tasks in teams). The using of instrumental (ECG) and laboratory (applying of glucometer, assessment of lipid profile indicators, troponins) methods of examination with further discussing of the results for risk stratification. Applying and interpreting of the results heart and vessels ultrasound in the departments of the medical institution. Doing intravenous injections.

Topic 31. Curation of the patient with myocardial infarction complications.

pr.tr.79 "The diagnostic of MI complications."

The interpretation of the results of laboratory and instrumental examination during cardiogenic shock and other MI complications.

pr.tr.80 "Emergency care of cardiogenic shock"

Evidence-based standards of emergency care of cardiogenic shock in pre-hospital and hospital stages. Follow up management of the patients.

pr.tr.81 "Emergency care of heart rhythm and conduction disorders."

The role of electropulse therapy. Indications and principles of cardiac pacing (temporary, permanent). The study of this topic involves training of skills connected with a physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of phonendoscope, tonometer for blood pressure measurement, pulse oximeter and theoretical work in the classroom (team-work in solving of situational tasks). The use of instrumental (work with an electrocardiograph, ECG data) and laboratory (applying of glucometer, assessment of INR, APTT, lipid profile indicators, biomarkers) methods of examination with further discussing of the results for risk stratification. Discussing management and prescription of treatment. Doing intravenous injections. Doing cardiopulmonary resuscitation in the simulation room and applying virtual simulation (watching video about the methodology of radiofrequency catheter ablation, electrical cardioversion, pacing).

Topic 32. Curation of the patient with acute thrombosis, pulmonary embolism. Treatment strategy in sudden cardiac death (SCD).

pr.tr.82 "The management of patients with mesenteric vascular thrombosis, deep vein thrombosis, superior vena cava thrombosis."

Diagnostic criteria of mesenteric vascular thrombosis, deep vein thrombosis of lower extremities, thrombosis of the superior vena cava. Emergency care.

pr.tr.83 "The diagnostic and treatment of pulmonary embolism (PE)."

Standards of evidence-based emergency diagnostic and treatment of PE in pre-hospital and hospital stages. Follow-up management of the patients.

pr.tr.84 "The emergency care of sudden cardiac death (SCD)."

Standards of emergency diagnostic and treatment of sudden cardiac death in pre-hospital and hospital stages. Technique of resuscitation measures. Defibrillation. Further management of the patients. The study of this topic involves training of skills connected with physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of phonendoscope, tonometer for blood pressure measurement, pulse oximeter and theoretical work in the classroom. Work in simulation center with electrocardiograph, pulse oximeter, results of ECG, heart ultrasound, chest CT. The assessment of laboratory data (INR, APTT, D-dimer) with further discussing of the results and prescription of treatment. Doing of intravenous injections. Doing and interpretation of the results of chest CT and echocardiography in the departments of medical institution (according to the agreement on cooperation between the medical institution and university) or applying of virtual simulation (watching video about the methodology of CT angiography of coronary arteries, respiratory support).

Topic 33. Curation of the patient with paroxysmal heart rhythm and conduction disorders.

pr.tr.85 "The diagnostic of paroxysmal heart rhythm disorders."

The role of instrumental methods of examination. Algorithm of diagnostic. Differential diagnostic.

pr.tr.86 "The diagnostic of conduction heart disorders."

The role of instrumental methods of examination. Algorithm of diagnostic. Differential diagnostic.

pr.tr.87 "Management strategy of patients with paroxysmal heart rhythm or conduction disorders."

Non-pharmacological and pharmacological evidence-based treatment at the pre-hospital and hospital stages. Electropulse therapy. Standards of primary and secondary prevention, prognosis, and working capacity. The study of this topic involves training of skills connected with a physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of phonendoscope, tonometer for blood pressure measurement, pulse oximeter and theoretical work in the classroom (team-work in solving of situational tasks). Applying instrumental (work with echocardiograph, results of ECG) methods of examination with further discussing of the results. Discussion of management and prescription of treatment. Doing intravenous injections. Applying of virtual simulation (watching video about the methodology of radiofrequency catheter ablation, electrical cardioversion, pacing). Work in the simulation class (technique of cardiopulmonary resuscitation for ventricular fibrillation, ventricular tachycardia, pulseless electrical activity, asystole in adults according to the protocol of the European Council of Resuscitation).

Topic 34. Curation of the patient with emergencies in rheumatology.

pr.tr.88 "Indications for emergency care in rheumatology."

The interpretation of results of laboratory and instrumental investigations, objective signs of severe and terminal stage of systemic lupus erythematosus, antiphospholipid syndrome, dermato- and polimyositis, systemic vasculitis.

pr.tr.89 "Emergency care in rheumatology"

Pulse therapy with corticosteroids and cytostatics in patients with connective tissue diseases and systemic vasculitis. Indications and methods of extracorporeal blood purification. Indications and methods of intravenous immunoglobulins injection. The study of this topic involves theoretical work in the classroom (tests, discussion of situational tasks), training of skills connected with collection of complaints, anamnesis, physical examination in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital using of phonendoscope, the tonometer, activity assessment scales. Using of instrumental (work with X-Ray, chest CT) and laboratory (assessment of serological markers, blood analysis, urine dipstick test) methods of examination with further discussing of the results. Discussing of management and prescription of treatment with using of infusomat.

Topic 35. Curation of the patient with acute back pain.

pr.tr.90 "Differential diagnostic of acute back pain and curation of the patients."

Differential diagnostic of acute back pain in diseases of the heart, aorta, respiratory system, gastrointestinal tract, kidneys, urinary tract and pelvic. Differential diagnostic of acute back pain in patients with musculoskeletal disorders and peripheral nervous system diseases. Updated diagnostic and evidence-based treatment standards. Tactics of treatment according to the location and character of disorders. The study of this topic involves theoretical work in the classroom (tests, discussion of situational tasks), training of skills connected with collection of complaints, anamnesis, physical examination in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital. Using 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 management and prescription of treatment. Applying and interpretation of the results of X-Ray, MRI and ultrasound examination of joints in the departments of the medical institution (according to the agreement of cooperation between medical institution and university)

Topic 36. Curation of the patient with severe exacerbation of bronchial asthma (BA), acute allergic reactions.

pr.tr.91 "The management of patients with severe exacerbation of (BA)."

Assessment of asthma exacerbation severity. Self-management of asthma exacerbation and evaluation of response to therapy. Evidence-based treatment of asthma exacerbations in general practice and the emergency department.

pr.tr.92 "The management of patients with anaphylactic shock."

The diagnostic, evidence-based treatment, and prevention of anaphylactic shock.

pr.tr.93 "Management of a patient with generalized urticaria and Quincke's edema."

The diagnostic and treatment of generalized urticaria and Quincke's edema. The study of this topic involves training of skills connected with physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of phonendoscope, tonometer for blood pressure measurement, pulse oximeter and theoretical work in the classroom. Applying instrumental methods of examination (work with echocardiograph). Doing conicotomy and endotracheal intubation in the simulation room. Doing intravenous injections.

Topic 37. Curation of the patient with syncope.

pr.tr.94 "Curation of the patient with syncope."

Criteria of syncope associated with heart rhythm and conduction disorders. Criteria of syncope associated with cardiovascular diseases. Criteria of syncope associated with orthostatic hypotension, neurogenic syncope. Instrumental methods for verification of syncope. Differential diagnosis of syncope. Treatment of reflex syncope, orthostatic hypotension. Treatment of arrhythmogenic syncope. The place of pacing, catheter ablation, antiarrhythmic therapy with implantable cardioverter-defibrillator. The essence of performing maneuvers to prevent syncope (horizontal position, techniques with physical pressure, cough suppression, sneezing, tilt-training). The study of this topic involves training of skills connected with physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of phonendoscope, tonometer for blood pressure measurement, pulse oximeter and theoretical work in the classroom. Work in simulation room with echocardiograph, pulse oximeter, results of ECG and heart ultrasound. Doing of intravenous injections. Doing and interpretation the results of echocardiography in the departments of medical institutions or applying of virtual simulation (watching video about the methodology of radiofrequency catheter ablation, cardiac pacing)

Topic 38. Curation of the patient with acute adrenal insufficiency, thyrotoxic crisis, myxedema coma.

pr.tr.95 "The management of patients with acute adrenal insufficiency."

Diagnostic criteria and evidence-based management of patients with acute adrenal insufficiency. Peculiarities of clinical manifestations of Waterhouse-Friderichsen Syndrome.

pr.tr.96 "Emergency care for patients with thyrotoxic crisis and myxedema coma."

Diagnostic criteria and evidence-based management of patients with thyrotoxic crisis. Diagnostic criteria and management of patients with severe hypothyroidism (myxedema coma). The study of this topic involves training of skills connected with physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of phonendoscope, tonometer for blood pressure measurement, pulse oximeter and theoretical work in the classroom (solving of situational tasks in teams). Applying of instrumental (work with echocardiograph) and interpretation of laboratory (electrolytes) methods of examination. Doing of intravenous injections, oxygen therapy.

Topic 39. Curation of the patient with emergencies in diabetes mellitus.

pr.tr.97 "Management of patients with hypoglycemic coma."

Diagnostic criteria and evidence-based management. Complications and consequences of severe hypoglycemia.

pr.tr.98 "Management of patients with diabetic coma."

Diagnostic criteria and evidence-based management of patients with hyperglycemic hyperosmolar non-ketoacidosis coma. Diagnostic criteria and evidence-based management in ketoacidosis coma. Monitoring of the patients.

<p>pr.tr.99 "Diagnostic criteria and management of patients with lactic acidemic coma."</p> <p>The differential diagnostic of different variants of coma in patients with diabetes mellitus. The study of this topic involves training of skills connected with physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of phonendoscope, tonometer for blood pressure measurement, pulse oximeter and theoretical work in the classroom. Applying of instrumental (work with the echocardiograph, the glucometer) and interpretation of laboratory (blood and urine analysis, electrolytes) methods of examination. Doing of intravenous injections, oxygen therapy.</p>
<p>Topic 40. Curation of the patients with acute kidney injury (AKI).</p>
<p>pr.tr.100 "The differential diagnostic of conditions caused the acute kidney injury."</p> <p>Diagnostic criteria and causes of prerenal, renal, postrenal AKI. The role of instrumental and laboratory methods of examination.</p>
<p>pr.tr.101 "The management of patients according to the cause of AKI."</p> <p>Evidence-based treatment, indications for hemodialysis. The prevention of AKI. The study of this topic involves training of skills connected with the physical examination of patients in ambulatory care/hospital or applying of role-playing games in the case of quarantine in the hospital with using of phonendoscope, tonometer for blood pressure measurement and theoretical work in the classroom. Using instrumental and laboratory (assessment of blood and urine dipstick tests) methods of examination with further discussion of the results. Applying hemodialysis in the department of the medical institution (according to the agreement of cooperation between medical institution and university), virtual simulation (watching video about hemodialysis).</p>
<p>pr.tr.102 "Final assessment: graded test"</p> <p>Evaluation of theoretical answers (discussion of situational tasks, differential diagnosis, treatment, further tactics) and practical training of applicants: skills of collecting complaints, anamnesis, physical examination of an outpatient/inpatient or using role-playing, interpretation of instrumental and laboratory methods.</p>

7.2 Learning activities

LA1	E-learning on platforms (MIX.sumdu.edu.ua).
LA2	Examination of patients at the suitable specialized department
LA3	Watching training videos.
LA4	Solving of situational tasks.
LA5	Preparing for practical classes.
LA6	Preparing to presentation and reporting
LA7	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).
LA8	Working with text-books and relevant information resources
LA9	Individual research project (student research project, thesis, article)

LA10	Self-study.
LA11	Preparing to KROK-2.
LA12	Preparing to Objective Structured Clinical Examination (OSCE).

8. Teaching methods

Course involves learning through:

TM1	Case-based learning (CBL)
TM2	Demonstration method (multimedia, demonstration of patient)
TM3	Brain storm.
TM4	Team-based learning (TBL)
TM5	Research-based learning (RBL)
TM6	Study discussion.
TM7	Role playing

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 reasonable decisions; work in a team; skills in interpersonal relationships. Ability to use information and communication technologies. Determination and persistence to the tasks and commitments undertaken.

9. Methods and criteria for assessment

9.1. Assessment criteria

ECTS	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)	$120 \leq RD < 139$
	Fail – some more work required before the credit can be awarded	2 (Fail)	$0 \leq RD < 119$

9.2 Formative assessment

FA1	Peer assessment
FA2	Teacher's instructions in the process of performing practical and situational tasks
FA3	Assessment of written tasks
FA4	Testing
FA5	Oral questioning and comments of the teacher based on the results of questioning.

FA6	Defense of individual research project (report on the student's scientific conference or scientific work contest)
-----	---

9.3 Summative assessment

SA1	Evaluation of written tasks, questionnaire, solving of situational case
SA2	Final evaluation: 2 graded tests
SA3	Defense of individual research project (incentive points)

Form of assessment:

11 semester		200 scores
SA1. Evaluation of written tasks, questionnaire, solving of situational case		120
	Answering the questions, situational tasks solving, practical skills	120
SA2. Final evaluation: 2 graded tests		80
	evaluation of theoretical questions, situational tasks	60
	evaluation of practical skills	20

Form of assessment (special cases):

11 semester		200 scores
SA1. Evaluation of written tasks, questionnaire, solving of situational case		120
	In particular situations and limitation practical classes must be conducted distantly using such platforms as Mix.sumdu.edu.ua, Google meet.	120
SA2. Final evaluation: 2 graded tests		80
	In special situation and limitation assessment of theoretical and practical skills must be conducted distantly using such platforms as Mix.sumdu.edu.ua, Google meet	80

The total mark of discipline is defined as the summarizing of points for current educational activities (not less than 72) and average points for graded tests (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: 120 multiplied by the arithmetic mean and divided by 5. The maximum number of points for the current educational activities of the student - 120. The final assessment of the discipline is graded tests done at the end of each module (the arithmetic mean of 2 graded tests). Students who have a current educational score of at least 72 points, who have not missed practical classes are admitted to the graded tests. Each graded test consists of 3 theoretical questions and 1 practical task. Each question is graded at 12, 16 or 20 points, which corresponds to the traditional 4-point system "3", "4" or "5" respectively. Having summarized all the points for 4 questions, the graded test is credited to the student if he scored at least 48 points out of 80 possible. Incentive 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.

10. Learning resources

10.1 Material and technical support

MTS1	Information and communication systems
MTS2	Library fund, archive of radiographs, spiograms, electrocardiograms, coronary angiograms, computed tomograms, results of laboratory methods of examination
MTS3	Computers, computer systems and networks
MTS4	Medical equipment (spirometer, peakflowmeters, nebulizer, electrocardiograph, height meter, scales, tonometer, fibrogastroscope, phonendoscope, capillarscope, glucometer, infusomat)
MTS5	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")
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.)
MTS8	Simulation room with equipment (simulation mannequins and models, medical training simulators, "Ambu" type bag, automatic defibrillator)

10.2 Information and methodical support

Essential Reading	
1	Internal Medicine [Электронный 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.
2	USMLE Step 2 CK: Internal Medicine [Текст]: Lecture Notes / Editors J.J. Lieber, F.P. Noto. — New York: Kaplan, 2019. — 503 p.
3	Goldman-Cecil medicine [Текст]. V.1 / L. Goldman, L. Schafer, M. Crow etc. —25-th ed. — Saunders: Saunders Elsevier, 2016. — 1489 p.
4	Goldman-Cecil medicine [Текст]. V.2 / L. Goldman, L. Schafer, M. Crow etc. —25-th ed. — Saunders: Saunders Elsevier, 2016. — 1129 p.
5	Skills in Rheumatology [Электронный ресурс] / ed.: H. Almoallim, M. Cheikh.— Singapore: Springer, 2021. — 566 p.
Supplemental Reading	

1	Integrative Cardiology [Электронный ресурс] : A New Therapeutic Vision / edited by Massimo Fioranelli. – 1st ed. 2017. – Cham: Springer International Publishing, 2017. – XII, 276 p.
2	Cardiology Procedures [Электронный ресурс]: A Clinical Primer / edited by Robert C. Hendel, Carey Kimmelstiel. – 1st ed. 2017. – London: Springer London, 2017. – XI, 347 p
3	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.
4	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. – К.: Медицина, 2018. – 368с.
5	Mayerle, J. Chronic Pancreatitis [Электронный ресурс] / J. Mayerle, G. Beyer. — 2017.
6	Lyudmila N. Prystupa, Irina O. Moiseyenko, Victoria Yu. Garbuzova, Vladyslava V. Kmyta, Irina A. Dudchenko Association of metabolic syndrome components with the genotypes of the C825T polymorphism in the G protein
7	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.
8	Pogorielova, O. S. Acute coronary syndrome [Текст]: study guide / O. S. Pogorielova. — Sumy: Sumy State University, 2021. — 73 p.
9	Villatoro, V. A Laboratory Guide to Clinical Hematology [Электронный ресурс] / V. Villatoro, M. To. — 1st ed. — University of Alberta, 2018. — 302 p.
Web-based and electronic resources	
1	https://empendium.com/mcmtxtbook/
2	https://www.mdcalc.com/
3	https://reference.medscape.com/guide/medical-calculators
4	https://www.escardio.org/Education/E-Learning/basic-tools-in-general-cardiology
5	https://www.ers-education.org/e-learning/procedure-videos/