



Internal Medicine No2

The syllabus for the discipline «Internal medicine»

1. General information	
Faculty	Medical
Educational program (branch, specialty, level of higher education, form of training)	22 “HEALTH CARE”, 222 medicine, the second (Magister) level of higher education, full-time education
Academic year	2023-2024
The name of discipline, code (e-mail address on the website of Danylo Halytsky Lviv National Medical University)	Internal medicine OC 25.1. https://new.meduniv.lviv.ua/kafedry/kafedra-vnutrishnoyi-medytsyny-2/
Department (name, address, phone number, E-mail)	The Department of Internal medicine No 2 1, Uzhhorodska Street, Lviv kaf_internalmed_2@meduniv.lviv.ua
The Head of the department (contact E-mail address)	Associate Professor Komarytsya O.Y. komar_or@ukr.net
Year of study (the year of study the discipline)	Fourth
Semester (the semesters of study the discipline)	VII-VIII
Type of discipline (mandatory / optional)	Mandatory
Teachers (names, surnames, scientific degrees and titles of teachers who teach the discipline, contact E-mail address)	Olena Radchenko, Doctor of Medical Science, Professor, olradchenko@gmail.com ; Olga Korolyuk, MD, PhD, Associate Professor, olga_korolyuk@ukr.net ; Oksans Slaba, MD, PhD, Assistant professor; Olena Sorokopud, MD, PhD, Associate Professor; Anzhelika Filipyuk MD, PhD, Associate Professor
Erasmus yes/no (availability of discipline for students within the program Erasmus+)	Yes
Person responsible for the syllabus (person, to whom comments about the syllabus may be addressed, contact E-mail)	Associate Professor Komarytsya O.Y. komar_or@ukr.net Professor Radchenko O.M. olradchenko@gmail.com
Number of ECTS credits	7
Number of hours (lectures / practical classes / individual work of students)	26/80/104
Language of teaching	Ukrainian, English
Information about consultations	Individual or group according to student's request
Address, telephone, work regulations of the clinical base, office... (if necessary)	Clinical base Non-profit Municipal Enterprise “The 1st City Clinical Hospital named after Prince Lev” 1, Uzhhorodska Street, Lviv, 79019,

2. Short summary to the course

The program of “Internal medicine” for the 4th year provides the study of the basics of internal medicine and includes the following sections of internal medicine “gastroenterology”, “hepatology” “pulmonology”, and “haematology”, with the emphasis on the study of aetiology, pathogenesis, clinical presentation, diagnostics, treatment, and prophylaxis of the most common internal diseases. The main purpose of the course is to teach students the basics of internal medicine. Skills of interviewing, history taking, clinical examination of the patient, diagnostics, differential diagnostics, treatment and prevention of internal diseases, diagnosis and provision of urgent medical care in case of emergencies, and performing medical manipulations are established. Students participate in the diagnostic and treatment process under the guidance and supervision of tutors. It is also provided familiarization with and acquirement of performing the procedures that most commonly used in the practice of internal medicine. Practical classes and clinical visitations of patients with tutors are the main parts of this course. Each student records and reports the clinical results of the patient's examination to the tutor on a daily basis and writes a patient’s record (medical cards). According to the curriculum, there are the following types of classes: a) lectures, b) practical classes, and c) individual work of students.

3. The purpose and objectives of the course

1.1. The purpose of study the academic discipline "Internal Medicine" is to form the ability to apply acquired knowledge, skills, and understanding to solve typical tasks of a doctor in the field of health care in the field of gastroenterology, pulmonology, and haematology.

1.2. The main objectives of study the discipline “Internal Medicine” during 4th year of study are the following:

1. to conduct an interviewing, history taking, and clinical examination of patients with the most common gastrointestinal, hepatic, pulmonary, and haematological diseases; to analyse the obtained results;
2. to determine their etiological and pathogenic factors;
3. to analyse the typical clinical presentation, to identify the clinical variants and complications of these diseases;
4. to make a preliminary diagnosis of these diseases;
5. to administer the laboratory, imaging and functional tests that are required for verification of diagnosis;
6. to make a differential diagnosis, substantiate and establish a clinical diagnosis, basing on the obtained results of laboratory and instrumental tests;
7. to determine the need in activity limitation during treatment, the need for special diet or medical nutrition; to determine the approach, principles, and regimen of therapy; to administer the treatment, including disease-modifying therapy that improve survival or prognosis and prevent complications
8. to determine the need for emergent medical care in case of urgencies or emergencies; to provide the emergency medical care basing on the diagnosis;
9. to carry out the primary and secondary prevention; to assess prognosis, disability, and ability to work in patients with the most common gastrointestinal, hepatobiliary, pancreatic, pulmonary, and haematological diseases;
10. to perform the medical manipulations;
11. to keep medical records;
12. to comply with ethics, bioethics and deontology requirements during professional activities.

4. Prerequisites of the course

The information about disciplines, basic knowledge and learning outcomes necessary for (enrolled) students for successful study and mastering of competencies in this discipline.

Basic disciplines: human anatomy, medical biology, histology, cytology and embryology, pathomorphology, physiology, pathophysiology, medical and biological physics, bioorganic and biological chemistry, microbiology, virology and immunology, propaedeutic of internal medicine, radiology and radiation medicine, pharmacology, clinical pharmacology and pharmacy.

1. The anatomical structure, blood supply, innervation, and functions of digestive system (i.e., oesophagus, stomach, duodenum, small and large intestine, liver, bile ducts, and pancreas), respiratory system (i.e., trachea, bronchial tree and lungs), cardiovascular system (i.e., small and large circulation, the heart, blood vessels, and lymphatic system), hematopoietic organs and immune system, kidneys and urinary tract, endocrine system (i.e., pituitary gland, thyroid gland, adrenal glands, and other endocrine organs), central nervous system, sympathetic and parasympathetic nervous system, human skeleton and joints.

2. Morphological abnormalities of the oesophagus, stomach and intestine during ulceration and inflammatory process, atrophy, intestinal metaplasia and carcinogenesis. Morphological changes in case of refluxes, oesophagitis, Barret's oesophagus, chronic gastritis of different aetiologies, peptic ulcer disease, chronic enteritis, chronic colitis, irritable bowel syndrome, inflammatory bowel diseases, chronic cholecystitis, gallbladder dyskinesia, gallstone disease, chronic hepatitis of different aetiologies, liver cirrhosis, chronic pancreatitis, and pancreatic cancer. Morphological abnormalities in the bronchial tree and lungs during inflammatory process, allergy, fibrosis, metaplasia, and carcinogenesis. Morphological changes in case of COPD, bronchial asthma, pneumonia of different aetiologies, lung emphysema, pleurisy and pleural effusion. The structure and morphology of the bone marrow and peripheral blood cells. Blast transformation of blood cells. Age-related morphological changes in the human body.

3. Morphological features of blood cells; haematopoiesis; microscopic structure of the lymph nodes, lymphopoiesis; characteristics of normal peripheral blood cell counts and normal myelocytogram; histological features of hematopoietic organs and vessels of different calibre. Histological structure of gastrointestinal system, hepatobiliary system, and pancreatic gland. Histological structure of upper airways, bronchial tree, lungs and pleura.

4. Regulation of gastric and pancreatic secretion. Mechanisms of food digestion and functions of digestive enzymes. Anti-reflux protection and defensive mechanisms in GI tract. Liver functions. Formation of bile and regulation of bile exertion. Normal bilirubin metabolism. The main exocrine and endocrine functions of the pancreatic gland. Functions of the respiratory system. Mechanisms and regulation of breathing, coughing, bronchial clearance, and alveolar gas exchange. Lung function tests and reference ranges of the main parameters of lung function. Functions of sympathetic and parasympathetic nervous system, the role of these systems in normal functioning of internal organs. Normal haematopoiesis and its regulation. Normal coagulation and fibrinolysis.

5. Pathogenic mechanisms of GORD; causes and mechanism of the dysfunction of stomach, small and large intestines, gallbladder, and bile ducts; pathogenesis and mechanisms of jaundice, portal hypertension, hepatitis, and liver cirrhosis; exocrine and endocrine dysfunctions of the pancreatic gland. Central regulation of metabolism and possible mechanisms of metabolic disorders. Pathophysiology of bronchial obstruction, reversible and irreversible bronchial obstruction; pathophysiology of pneumonia, lung abscess, gangrene of the lungs, bronchiectasis, and respiratory distress; types of hypoxia, their mechanisms, main causes and pathogenesis of the respiratory failure; parameters of lung function tests in different types of ventilatory disorders (i.e., obstructive, restrictive and mixed). Pleural effusion, causes and mechanisms of transudate and exudate formation. Pathophysiology of different types of anaemia and hematopoietic malignancies. Causes and mechanisms of bone marrow failure. Pathophysiology of haemorrhagic syndrome, particularly platelet disorders and coagulation disorders. Causes and mechanisms of abnormal coagulation and defective fibrinolysis. Pathophysiology of aging, obesity, and obesity-related comorbidities.

6. Diagnostic value of blood biochemistry, reference ranges of most commonly used biochemical parameters and their reference ranges in adults of different age. Methods of clinical and laboratory evaluation of oxygen balance. Metabolism and functions of folic acid, vitamin B12, and iron in the body. Haemoglobin structure and function. The main nutrients and microelements, their metabolism and role in the body. Metabolic functions of the liver. The role of enzymes in human body. The main biochemical and metabolic processes during digestion and gas exchange. Intracellular metabolic processes for tissue oxygen supply and energy synthesis.

7. Properties of pathogens that are etiological factors of pneumonia, pleural effusion,

infectious exacerbation of COPD, chronic gastritis, peptic ulcer, hepatitis, enteritis, colitis, and bone marrow disorders. The normal composition of gut microflora and peculiarities of microbiota composition in different age groups; determination of the intestinal dysbiosis.

8. Types of immunological and allergic reactions, mechanisms of anaphylaxis. Methods for determining indicators of humoral and cellular immunity. Immunological methods for diagnosing diseases of the digestive system, respiratory system, and blood disorders.

9. Structure of the provision of health care to the population for the proper use of the prevention and treatment health care resources.

10. Semiotics of respiratory, digestive and blood disorders. Possible signs, symptoms and clinical syndromes in patients with gastrointestinal, hepatobiliary, pancreatic, respiratory and hematopoietic disorders. Ability to take medical history, to identify the specific complaints, to estimate vital signs, to perform physical examination of patients with gastrointestinal, hepatobiliary, pancreatic, respiratory and hematopoietic disorders, and to identify leading syndromes. To be able to perform the main functional investigations (e.g., lung function tests, computer spirometry, pulse oximetry, electrocardiography etc.) and interpret the obtained results. To be able to interpret the results of the main laboratory tests, imaging and endoscopic studies (e.g., chest radiography, lung and abdominal ultrasonography, abdominal radiography with contrast, upper GI endoscopy and colonoscopy).

11. Radiographic abnormalities in lung emphysema, COPD, pneumonia, lung abscess, pneumothorax, pleural effusion, multiple myeloma, haemophilic haemarthrosis, peptic ulcer disease, inflammatory bowel disease, gallstone disease. Diagnostic value and indications for contrast-enhanced radiographic studies, interpretation of the obtained results.

12. Pharmacokinetics, mechanisms of action, indications, contraindications, possible adverse effects, precautions, and drug interactions for the following classes of medications: antacids, proton pump inhibitors, H₂-receptor blockers, prokinetic agents, anticholinergics, antispasmodics, analgesics, antidiarrheals, laxatives, immunosuppressants (i.e., corticosteroids, cytotoxic agents, biological agents), antibacterial and antiviral medications, probiotics, enterosorbents, hepatoprotectors, pancreatic and digestive enzymes, bronchodilators (i.e., beta₂-agonists, long-acting muscarinic antagonists, methylxanthines), leukotriene receptor antagonists, mucolytic agents, supplements (i.e., iron, vitamin B₁₂, folic acid), haemostatic and thrombolytic agents, non-steroidal anti-inflammatory agents.

5. Program learning outcomes

The list of learning outcomes

Learning outcome code	The content of the learning outcome	Reference to the competencies matrix code
Kn-1	To know anatomy, physiology of internal organs and systems, skin, skeleton, connective tissue, and blood	PLO-1-3
Kn-2	To know pathomorphology and pathophysiology of common internal diseases	PLO-1-3
Kn-3	To know the biochemistry of major metabolic processes, mechanisms of action of the main classes of medications	PLO-1-3
Kn-4	To know characteristics of the pathogens that may cause internal diseases and the basics of epidemiology	PLO-1-3
Kn-5	To know the methods of evaluation of integrated health indicators; environmental factors; system of preventive measures; socioeconomic and biological determinants of health, methods for doctor's activity assessment	PLO-15-19
Sk-1	To interview complaints and medical history, to perform physical examination	PLO-4-5
Sk-2	To evaluate obtained results of additional tests	PLO-5,7
Sk-3	To perform basic medical manipulations	PLO-13

Co-1	To highlight the leading symptoms and syndromes. To diagnose the disease. To plan necessary additional tests. To make differential diagnosis.	PLO-6-8
Co-2	To determine diet / plan of nutrition, to plan preventive strategies and tactics.	PLO-9-12
Co-3	To administer treatment and to determine its duration.	PLO-9-12
Co-4	To diagnose emergencies and to determine the tactics of emergent medical care.	PLO-11
Co-5	To determine health indicators; environmental factors; preventive measures; determinants of health, efficiency of doctor's activity and quality of medical care	PLO-15-19
AR-1	To organize the work of medical staff; to form rational medical routes of patients; to interact with colleagues, organizations and institutions.	PLO-18-21
AR-2	To guide by rights, freedoms and responsibilities. To improve professional level. To adhere to the requirements of ethics, bioethics and deontology.	PLO-18-21
AR-3	To form the purposes and structure of personal activity. To adhere to a healthy lifestyle and self-control.	PLO-18-21

6. The format and the scope of the course

The format of the course (full-time or distance learning)		Full-time	
Type of training sessions	Number of hours	Number of groups	
Lectures (L)	26	2	
practical classes (P)	80	2	
seminars	0		
individual work of students (IWS)	104	2	

7. Topics and content of the course

Study code	Topic	Learning content	Learning outcome code	Teachers
L-1	Diseases caused by <i>Helicobacter pylori</i> and gastroesophageal reflux disease: clinical presentation, principles of diagnosis and treatment.	Kn-1-5	PLO-1-5	Professor O.Radchenko
L-2	Chronic gastritis, peptic ulcer disease of the stomach and duodenum: principles of diagnosis and treatment.	Kn-1-5	PLO-1-5	Professor O.Radchenko
L-3	Chronic diseases of the intestine: principles of diagnosis and treatment.	Kn-1-5	PLO-1-5	Professor O.Radchenko
L-4	Chronic cholecystitis, gallstone disease and functional biliary disorders: principles of diagnosis and treatment.	Kn-1-5	PLO-1-5	Professor O.Radchenko
L-5	Chronic hepatitis: principles of diagnosis and treatment.	Kn-1-5	PLO-1-5	Professor O.Radchenko
L-6	Liver cirrhosis: principles of diagnosis and treatment.	Kn-1-5	PLO-1-5	Professor O.Radchenko
L-7	Chronic pancreatitis: principles of diagnosis and treatment.	Kn-1-5	PLO-1-5	Professor O.Radchenko
L-8	Pneumonia and pleurisy: principles of diagnosis and treatment.	Kn-1-5	PLO-1-5	Professor O.Radchenko
L-9	Chronic obstructive pulmonary disease: principles of diagnosis and treatment.	Kn-1-5	PLO-1-5	Professor O.Radchenko
L-10	Bronchial asthma: principles of diagnosis and treatment.	Kn-1-5	PLO-1-5	Professor O.Radchenko
L-11	Iron-deficiency, megaloblastic, haemolytic, and aplastic anaemias: principles of diagnosis and treatment	Kn-1-5	PLO-1-5	Professor O.Radchenko
L-12	Acute and chronic leukaemias, malignant lymphoma and multiple myeloma: principles of diagnosis and treatment.	Kn-1-5	PLO-1-5	Professor O.Radchenko
L-13	Haemorrhagic disorders: principles of diagnosis and treatment	Kn-1-5	PLO-1-5	Professor O.Radchenko
P-1	Peculiarities of internal diseases in elder persons and patients living with obesity and related comorbidity.	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule

P-2	Gastroesophageal reflux disease and chronic gastritis: the main principles of diagnosis, treatment and prevention	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule
P-3	Peptic ulcer diseases and other ulcers of the stomach and duodenum: the main principles of diagnosis, treatment and prevention	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule
P-4	Chronic diseases of the large and small intestine: the main principles of diagnosis, treatment and prevention	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule
P-5	Cholelithiasis, chronic cholecystitis, functional biliary disorders: the main principles of diagnosis, treatment and prevention	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule
P-6	Chronic hepatitis: the main principles of diagnosis, treatment and prevention	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule
P-7	Liver cirrhosis: the main principles of diagnosis, treatment and prevention	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule
P-8	Chronic pancreatitis: the main principles of diagnosis, treatment and prevention	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule
P-9	Respiratory failure, SARSCoV2 infection (COVID-19): the main principles of diagnosis, treatment and prevention	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule
P-10	Pneumonia: the main principles of diagnosis, treatment and prevention	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule
P-11	Pleurisy, pleural effusion, suppurative destructive pulmonary diseases: the main principles of diagnosis, treatment and prevention	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule
P-12	Chronic obstructive respiratory disease (COPD): the main principles of diagnosis, treatment and prevention	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule
P-13	Bronchial asthma: the main principles of diagnosis, treatment and prevention	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule
P-14	Anaemias: the main principles of diagnosis, treatment and prevention	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule
P-15	Acute and chronic leukaemias, malignant lymphomas: the main principles of diagnosis, treatment and prevention	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule
P-16	Multiple myeloma, haemorrhagic disorders: the main principles of diagnosis, treatment and prevention	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule
IWS-1	Preparation for the practice “Peculiarities of internal diseases in elder persons and patients living with obesity and related comorbidity”, Mastering the skills of anthropometry, body mass index (BMI) calculation, obesity grade assessment, and interpretation of laboratory tests results.	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-2, 3, 11	According to the schedule
IWS-2	Preparation for the practice “Gastroesophageal reflux disease and chronic gastritis: the main principles of diagnosis, treatment and prevention”. Mastering the skills of interpreting thematic results of urea breath tests, 24-hour oesophageal pH monitoring, intragastric topographic express pH-metric test, endoscopic findings, and biopsy results.	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-2, 3, 11	According to the schedule
IWS-3	Preparation for the practice “Peptic ulcer diseases and other ulcers of the stomach and duodenum: the main principles of diagnosis, treatment and prevention”. Mastering the skills of interpreting thematic results of urea breath tests, endoscopic findings, and biopsy results.	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-2, 3, 11	According to the schedule
IWS-4	Preparation for the practice “Chronic diseases of the large and small intestine: the main principles of diagnosis, treatment and prevention”. Mastering the skills of interpreting thematic endoscopic findings, results of the coprocytogram, faecal calprotectin, antibodies to tissue transglutaminase and gliadin peptides, hydrogen tests.	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-2, 3, 11	According to the schedule

IWS-5	Preparation for the practice “Cholelithiasis, chronic cholecystitis, functional biliary disorders: the main principles of diagnosis, treatment and prevention”. Mastering the skills of interpreting thematic results of ultrasonography of the liver, bile ducts and gallbladder, microscopic and biochemical examination of bile obtained by multi-moment duodenal probing.	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-2, 3, 11	According to the schedule
IWS-6	Preparation for the practice “Chronic hepatitis: the main principles of diagnosis, treatment and prevention”. Mastering the skills of interpreting the results of CBC, blood biochemistry (total protein, protein fractions, total bilirubin with fractions, liver enzymes activity), blood serology (serum markers for autoimmune hepatitis, viral hepatitis B, C, D), and polymerase chain reactions for HBV, HCV, HDV (qualitative/quantitative; viral genotyping).	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-2, 3, 11	According to the schedule
IWS-7	Preparation for the practice “Liver cirrhosis: the main principles of diagnosis, treatment and prevention”. Mastering the skills of interpreting the results of blood biochemistry (ALT, AST, GGTP, AP, bilirubin and its fractions, total protein with fractions, glucose, coagulation tests), ultrasound of the liver, gallbladder, pancreas, spleen and vessels of the portal system.	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-2, 3, 11	According to the schedule
IWS-8	Preparation for the practice “Chronic pancreatitis: the main principles of diagnosis, treatment and prevention”. Mastering the skills of interpreting the results of laboratory tests (CBC, serum levels of α -amylase, lipase, glucose, insulin, C-peptide, pancreatic polypeptide, glucagon; test with sugar load, galactose, D-xylose, stool test for faecal elastase 1, urine test for α -amylase) and abdominal ultrasound.	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-2, 3, 11	According to the schedule
IWS-9	Preparation for the practice “Respiratory failure, SARS-CoV2 infection (COVID-19): the main principles of diagnosis, treatment and prevention”. Mastering the skills of pulse oximetry, interpreting the results of oxygen saturation, arterial blood gas analysis, lung function tests, lung ultrasound, and chest radiographs.	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-2, 3, 11	According to the schedule
IWS-10	Preparation for the practice “Pneumonia: the main principles of diagnosis, treatment and prevention”. Mastering the skills of interpreting the results of laboratory tests (CBC, acute phase reactants, sputum analysis (i.e., microscopic, bacteriological, Gram stain smear microscopy, culture and antibiogram), lung ultrasound and chest radiographs in two projections.	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-2, 3, 11	According to the schedule
IWS-11	Preparation for the practice “Pleurisy, pleural effusion, suppurative destructive pulmonary diseases: the main principles of diagnosis, treatment and prevention”. Mastering the skills of interpreting the results of laboratory tests (CBC, acute phase reactants, sputum and pleural fluid analyses (microscopy, chemistry, culture with antibiogram), lung ultrasound, and chest radiographs.	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-2, 3, 11	According to the schedule
IWS-12	Preparation for the practice “COPD: the main principles of diagnosis, treatment and prevention”. Mastering the skills of interpreting the results of lung function tests and sputum testing.	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-2, 3, 11	According to the schedule
IWS-13	Preparation for the practice “Bronchial asthma: the main principles of diagnosis, treatment and prevention”. Mastering the skills of interpreting the results of lung function tests, sputum and allergic testing.	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-2, 3, 11	According to the schedule
IWS-14	Preparation for the practice “Anaemias: the main principles of diagnosis, treatment and prevention”. Mastering the skills of interpreting the results of CBC, blood chemistry (serum levels of iron, ferritin, iron transferrin saturation, total iron binding capacity, folate, cobalamin, total bilirubin, LDH, haptoglobin), and bone marrow biopsy.	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-2, 3, 11	According to the schedule
IWS-15	Preparation for the practice “Acute and chronic leukaemias, malignant lymphomas: the main principles of diagnosis, treatment and prevention”. Mastering the skills of interpreting the results of CBC, bone marrow and lymph node biopsy, cytochemical studies, flow-cytometry, and imaging tests on the topic. Mastering the method of transfusion of blood components and blood substitutes	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-2, 3, 11	According to the schedule

IWS-16	Preparation for the practice “Multiple myeloma, haemorrhagic disorders: the main principles of diagnosis, treatment and prevention”. Mastering the skills of interpreting the results of CBC, serum and urine protein, radiographic examination of bones, coagulation tests and platelets function tests. Mastering the method of determining blood type.	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-2, 3, 11	According to the schedule
IWS-17	Writing of medical record	Kn-1-5, Sk-1-3, C-1-5, AR-1-3	PLO-1-15	According to the schedule

It is necessary to present the system of organization of classes, the use of interactive methods, educational technologies used for the transfer and acquisition of knowledge, skills and abilities.

The organization of classes consists of the following blocks: program and information, education and methodical, control, educational research, and auxiliary.

The program and information block is presented on the official website of the university.

The educational and methodical block includes theoretical lecture materials (available at MISA platform), which are conducted with the use of multimedia presentations. Methodical materials for students and teachers are updated every year and are available not only in printed form, but also in electronic form (at MISA platform), which is given to students for independent work at home. A phantom of the human torso for cardiopulmonary resuscitation is also used. Educational and practical materials also include educational DVD-films about methodology of physical examination prepared by Professor Yavorsky OG, etc., depending on the subject.

The control block contains materials for the current control of student activities (questions, test tasks) (at MISA platform).

The educational and research block contains topics of creative tasks, abstracts, educational and research tasks, term qualification works, etc. The department stores multimedia materials of student scientific-practical conferences of the medical faculty, which are examples and / or illustrative material for training, in addition, students have the opportunity to directly participate in procedures of echocardiography and ultrasonography of abdominal organs.

The auxiliary block is filled with video, audio, multimedia materials and electronic manuals, the materials of which can be processed on portable devices (phone, smartphone, netbook, book reader, etc.). To ensure the independent work of students, they are offered links to electronic resources that can be used.

8. Verification of learning outcomes

Current control

Current control is performed during practical classes and aims to check the assimilation of educational material by students. The forms of assessment of current educational activities are standard, and include control of theoretical and practical training. Current control is based on a test assessment of the initial level of knowledge, checking home task in written form, and thematic practical work during the class (patient’s examination, writing examination protocol, solving clinical cases and level 2 tests). Rating of each practice accounts all types of work provided by the curriculum using a 4-point national scale. The student must receive positive rating for each practice.

Learning outcome code	Type of training code	Method of verifying learning outcomes	Assessment criteria
For example: Kn-1-5, Sk-1-3, C-1-5, AR-1-3	L-1-13, P-1-16, IWS-1-17	The field defines the methods and technologies of assessment of students' knowledge, particularly, a list of all types of work that students are required to perform during practical class and the criteria for their assessment. For example, test control, protocol of patient's examination, demonstration of practical skills,	«Excellent» («5»): 90-100% answers for format A tests are correct; correct clear, complete and logical answers for the questions about the current topic, including questions and tasks for individual work. Presence of qualitative and complete home task. A student closely links theory to practice and correctly demonstrates practical skills; able to solve clinical cases of increased complexity and to summarize the material. A student correctly conducts physical examination of thematic patient, has the necessary communication skills,

	etc. Each evaluation method must be described separately.	and uses the principles of medical deontology. « Good » (« 4 »): 70-89% answers for format A tests are correct; clear and right answers for the questions about the current topic, including questions and tasks for individual work. There is a qualitative home task. A student correctly demonstrates practical skills or makes non-significant mistakes; able to solve typical clinical cases and cases of moderate complexity. A student correctly conducts physical examination of thematic patient, has the necessary practical skills, and makes no fatal mistakes during diagnosis and treatment. A student may communicate with patients and colleagues, using the principles of medical deontology. " Satisfactory " (" 3 "): 60-69% answers for format A tests are correct. Homework is incomplete or contains mistakes. Inadequate or incomplete answers for the questions about the current topic and individual work. A student cannot build a clear, logical answer; makes significant mistakes when answering and demonstrating practical skills; solves only easy typical clinical cases, has a minimum of necessary practical skills; performs examination and plan treatments with errors that do not threaten the patient's life; has a minimum of communication skills, uses the principles of medical deontology. " Unsatisfactory " (" 2 "): less than 60% answers for format A tests are correct. The home task is written very bad or is absent. A student does not know the material of the current topic, cannot answer independently and logically to additional questions, does not understand the content of the material; makes significant mistakes when answering and demonstrating practical skills; conducts examination and plan treatment with fatal consequences for a patient; has insufficient communication or verbal skills; insufficiently uses the principles of medical deontology.
Final control		
General rating system	Participation in the work during the semester	
Rating scales	Traditional 4-point scale, 200-point scale, ECTS rating scale.	
Admission to the final control	The student attended all practical classes and received at least 120 points for the semester	
Type of final control	Methods of final control	Passing criteria
Credit	All topics passed and estimated positively. Rating is converted from a 4-point scale to a 200-point scale in accordance with the "Criteria, rules and procedures for evaluating the results of student's learning activities"	Minimal rating 120 points. Maximal rating 200 points
Criteria of assessment of the examination / differentiated credit		
Examination	None	
Differentiated credit		

9. Course policy

In teaching and studying the course of Internal Medicine-4th year, all teachers and students adhere to the policy of academic integrity, intolerance to violations of medical and human deontology and ethics. Examination of patients at the clinical bases of the department complies with the principles of the Helsinki Declaration of the World Medical Association on ethical principles of scientific medical research with human participation (1964, 2004, 2013) and Orders of the Ministry of Health of Ukraine No 690 (2009), No 944 (2009) and No 616 (2012).

10. Literature

Basic:

1. eMPendium – electronic compendium "Internal diseases" in open access [Electronic resource]. Access mode: <https://empendium.com/mcmtextbook/> .
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11. Equipment, logistics and software equipment of the discipline / course

1. Working curriculum of the discipline.
2. Plans for practical classes and individual student's work.
3. Recommendations and guides for learning the course of internal medicine for students and tutors, and for individual work of students (Recommendations and guides for writing of patient's medical record during the course of Internal Medicine).
4. Tests (MCQs) and clinical cases for practical classes.
5. Models, mannequins.
6. Multimedia equipment, presentations for training.
7. A training simulation centre, high-tech simulation classes are used to practice practical skills.

12. Additional information

For other information important for students that is not included into the standard description please link to the university website and page of the department: https://new.meduniv.lviv.ua/kafedry/kafedra-vnutrishnoyi-medytsyny-2/kaf_internalmed_2@meduniv.lviv.ua; the phone number of the Department - 0322601490
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