**MINISTRY OF HEALTH OF UKRAINE**

**Kharkiv National Medical University**

Department of Internal Medicine № 1

Branch of knowledge – 22 «Health Care»

Speciality – 222 «Medicine»

Specialization – «Master of medicine»

Educational-professional program Medicine of the second (master's) level of higher education

**SYLLABUS**

**OF THE SELECTIVE TRAINING COURSE "GASTROENTEROLOGY"**

**for 6th year students**

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| The syllabus was approved at the methodical meeting of the Department of Internal Medicine №1  Protocol № 14 of  “28th” of August 2020.  Head of Department  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ professor O. Ya. Babak | The syllabus was approved at the meeting  of the methodical commission of KhNMU  on the problems of therapeutic disciplines  Protocol № 1 of  “31th” of August 2020.  Head of profile methodical commission  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ professor P. G. Kravchun |

**COURSE "GASTROENTEROLOGY"**

**Syllabus Builder:**

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**Information about teachers:**

Doctor of medical sciences, professor Babak O. Ya., specialization therapy, gastroenterology

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**Information about consultations.** Eye consultations: schedule and venue according to the schedule of the department. Online consultations: by prior arrangement with the teacher.

**Location:** auditorium and classrooms of the Department of Internal Medicine №1 on the basis of the Government Institution “L.T.Malaya Therapy National Institute of the National Academy of Medical Sciences of Ukraine” (2a L. Malaya Ave.).

**Class time:** Monday, Tuesday, Wednesday, Thursday, Friday (800-1215/800-1310 according to the schedule).

**Course information**

**1. Description of the course**

**Year:** 6

**Specific semester / academic year:** XI-XII

**The volume of the discipline:** ECTS credits - 3, a total of 90 hours, of which practical classes - 60 hours, VTS - 30 hours.

**Type of control** – differentiatial credit

**General characteristics of the course.** The elective course "Gastroenterology" for 6th year students provides students studying the basic issues of gastroenterology with an emphasis on skills of history taking, physical examination, differential diagnosis, basic treatment and prevention of gastrointestinal diseases in the therapeutic clinic.

**The role and place of course in the system of training.** Gastroenterology is one of the basic disciplines in the training of physicians of any profile who study the patterns and features of pathogenesis, clinical course of digestive system diseases using an interdisciplinary approach to their treatment, as well as rehabilitation processes after severe pathological conditions, their main preventive ways and methods.

**Discipline page in the Moodle system –** Department of Internal Medicine № 1

**2. The purpose of the study** is to acquire and expand the range of theoretical knowledge, practical skills, abilities, and other clinical competencies in differential intrasyndromic diagnosis, prevention, individualized therapy, methods of emergency care, basics of rehabilitation and medical examination of patients with gastrointestinal diseases which are significant components of a doctor's professional activity in an internal medicine clinic and regulated by an educational-professional program.

**The main tasks** of studying the elective course "Gastroenterology" for 6th year students are:

* training of student with formation of professional problems decision skills according to kinds of professional activity (preventive, diagnostic, medical, rehabilitation);
* formation of students' communication skills with the patient, conducting a full range of diagnostic and therapeutic measures in accordance with clinical protocols for the management of patients in the hospital and outpatient stages;
* development of students' skills of interviewing and clinical examination of patients, interpretation of the results of routine and special laboratory and instrumental methods of organs and systems diagnostics;
* formation in students of skills of statement, substantiation and formulation of the diagnosis, planning of patient’s examination, determination of their management tactics;
* formation of students' skills to carry out prevention, treatment and rehabilitation of the patient, to appoint and directly carry out treatment of patients in hospitals and outpatient stages;
* formation of skills of medical history and ambulatory card registration with the statement of all their basic sections, substantiation of the clinical diagnosis, the examination and treatment plans, definition of working capacity and indications for hospitalization, keeping diaries and registration of stage epicrisis while working with gastroenterological patients.

**3. Discipline status** - elective, **discipline format** - mixed (combination of traditional forms of classroom learning with elements of e-learning on the platforms Moodle, ZOOM, Google Meet), face-to-face and distance counselling.

**4. Teaching methods.** Types of educational activities of students according to the curriculum are: a) practical classes, b) self-work.

Thematic plans of practical classes and SST ensure the implementation of all topics included in the discipline in the educational process.

The method of organizing clinical practical classes in gastroenterology requires:

* to make the student a participant in the process of providing medical care to patients from the moment of their hospitalization, examination, diagnosis, treatment to discharge from the hospital;
* to master professional practical skills; skills of work in a team of students, doctors, other participants of medical care;
* to form the responsibility of the student as a future specialist for the level of his training, its improvement during training and professional activity. To implement this in the first lesson, each student is given a detailed plan of his work in the clinic and provides the organization of its implementation.

This plan includes:

* research methods that the student must learn (or get acquainted with);
* algorithms (protocols) of examinations, diagnosis, treatment, prevention in accordance with the standards of evidence-based medicine;
* the number of patients for curation, which must be carried out by the student during the training cycle;
* reports of the patient's medical history in the study group, at clinical rounds, practical conferences.

Patient supervision involves:

1. clarification of the patient's complaints, anamnesis morbi and vitae, conducting a survey by organs and systems;
2. conducting a physical examination of the patient and determining the main symptoms of the disease;
3. analysis of laboratory and instrumental examination of the patient;
4. formulation of the patient's diagnosis;
5. appointment of treatment;
6. determination of primary and secondary prevention measures;
7. report on the results of examination of the patient by a team of students in the study group, analysis under the guidance of the teacher of the correctness of the diagnosis, differential diagnosis, the scope of the examination, treatment tactics, assessment of prognosis and performance.

SST and individual work of students includes:

* preparation for practical classes on planned topics;
* work of students in the departments of the clinical base of the department, including laboratories and offices of functional diagnostics; interpretation of data of laboratory and instrumental methods of research at internal pathology;
* mastering practical skills with the help of phantoms and working with patients (according to the list)
* individual self-work (speech at the scientific-practical conference of the clinic, writing articles, report of the abstract in a practical lesson, participation in competitions, etc.);
* work in the simulation class of the Educational and Scientific Institute for Quality of Education of the KhNMU.

Teachers of the department provide the opportunity to carry out SST, during practical classes monitor and evaluate its implementation.

The organization of the educational process ensures the participation of students in the management of at least 2/3 of inpatients. If it is not possible to supervise patients with diagnoses on the topic of the lesson, students fill in the study history with diseases of the relevant topic. The need to write such a story is determined by the group teacher based on a review of data on the availability of relevant patients in the wards. Daily patient examination protocols are provided by the teacher for control.

Teachers ensure that each student receives the necessary competence in the following areas: questioning the patient, physical examination, oral report, making diagnostic decisions and determining treatment tactics (critical thinking), filling out documentation.

**5. Recommended information resources**

**Basic**

1. Babak O.Ya., Bilovol O.M., Zhelezniakova N.M. et al.; Internal Medicine: Critical Care: textbook (III—IV a. l.) / edited by O.Ya. Babak, O.M. Bilovol. 2018. 386 p. ISBN: 978-617-505-636-3
2. Internal Medicine: Part 1: textbook for English-speaking students of higher medical schools / edited by Professor M.A. Stanislavchuk and Professor V.K.Serkova. – Vinnytsia: Nova Knyha, 2019. – 408 p.
3. Internal Medicine: Part 2: textbook for English-speaking students of higher medical schools / edited by Professor M.A. Stanislavchuk and Professor V.K.Serkova. – Vinnytsia: Nova Knyha, 2019. – 360 p.
4. Alguire P. MKSAP 18 Gastroenterology and Hepatology. American College of Physicians. 2018. 160 p. ISBN: 9781938245503
5. Chen Y., Pitcher M., Camm C. F. Clinical Guide to Gastroenterology. 2019. 480 p.ISBN: 978-1-119-18916-9
6. Diagnostic Gastroenterology: Early Detection By Pattern Recognition Of Diseases, Complications & Complaints - A Memory Aid [Volume 1 of 3]. 2015. 724 p. ISBN: 9781492113652
7. Feldman M., Friedman L., Brandt L. Sleisenger and Fordtran’s Gastrointestinal and Liver Disease. Elsevier, 2020. 2488 p. ISBN 9780323710954.
8. Inadomi J. M., Bhattacharya R., Hwang J. H., Ko C. Yamada’s handbook of gastroenterology. 2019. 528 p. ISBN 9781119515777.
9. Kasper D. L. Harrison’s gastroenterology and hepatology. New York:McGraw-Hill Education, 2017.
10. Kuipers E.J. Encyclopedia of Gastroenterology 2nd Edition. 2019. 3420 p. ISBN 9780128124604
11. Podolsky D. K., Camilleri M., Fitz J. G., Kalloo A. N., Shanahan F., Wang T. C. Yamada’s Textbook of Gastroenterology. 2015. 3440 p. ISBN 9781118512074.
12. Sands B.E. Gastroenterology. 2014. 552 p. ISBN: 978-1-118-93273-5

**Additional**

1. Keshav S., Culver E. Gastroenterology: Clinical Cases Uncovered. 2011. 192 p. ISBN: 9781118293911
2. Lomer M. Advanced Nutrition and Dietetics in Gastroenterology (Advanced Nutrition and Dietetics (BDA)) 1st Edition. 2014. 352 p. ISBN: 978-0-470-67132-0
3. Tham T., Collins J., Soetikno R. Gastrointestinal Emergencies, 3rd Edition. 2016. 250 p. ISBN: 9781118638385
4. The European Association for the Study of the Liver. EASL Clinical Practice Guidelines.
5. World Gastroenterology Organization Global Guidelines (WGO Guidelines).
6. ESGE Guidelines. European Society of Gastrointestinal Endoscopy (ESGE).
7. Guidelines - American College of Gastroenterology. ACG guidelines.
8. British Society of Gastroenterology – BSG guidelines.
9. American Gastroenterological Association Institute Clinical Guidelines Committee. AGA Clinical Practice Guidelines.
10. KhNMU Repository (http://repo.knmu.edu.ua/) and KhNMU Library (http://libr.knmu.edu.ua/)

**6. Prerequisites and co-requisites of the discipline**

**Prerequisites** for the elective course "Gastroenterology" of the discipline (personal profile) "Internal Medicine": human anatomy, medical and biological physics, pathomorphology, pathophysiology, internal medicine propaedeutics, pharmacology, and clinical pharmacology.

**Co-requisites** of the discipline "Internal Medicine": surgery, including gastroenterology, obstetrics, endocrinology, nephrology, dermatology, immunology, hematology.

**7. Learning outcomes**: formation in students

* ability to use knowledge of etiology, pathogenesis, clinical picture, features of the course and possible complications, modern methods of clinical, laboratory, instrumental examination of patients and methods of treatment and indications for their use in gastroenterological practice;
* ability to independently acquire new knowledge, updates and integrate the acquired knowledge of gastroenterology;
* ability to assess the role of new approaches to diagnosis and treatment in the gastroenterological practice.

**THE CONTENT OF THE COURSE**

**Topics of practical classes**

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| --- | --- | --- |
| **№** | **Topic** | **Practical classes** |
|  | Management of patients with weight loss | 5 |
|  | Management of patients with heartburn and dysphagia | 5 |
|  | Management of patients with dyspepsia | 5 |
|  | Management of patients with abdominal pain | 5 |
|  | Management of patients with chronic diarrhea syndrome | 6 |
|  | Management of patients with constipation | 6 |
|  | Management of patients with melena and haematemesis | 6 |
|  | Management of patients with jaundice | 6 |
|  | Management of patients with hepatomegaly and hepatosplenomegaly syndrome | 6 |
|  | Management of patients with portal hypertension and ascites | 6 |
|  | Management of patients with acute hepatic encephalopathy | 5 |
| **Final control** | 1 |
|  | **Total hours** | **60** |

**Self-work**

|  |  |  |
| --- | --- | --- |
| **№** | **Topic** | **Number of hours** |
|  | Preparation for practical classes on topic № 1 "Management of patients with weight loss".  - Improvement of interpretation of data of anthropometric survey methods (body mass measurement, body mass index, estimation of body weight loss, evaluation of component body composition).  - Improvement of the interpretation of laboratory test data (determination of protein pools: albumin, transferrin, transtirretin, retinol-binding protein, immunological studies: absolute number of lymphocytes, skin reaction to the antigen). | 3 |
|  | Preparation for practical classes on topic №2 "Management of patients with heartburn and dysphagia "  - Improving the interpretation of GIT upper endoscopy data (EGDS) on the topic.  - Improvement of the interpretation of the data of the examination of the secretory function of the stomach (daily pH monitoring). | 2 |
|  | Preparation for practical classes on topic №3 "Management of patients with dyspepsia ".  - Improvement of data processing of the examination of the secretory function of the stomach. | 2 |
|  | Preparation for practical classes on topic №4 "Management of patients with abdominal pain".  - Improvement of the data interpretation of the endoscopic examination of the digestive tract (EGDS, colonoscopy) on the topic.  - Improving the interpretation of the results of biochemical blood studies (total protein of blood and its fractions, blood transaminases, total bilirubin and its fractions, alkaline phosphatase, alpha amylase, GGTP). | 3 |
|  | Preparation for the practical classes on topic №5 "Management of patients with chronic diarrhea syndrome ".  - Improving the interpretation of GIT endoscopy data (colonoscopy) on the topic.  - Improvement of the treatment of test results (with 13C-urine, 13C triglycerides, 13C-starch, 13C-lactose and a hydrogen test with glucose and lactulose).  - Improving the interpretation of faecal elastase-1 data. | 3 |
|  | Preparation for practical classes on the topic №6 " Management of patients with constipation".  - Improvement of the interpretation of coprogram data. | 2 |
|  | Preparation for practical classes on the topic №7 " Management of patients with melena and haematemesis".  - Improvement of the interpretation of EGDS, colonoscopy results on the topic.  - Improvement of the method of determining the blood group and the transfusion of blood components and blood substitutes. | 3 |
|  | Preparation for practical classes on topic №8 "Management of patients with jaundice ".  - Improvement of interpretation of data of multi-moment duodenal sensing and microscopic and biochemical examination of bile.  - Improvement of the interpretation of data of ultrasound examination of the liver, gallbladder and biliary tract on the topic. | 2 |
|  | Preparation for practical classes on the topic №9 "Management of patients with hepatomegaly and hepatosplenomegaly syndrome".  - Improved interpretation of the results of biochemical blood studies (total bilirubin and its fractions, albumin, transaminases of blood serum, total protein of blood and its fractions, alkaline phosphatase, alpha amylase, GGTP).  - Improvement of the interpretation of ultrasound data of the abdominal organs on the topic. | 3 |
|  | Preparation for practical classes on topic №10 "Management of patients with portal hypertension and ascites".  - Improving the interpretation of GIT endoscopy data (EGDS) on the topic. | 2 |
|  | Preparation for practical classes on the topic №11 "Management of patients with acute hepatic encephalopathy ".  - Improvement of data interpretation of laboratory tests (ALT, AST, creatinine, total bilirubin with fractions, coagulogram).  - Improving the interpretation of ultrasound data | 3 |
|  |  | **28** |
|  | **Individual tasks**  Report of the abstract in a practical lesson.  Report at clinical conferences of departments.  Report of medical history in a practical lesson.  Writing of abstracts and articles  Participation in competitions and conferences. | 2 |
|  | **In total** | **30** |

**Discipline policy and values**

**Discipline requirements**. To achieve the goal of training and successfully complete the course, it is necessary: to join the work from the first day; regularly attend practical classes, read the material beforehand, before its consideration at the practical lesson; perform all necessary tasks and work every day; be able to work with a partner or in a group; ask for help and get it when you need it.

**Class attendance and behavior.** Students must not be late or miss classes; come to the department dressed in a medical gown, have indoor shoes, have a stethoscope, mask, gloves, notebook, and pen. Before the classes at the clinical base of the department, students must undergo a medical examination and have a health book with permission to work in a medical institution.

**Use of electronic gadgets.** The use of electronic gadgets (mobile phone, tablet) is not allowed during practical classes and during all types of control.

**Academic Integrity Policy**. Copying and plagiarism in the preparation of student research papers are not allowed. At the first lesson, teachers inform students about what exactly is considered plagiarism and how to properly conduct research.

**Policy for people with special educational needs**. Students with special educational needs should meet with the teacher or warn him before the start of classes, at the request of the student it can be done by the head of the group. If you have any questions, please contact the teacher.

**Recommendations for successful discipline.** To successfully complete the discipline, the student must be active during practical classes and perform the required minimum of academic work.

**Incentives and penalties.** Students can receive additional points for individual tasks: namely a report at clinical conferences of the department, a report of an abstract in practical lesson, a report on the patient's medical history in practical lesson, writing abstracts, articles, participation in national competitions, a report at scientific conferences of the university, Ukraine and abroad.

The number of points accrued for different types of individual tasks depends on their scope and significance, but not more than 10 points. They are added to the amount of points earned by the student in the classes during the current academic activity. In any case, the total amount of points for the current educational activity may not exceed 120 points.

**Safety precautions.** All students must be instructed in safety, which is conducted at the beginning of the first lesson. The briefing is conducted by a teacher of the academic group or a responsible person, in accordance with the instructions approved by the order of KhNMU with an entry in the relevant register.

**The procedure for informing about changes in the syllabus:** the necessary changes in the syllabus are approved by the methodical commission of KhNMU for professional training of therapeutic disciplines and published on the website of KhNMU, the website of the Department of Internal Medicine № 1 KhNMU.

**Evaluation policy**

**Evaluation system and requirements.**

*Current educational activities* are carried out and controlled by the teacher of the academic group, after students master each topic of the discipline; it is graded using a 4-point (traditional) system: "excellent", "good", "satisfactory" and "unsatisfactory".

*The final lesson* is held after the logically completed part of the discipline, consisting of a set of educational elements of the curriculum, which combines all types of training (theoretical, practical, etc.) elements of educational and professional program (academic discipline, all types of practices, certification), which is implemented by appropriate forms of educational process.

The final lesson is held in accordance with the curriculum during the semester on schedule, during classes. Admission of the final lesson is carried out by the teacher of the academic group or the exchange of related groups between teachers. Forms of the final lesson are standardized and include control of all types of training (theoretical, practical, independent, etc.) provided by the curriculum of the discipline:

**The evaluation contains:**

1. Solving a set of test tasks on the content of educational material in the amount of 30 tests (open database of test items for licensing examination "Krok-2". Evaluation criterion - 90.5% of correctly solved tasks);
2. Assessment of the development of practical skills (assessment criteria - "performed" or "failed");
3. During the assessment of the student's knowledge on theoretical issues included in this final lesson, the student is given a traditional grade, which is converted into a multi-point scale together with grades for current learning activities.

Recalculation of the average assessment of current educational activity in the multi-scale scale of ECTS is carried out in accordance with the "Instructions for assessing the educational activity of students of KNMU».

The minimum number of points that student must score for admission to the exam - 70 points, the maximum number of points that a student can score - 120 points.

*The final semester control* is carried out after the completion of the study of the discipline in the form of a **differentiatedcredit** by the teacher of the group in the last lesson.

Differentiated credit includes:

1. Solving a set of test tasks, which includes basic (anchor) test tasks in the amount of 30 tests. Evaluation criterion - 95-100% of correctly solved tasks, "passed - failed".
2. Assessment of the acquisition of practical skills and theoretical knowledge on all topics of the discipline. Assessment of practical skills is carried out according to the criteria of "performed", "failed".
3. Tasks for practical and professional training, reflecting the skills and abilities during the supervision of thematic patients, evaluation of laboratory and instrumental research methods for diagnosis and selection of treatment tactics, which are defined in the lists of discipline-based curriculum (DBC) and education and qualification characteristics (EQC) of specialties.
4. Tasks for diagnosis and treatment for emergencies (within the WCD and EQC).
5. Performing medical manipulations according to List 5 "Industry Standards".

The minimum positive grade on the exam is 50 points. The maximum number of points is 80 points. If the exam is not passed, the dates of re-setting during the holidays are set, until the beginning of the next semester.

**Elimination of academic debt (working off).** Work is carried out according to the schedule (daily and on Saturdays) in full-time or distance form, within 30 days from the date of admission free of charge; after 30 days - paid or free with the permission of the dean.

**Control questions, tasks for independent work**

List of theoretical questions to prepare for differential credit:

1. Management of patients with weight loss: algorithms and standards of diagnosis and treatment.
2. Management of patients with heartburn and dysphagia: algorithms and standards of diagnosis and treatment.
3. Management of patients with dyspepsia: algorithms and standards of diagnosis and treatment.
4. Management of patients with abdominal pain: algorithms and standards of diagnosis and treatment.
5. Management of patients with diarrhea: algorithms and standards of diagnosis and treatment.
6. Management of patients with constipation: algorithms and standards of diagnosis and treatment.
7. Management of patients with melena and haematemesis: standards of diagnosis and emergency treatment at the pre-hospital and hospital stages.
8. Management of patients with jaundice: algorithms and standards of diagnosis and treatment.
9. Management of patients with hepatomegaly and hepatosplenomegaly syndrome: algorithms and standards of diagnosis and treatment.
10. Management of patients with portal hypertension and ascites: algorithms and standards of diagnosis and treatment.
11. Management of patients with acute hepatic encephalopathy: standards of diagnosis and emergency treatment at the pre-hospital and hospital stages.

**List of practical work and tasks for differentiated credit**

* Work with the patient:
* Receiving patient complaints, information about medical history, life anamsesis;
* Receiving the information about the general condition of the patient (consciousness, constitution, fatness) and appearance assessment (examination of the skin, subcutaneous fat, palpation of lymph nodes, thyroid and mammary glands), examination of the musculoskeletal system, joints;
* Examination of the respiratory system (chest examination, palpation of the chest, percussion and auscultation of lungs);
* Examination of the cardiovascular system (visual examination and palpation of the heart and blood vessels, percussion of heart and auscultation of heart and blood vessels);
* Examination of the digestive system (visual examination, percussion, superficial and deep palpation);
* Examination of the musculoskeletal system (visual examination, palpation, determination of motion range);
* Examination of the urinary system (visual examination of the lumbar region, palpation of the kidneys).
* Identify the leading symptom or syndrome (List 1).
* Make a suspected (preliminary) or syndromic diagnosis of the disease (List 2).
* Assign and justify laboratory and / or instrumental examination of a patient with common diseases in the clinic of internal medicine (List 2).
* Make a plan for the examination and justify the application of each non-invasive and invasive diagnostic method used in the internal medicine clinic.
* Interpret the results of laboratory and instrumental examination (List 4)
* Make a differential diagnosis for the main symptoms and syndromes (List 1).
* Make a clinical diagnosis (list 2).
* Determine the principles and nature of treatment (conservative, surgical) disease (List 2).
* Determine the necessary regimen and diet of a patient with common diseases in the clinic of internal medicine (list 2).
* Perform medical procedures (list 5).
* Determine the tactics of secondary prevention of patients subject to dispensary observation.
* Maintain medical documentation.

**List 1 (syndromes and symptoms)**

1. Ascites
2. Chest pain
3. Stomach ache
4. Hemorrhagic syndrome
5. Hepatomegaly and hepatolienal syndrome
6. Dyspepsia
7. Dysphagia
8. Jaundice
9. Dyspnea
10. Constipation
11. Fever
12. Edema syndrome
13. Loss of consciousness
14. Heartburn
15. Portal hypertension
16. Chronic diarrhea syndrome
17. Joint syndrome
18. Fatigue
19. Gastrointestinal bleeding

**List 2 (diseases)**

**Diseases of the digestive system**

1. Chronic esophagitis and gastroesophageal reflux disease.
2. Chronic esophagitis and gastroesophageal reflux disease.
3. Functional stomach, gallbladder, biliary tract and intestine disorders.
4. Chronic gastritis and duodenitis.
5. Peptiс stomach and duodenum ulcer.
6. Celiac disease and other enteropathies.
7. Nonspecific ulcerative colitis, Crohn's disease.
8. Gallstone disease; chronic cholecystitis.
9. Chronic hepatitis.
10. Liver cirrhosis.
11. Chronic pancreatitis.

**List 4 (laboratory and instrumental examination methods)**

1. Chronic pancreatitis.
2. Analysis of ascitic fluid
3. A urine test for diastase
4. Nechiporenko's urine test
5. Zymnytsky's urine test
6. Acute-phase proteins (APPs), total blood protein and its fractions
7. Complete blood count
8. Clinical urine tests, test for microalbuminuria
9. Blood electrolytes test
10. Enzyme-linked immunosorbent assay, immunochemical, molecular biological blood test
11. Coagulogram
12. Stool tests
13. Creatinine and blood urea, glomerular filtration rate
14. Lipid profile of blood
15. Alkaline phosphatase, alpha-amylase of blood
16. Markers of viral hepatitis
17. Microbiological tests of biological fluids and secretions
18. Indicators of acid-base status of blood
19. Serological reactions in autoimmune diseases
20. Blood uric acid
21. Glucose tolerance test, glycemic profile, C-peptide, glycated hemoglobin
22. Blood transaminases, total bilirubin and its fractions
23. Fecal elastase-1
24. Examination of bile
25. Electrocardiographic examination
26. Echocardiography
27. Endoscopic examination of the digestive tract
28. Tests with dosed load
29. Abdominal radiograph
30. Chest radiograph
31. Catheter Angiography
32. Stomach and esophagus pH test

**List 5 (medical manipulations)**

1. Measure blood pressure
2. Record the ECG in 12 leads
3. Inject drugs

**Know the clinical pharmacology of the main groups of drugs**

1. α and β-adrenergic receptor agonists
2. Antianginal
3. Antiarrhythmic
4. Antibacterial
5. Antihypertensive
6. Anticoagulants
7. Expectorants
8. Hemostatics
9. Glucocorticoids and cytostatic immunosuppressants
10. Diuretics
11. Proton pump inhibitors
12. H2-histamine blockers
13. Nonsteroidal anti-inflammatory drugs
14. Cholinolytics

**Rules for appealing the assessment.** The student can appeal his positive assessment in accordance with the "Instructions for assessing the educational activities of students of KhNMU."

**Head of Department of**

**Internal medicine №1**

**Doctor of Medical Science, Professor O. Ya. Babak**