**INTERNATIONAL HIGHER SCHOOL OF MEDICINE**
**Department**
**of Introduction to therapy and family medicine**

# SYLLABUS

Module «Gastrointestinal system»
2025-2026 academic year
for students of medical faculty 2 course 4 semester
4 credits (120 h, including auditoria 76 h. independent work - 46 h)

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| **Lecturer:** | |
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| Introduction to pediatrics | Subanbekova G M +996770701919 |
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| Radiology | As per timetable |
| Pathophysiology | As per timetable |

The Syllabus is considered
at the meeting of the department
of Introduction to therapy and family medicine
Protocol № 8 dated 24.01.2026
Head of the department Kamchybekova A.A._____

**Course Objective:** mastering the complex foundations of theoretical knowledges, practical skills and abilities for physical and laboratory-instrumental methods of examination in patients with damages of the gastrointestinal tract (GIT) with the study of the characteristics of the course of diseases in children, as well as the principles of treatment and prevention of syndromes affecting to the digestive system of adult patients and children.

After study of the discipline the student must:

**Knowledge:**

- a scheme of medical history that determines the sequence of examining a patient with gastrointestinal diseases using physical, clinical, laboratory, functional and instrumental methods;
- main symptoms and syndromes of pathological lesions of the gastrointestinal system(GIS), mechanisms of their development and methods for their detection;
- patterns of functioning of the organs of GIS, mechanisms of development of the main symptoms and syndromes, as well as methods for their detection;
- the essence of methods for clinical, laboratory and functional examination of adults and children;
- the essence of normal biochemical processes at the level of organs, systems and the body as a whole, as well as standards for the results of biochemical and clinical studies in diseases of the GIS;
- etiology, pathogenesis, clinical and laboratory criteria, principles of treatment of gastrointestinal bleeding.

**Skill:**

- collect the necessary information, describe all sections of the "student's" medical history carefully and competently, recording all the necessary data reflecting the course of clinical thinking in the process of diagnosing and choosing treatment tactics for gastrointestinal diseases;
- analyze and synthesize information about identified pathological symptoms and syndromes of GIT diseases and prescribe an adequate examination for the purpose of reliable diagnosis of diseases;
- identify the main symptoms using physical examination methods and group them into syndromes based on knowledge of the anatomical and physiological characteristics and patterns of functioning of the GIT;
- analyze the results of clinical, laboratory and functional examination of an adult person and child, taking into account their specifics in order to diagnose the main diseases of GIS;
- recognize and interpret the results of biochemical and clinical studies, identifies logical relationships between changes in biochemical parameters and the clinical state of the body;
- diagnose emergency and life-threatening conditions and determine the basic principles of first aid.

**Attitude:**

- demonstrate practical skills in collecting patient complaints, his medical history, conducting a physical examination in accordance with the medical history chart at the bedside of a patient with gastrointestinal pathology;
- skills in the practical use of methods aimed at identifying the main pathological symptoms and syndromes of GIS in order to reliably diagnose GIT diseases;
- skills in physical examination of patients aimed at identifying the main pathological symptoms and syndromes of GIT for the purpose of reliable diagnosis of diseases;
- skills in conducting basic clinical, laboratory and functional examinations of adults and children;
- skills in making a primary diagnosis based on the results of biochemical and clinical studies for gastrointestinal diseases;
- skills in determining the scope of first medical aid in emergency and life-threatening conditions.

**Pre-requisites:**

- Macroanatomy and microanatomy
- Normal physiology
- Biochemistry
- Introduction to therapy (physical examination of gastrointestinal system of healthy person).

**Post-requisites:**

- all clinical subjects
- clinical training «Feldsher's assistant»
- clinical training «Doctor's assistant».

**THEMATIC PLAN OF LECTURES**

| № | Theme of lecture | Hours | Date |
|---|---|---|---|
| 1 | Topographical anatomy of anterior wall of abdomen. Borders. External formation. Topographical anatomy of esophagus, stomach. | 2 | According to the timetable |
| 2 | Topographical anatomy of liver, gall bladder, pancreas and spleen. Topographical anatomy of small intestine, its parts. | 2 | According to the timetable |
| 3 | Typical disorders of motor function of the gastrointestinal tract. Typical disorders of the secretory function of the gastrointestinal tract. | 2 | According to the timetable |

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| 4 | Pathophysiological characteristics of the syndromes of jaundice, cholemia, acholia. Pathophysiological characteristics of hepatic failure. | 2 | According to the timetable |
| 5 | Anatomical and physiological features of GIT in children. Techniques of GIT investigation. | 2 | According to the timetable |
| 6 | Semiotics of the digestive system diseases. The basic symptoms and syndromes of GIT disorders in children | 2 | According to the timetable |
| 7 | Radiological diagnosis of the digestive system | 2 | According to the timetable |
| 8 | Methods of examination of patients with diseases of the digestive system. Syndrome of dysphagia and esophageal bleeding. | 2 | According to the timetable |
| 9 | The syndrome of gastric dyspepsia. Peptic ulcer syndrome. The syndrome of gastro - intestinal bleeding. Criteria for clinical and laboratory diagnosis of syndromes | 2 | According to the timetable |
| 10 | Clinical syndromes of pathology of the hepatobiliary system. | 2 | According to the timetable |
| 11 | The syndrome of inflammation of the gallbladder and biliary tract. Syndrome exocrine pancreatic insufficiency. | 2 | According to the timetable |
| | Total | 22 | |

**THEMATIC PLAN OF PRACTICAL CLASSES**

| № | Theme of practical class | Hours | Date | |
|---|---|---|---|---|
| 1 | Topographical anatomy of anterior wall of abdomen. Borders. External formation. Topographical anatomy of esophagus, stomach. | 2 | According to the timetable | Topographic anatomy |
| 2 | Topographical anatomy of liver, gall bladder, pancreas and spleen. Topographical anatomy of small intestine, its parts. | 4 | According to the timetable | |
| 3 | Pathophysiological characteristics of the syndromes of jaundice, cholemia, acholia. | 2 | According to the timetable | Pathophysiology |
| 4 | Pathophysiological characteristics of hepatic failure. | 2 | According to the timetable | |
| 5 | Unit №1 | 2 | According to the timetable | |
| 6 | Anatomical and physiological characteristics of the gastrointestinal tract in children. Methods for examining the gastrointestinal tract.. | 4 | According to the timetable | Topographic anatomy |
| 7 | Basics of diarrhea in children. Abdominal pain in children. | 4 | According to the timetable | Introduction to pediatrics |
| 8 | Liver and gallbladder diseases in children. | | According to the timetable | |
| 9 | Radiology of the gastrointestinal tract. | 2 | According to the timetable | Radiology |
| 10 | Radiology of the hepatobiliary system, pancreas and spleen. | 2 | According to the timetable | |
| 11 | Unit №2 | 2 | According to the timetable | |
| 12 | Examination of a patient with dysphagia and esophageal bleeding syndrome. | 2 | According to the timetable | Introduction to therapy |
| 13 | Clinical examination and diagnosis of gastric dyspepsia, peptic ulcer, and gastrointestinal bleeding. | 4 | According to the timetable | |
| 14 | Methods for detection of intestinal syndromes, dyspepsia, malabsorption. | 2 | According to the timetable | |
| 15 | Inflammatory bowel diseases (ulcerative colitis, Crohn's disease) | 2 | According to the timetable | |
| 16 | Unit №3 | | | |

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| 17 | Methods for detecting jaundice syndrome (hyperbilirubinemia), hepatocellular insufficiency syndrome | 2 | According to the timetable | |
| 18 | Detection of diseases of the Hepatobiliary system. Portal Hypertension. Syndromes of liver damage. | 4 | According to the timetable | Introduction to therapy |
| 19 | Methods for detection of syndromes: an inflammation of the gallbladder and biliary tract. Exocrine pancreatic insufficiency. | 4 | According to the timetable | |
| 20 | Unit №4 | 2 | According to the timetable | |
| | Total | 52 | | |

**THEMATIC PLAN OF INDEPENDENT WORK OF STUDENTS**

| Unit № | Theme of independent work | Hours | Date |
|---|---|---|---|
| 1 Top anatomy and pathophysiology of GIT | 1. 1. Relationships between the abdominal and pelvic organs<br>2. 2. Physiological and anatomical stenosis of the esophagus and their clinical significance<br>3. 3. Pathophysiological characteristics<br>4. of the hereditary form of jaundice:<br>5. Gilbert syndrome, Crigler-Najjar syndrome.<br>6. 4. Pathophysiological characteristics<br>7. of the hereditary form of jaundice:<br>8. Dubin-Johnson syndrome, Rotor syndrome.<br>9. 5. Pathogenesis of the development of "aspirin"<br>10. ulcers. | 6 | According to the timetable |
| 2 Investigation and damage syndromes of GIT in children | 1. Definition and principles of physical examination of vomiting in children<br>2. Definition and principles of physical examination of diarrhea in children<br>3. Definition and principles of physical examination in children with acute abdominal pain<br>4. Definition and principles of physical examination in children with chronic abdominal pain<br>5. Functional gastrointestinal disorders: clinical diagnostic criteria, treatment principles<br>6. Autoimmune gastritis in children<br>7. Gastroesophageal reflux disease in children<br>8. Irritable bowel syndrome in children<br>9. Barium enema in the diagnosis of colitis and its conditions<br>10. Endoscopic retrograde cholecystocholangiopancreatography(ERCP) | 12 | According to the timetable |

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|---|---|---|---|
| 3 Propedtherapy of GIT | 1. Objective and instrumental methods of esophagus examination<br>2. Dysphagia syndrome<br>3. Esophageal bleeding syndrome<br>4. Principles of treatment of patients with esophageal diseases | 14 | According to the timetable |
| | 5. Mechanisms of dyspepsia<br>6. Types of gastritis<br>7. Methods of detection of HP gastritis<br>8. Differential diagnosis of functional and organic dyspepsia.<br>9. Differential diagnosis of peptic ulcers<br>10. Physical examination of patients with stomach diseases<br>11. Symptoms of gastrointestinal bleeding<br>12. Laboratory and instrumental methods of detection of peptic ulcer syndrome and gastrointestinal bleeding<br>13. Principles of treatment of patients with gastric Dyspepsia, peptic ulcer, gastrointestinal bleeding<br>14. Types of intestinal dyspepsia.<br>15. Definition and causes of malabsorption syndrome.<br>16. Signs characteristic of enzymatic dyspepsia<br>17. Signs characteristic of putrefactive dyspepsia<br>18. Laboratory and instrumental signs of intestinal syndromes | | |

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| 3 Propedtherapy of hepatobiliary system and pancreas | **Choose topic for presentation:**<br>1. Basic biochemical indicators of liver function<br>2. Physical examination of patients with liver disease<br>3. Instrumental methods for detecting liver diseases<br>4. Differential diagnosisof jaundice syndrome (hyperbilirubinemia)<br>5. Laboratory examinations of patients with hepatocellular insufficiency<br>6. Principles of treatment of patients with liver diseases.<br>7. Differential diagnosis of portal hypertension syndrome<br>8. Physical examination of patients with spleen diseases<br>9. Methods for detecting hepatomegaly<br>10. Interpretation of blood biochemical test results<br>11. Anatomy and physiology of the biliary tract and pancreas and their sizes<br>12. Differential diagnosis of various forms of biliary dyskinesia<br>13. Differential diagnosis of dyskinesia syndrome and gallbladder<br>14. Methods of examining the liver and biliary tract<br>15. Physical examination of patients with pancreatic pathology<br>16. . Symptoms of pancreatic pathology<br>17. Symptoms of gallbladder inflammation<br>18. Methods of examining the pathology of pancreatic exocrine insufficiency.<br>19. Laboratory examinations of patients with pancreatic insufficiency.<br>20. Laboratory examinations of patients with inflammatory syndromes of the gallbladder and bile ducts.<br>21. Principles of treatment of patients with inflammatory syndromes of the gallbladder and bile ducts.<br>22. . Exocrine week | 14 | According to the timetable |
| | **Total** | 46 | |

**Recommended reading for the discipline:**

**Basic:**

Patophysiology:

1. Robins and Katran «Pathologic basis of disease», 8th edition 2012
2. Harsh Mohan «Textbook of pathology», 8th edition 2019

Topanatomy:

3. B.D.Chaurasia «Human Anatomy» Volume 1-4, 8th edition 2020

Propedtherapy:

4. Barbara Bates «A guide to physical examinaton and history taking», 6th edition 2009
5. Davidson «Principles and Practice of medicine», 23rd edition 2018
6. Harrison «Principles of Internal Medicine» Volume 1-2, 16th edition 2005

Propedpediatrics:

7. Ghai «Essential Pediatrics», 8th edition 2014
8. Nelson «Textbook of Pediatrics», 21th edition 2020

Radiology:

9. Satish K. Bhargava «Textbook of radiology», 3rd edition 2007

**Additional:**

Topanatomy:

10. Frank H. Netter «Atlas of Human Anatomy», 6th edition 2011

Radiology:

11. RadiologyEducation: https://www.radiologyeducation.com/
    PubMed: https://www.ncbi.nlm.nih.gov/
    ffMedLine: https://www.nlm.nih.gov/
    Medscape: https://www.medscape.com

**Grading policy and procedures for all types of work**

For the period of studying the discipline, the student gains points for the relevant parameters (per unit):

- current score - 20 points
- independent work - 20 points
- unit/ module – 20 points
- the overall score - 60 (20+20+20)

For violations of t**he conduct policy**, the overall discipline score will be reduced by a maximum of 10 points.
For violations of **the academic ethics policy**, the overall score in the discipline is reduced by a maximum of 10 points.

**Grading system for student's achievements**

| Grading criteria per discipline | | | | |
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| Maximum score | Intervals | | | |
| | «unsatisfactory» | «satisfactory» | «good» | «excellent» |
| Current control - 20 | 0-23 | 24-30 | 31-35 | 36-40 |

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| Interval description | The student refuses to answer or when trying to answer demonstrates a complete lack of knowledge of the material.<br>No clinical task has been solved, no practical task has been completed. | The student knows the educational material partially. Incorrectly performs or disrupts the sequence of clinical examination of the patient.<br>Can apply his knowledge only in a typical familiar situation, and experiences difficulty when changing the question.<br>There are also difficulties in using special skills.<br>Can only solve typical clinical problems and has poor communication skills. | The student knows program material fluently in a familiar situation and makes two or three mistakes when answering.<br>The student confidently answers additional questions.<br>Able to apply knowledge and relevant clinical skills to a range of routine tasks.<br>There are minor errors in the preparation of the medical history or situational task.<br>Good confidence in communication skills and ability to conduct effective dialogue. | The student is fluent in educational material of varying complexity and uses information from other disciplines.<br>The student demonstrates the ability to think and perform practical work independently.<br>All tasks of the practical part were completed at a high level, clinical thinking and a non-standard approach to problem solving were demonstrated.<br>He is fluent in communication skills. |
| Independent work - 20 | 0-11 | 12-15 | 16-17 | 18-20 |
| Interval description | As above | As above | As above | As above |
| | The following are additionally taken into account<br>compliance with the expected answers;<br>correct using of the algorithm for performing actions (methodology, technology, etc.);<br>logic of reasoning;<br>original approach to the solution. | | | |
| Description of criteria by intervals | Given to the student if he does not possess the listed skills. | Given to the student if he demonstrates knowledge and understanding of most of the assignment. The student knows the categorical apparatus, can give calculation formulas, and calculate the task. | Given to the student if the task is completed with minor errors. The student masters the categorical apparatus, can classify the factors of a phenomenon, solve the problem and analyze the results obtained | Given to the student if the task is completed in full. The student knows the categorical apparatus, can classify the factors of a phenomenon, solve the problem and analyze the results obtained, explain the reasons for deviations from the desired result, defend his point of view, citing facts. |
| Control work (module) - 20 | 0-23 | 24-30 | 31-35 | 36-40 |

| Interval description | Number of correct answers to MCQs –60% or less | Number of correct answers to MCQs –60-76 % | Number of correct answers to MCQs – 76-90% | Number of correct answers to MCQs – 90% and above |
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Exam 100 points.
The exam is carried out in a form of MCQ.
Grand total score for the discipline (average score for units 100 + exam score 100 / 2) = 100 points
Grand total score for the discipline is signed into the record book.

**Conduct Policy: (lateness, absence, behavior in the auditorium, late submission of work).**
- Punctuality and completion of tasks.
- Mandatory attendance of classes.
- Attending class in a clean medical uniform.
- Eliminating conversations on a cell phone in the classroom.
- Active participation in the learning process.
- Doing homework on time.
- Academic detention at the time specified by the teacher.

For violations of the Conduct Policy, the total points for discipline might be reduced to 1-10 points.

**Academic Ethics Policy.**
- Be tolerant, respect the opinions of others.
- Formulate objections in the correct form.
- Constructively support feedback in all classes.
- Plagiarism and other forms of dishonest work are unacceptable. Plagiarism includes the following: the absence of references when using printed and electronic materials, quotes, thoughts and works of other authors or students.
- Prompting and cheating during tests, exams, classes is unacceptable as well as passing an exam for another student, unauthorized copying of materials.

For violations of the Academic Ethics Policy, the total points for the discipline may be reduced to 1-10 points.

**Guidelines for the lessons of the discipline**

Key questions covered in lesson 1. **Topographical anatomy of anterior wall of abdomen. Borders. External formation. Topographical anatomy of esophagus, stomach.**
1. General characteristics of the "anterior abdominal wall". Borders. External formation.
2. Topographic layers of the anterior abdominal wall. Topography of the umbilical part. Blood supply. Innervation of the anterior abdominal wall.
3. Topographic division of the anterior wall of the abdomen in parts, as well as a practical advantage in the study of these organs.
4. Topography of the peritoneum.
5. Topographical anatomy of esophagus. Location and description. Connection. Blood supply. Innervation. Lymph.
6. Topographical anatomy of stomach. Location and description. Connection. Blood supply. Innervation. Lymph.

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[3,10]

Key questions covered in lesson 2. **Topographical anatomy of liver, gall bladder, pancreas and spleen. Topographical anatomy of small intestine, its parts.**
1. Topographical anatomy of liver. Location and description. Important relationships. Peritoneal ligaments. Bile ducts of the liver. Hepatic ducts. The bile duct. Blood supply. Innervation. Lymph.
2. Topographical anatomy of gall bladder. Location and description. Connection. Blood supply. Innervation. Lymph. The bile duct.
3. Topographical anatomy of pancreas. Location and description. Connection. Blood supply. Innervation. Lymph. Ducts of the pancreas.
4. Topographical anatomy of spleen. Location and description. Connection. Blood supply. Innervation. Lymph.
5. Duodenum. Location and description. Parts of the duodenum. Connection. Blood supply. Innervation. Lymph.
6. Jejunum and ileum. Location and description. Connection. Blood supply. Innervation. Lymph.

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[3,10]

Key questions covered in lesson 3. **Pathophysiological characteristics of the syndromes of jaundice, cholemia, acholia.**

1. Jaundice (*icterus*), definition. General types of Jaundice.
2. Etiology, pathogenesis of pre-hepatic or hemolytic jaundice. Principal changes in bilirubin metabolism disorders.
3. Etiology, pathogenesis of intra-hepatic jaundice. Principal changes in bilirubin metabolism disorders.
4. Etiology, pathogenesis of post-hepatic jaundice. Principal changes in bilirubin metabolism disorders.
5. Holemia syndrome, definition .Etiology, pathogenesis, clinical manifestations.
6. Acholia syndrome, definition .Etiology, pathogenesis, clinical manifestations.

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[1,2]

Key questions covered in lesson 4. **Pathophysiological characteristics of hepatic failure.**

1. Etiology and pathophysiologic characterization of liver failure: Kupffer cell dysfunction, abnormalities of the normal immune response, role of traumatic, toxic, viral and ischemic factors.
2. Explain the mechanisms of liver injury and its implications for intra-abdominal bleeding.
3. What are the pathophysiologic consequences of liver failure, describe the mechanism of cardiac damage in cirrhosis and the consequences of right ventricular failure.
4. What are the different types of cirrhosis and what are their underlying causes, describe the pathogenesis of cirrhosis, indicating the different sites of collagen deposition depending on the etiology.
5. Explain the effect of liver failure:
6. Portal hypertension Syndrome. Etiology, pathogenesis of clinical manifestations of this syndrome.
7. Hepatic coma- ending stage of hepatic failure. The mechanisms of hepatic encephalopathy
8. How does a prolonged decrease in perfusion lead to ischemic liver failure and what role do catecholamines play in this process?
9. How does alcoholic cirrhosis of the liver develop and what are its main characteristics?
10. Explain the pathogenesis of biliary cirrhosis and the role of antibodies to mitochondria.
11. What is postnecrotic cirrhosis of the liver and what diseases or infections usually lead to its development?
12. Describe the role of hepatitis viruses in the development of liver failure, especially chronic HBV and HCV hepatitis, and discuss the various toxic agents that can lead to liver damage and their modes of action.

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[1,2]

Key questions covered in lesson 5. **Unit №1**

**Module questions**

1. Topography of stomach : Location and description. Skeletotopy. Relation (anteriorli, posteriorli). Describe the lymphatic drainage of the stomach. Describe the arteial and the venous blood supply of the stomach. Describe the nerve supply of the stomach.
2. Topography of duodenum: Location and description. Parts of the duodenum . Relation Skeletotopy. Describe the arteial and the venous blood supply of the duodenum. Describe the nerve supply of the duodenum. Describe the lymphatic drainage of the duodenum.
3. Topography of jejunum and ileum: Location and description. Skeletotopy. Relation Topografy of the root of the mesentery of the small intestine. Differences between the jejunum and ileum. Describe the arteial and the venous blood supply of the jejunum and ileum. Describe the nerve supply of the jejunum and ileum. Describe the lymphatic drainage of the jejunum and ileu
4. Topography of large intestine: Cecum. Location and description. Skeletotopy. Relation.
5. Topography of appendix: Location and description. Skeletotopy. Relation. Common position of the Tip of the appendix. Describe the arteial and the venous blood supply of the appendix. Describe the nerve supply of the appendix. Lymph drainage.
6. Topography of ascending and descending colon: Location and description. Skeletotopy. Relation. Describe the arteial and the venous blood supply of the ascending and descending colon. Describe the nerve supply of the ascending and descending colon. Lymph drainage.
7. Topography of transverse colon: Location and description. Skeletotopy. Relation. Describe the arteial and the venous blood supply of the transverse colon. Describe the nerve supply of the transverse colon. Lymph drainage.
8. Topography of liver and bile ducts: Location and description. Skeletotopy. Relation. Describe the arteial and the venous blood supply of the liver and bile ducts . Describe the nerve supply of the liver and bile ducts. Lymph drainage.

9. Topography of gallbladder: Location and description. Skeletotopy. Relation. Describe the arteial and the venous blood supply of the gallbladder . Describe the nerve supply of the gallbladder. Lymph drainage.
10. Topography of gallbladder: Location and description. Skeletotopy. Relation. Describe the arteial and the venous blood supply of the gallbladder . Describe the nerve supply of the gallbladder. Lymph drainage.
11. Topography of pancreas: Location and description. Skeletotopy. Relation. Describe the arteial and the venous blood supply of the pancreas . Describe the nerve supply of the pancreas. Lymph drainage.
12. Topography of peritoneum. General arrangement. Intraperitoneal and retroperitoneal relationship. Peritoneal ligaments,omenta, and mesenteries.
13. Pathophysiological characteristics of pre-hepatic or hemolytic, intrahepatic and posthepatic ictritis.
14. Etiology and mechanisms of biliary stone disease development. Localization of stones in biliary tracts and their consequences.
15. Cirrhosis, definition, types and significance of cirrhosis in the pathogenesis of liver failure.
16. Pathophysiological characteristics of liver failure: disorders of metabolism of glucose, proteins, lipids, vitamins, hormones in the liver.
17. What is liver failure and what are its main causes?
18. Name some external toxic substances and the consequences of physical trauma can harm the liver.
19. What are the pathophysiologic features of hepatitis and how can hepatitis viruses lead to liver failure?
20. What are the mechanisms of hepatotoxicity?
21. How can biliary tubule damage lead to intrahepatitis?
22. What role does glucuronyltransferase play in bilirubin conjugation and how does its absence affect bilirubin levels?
23. Describe Gilbert's syndrome and its features in terms of bilirubin metabolism.
24. How does cholestasis lead to conjugated hyperbilirubinemia in posthepatic jaundice?
25. What is "cholemia" and what symptoms are associated with it?
26. Explain the symptoms and consequences of "acholemia syndrome".
27. Define gallstone disease, describe its prevalence and risk factors and what are the two main types of gallstones and what is the composition of each?
28. What are the three factors that play a role in the mechanism of development of gallstone disease and what contribute to the formation and growth of gallstones ?
29. Acholia syndrome, definition, etiology, pathogenesis of clinical manifestations of this syndrome.
30. How is jaundice classified and what are the different types of pathologic jaundice ?
31. Explain the etiology and pathogenesis of intrahepatic jaundice, paying special attention to the role of hepatocyte function.
32. What are the possible causes of intrahepatic jaundice, including specific liver diseases
33. How do cholestatic conditions lead to increased biliary tubule pressure and subsequent hyperbilirubinemia?

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[1,2,3,10]

Key questions covered in lesson 6. **Anatomical and physiological features of gastrointestinal system in children. Clinical, laboratory and instrumental signs of the gastrointestinal disorders.**
1. Anatomy of the digestive system.
2. Stages and phases of digestion, composition of digestive juices, process of absorption of food components.
3. Features of the oral cavity, the composition of saliva, its difference from the composition of adult saliva.
4. Features of the stomach and gastric juice in children.
5. Causes of regurgitation in young children. Difference between regurgitation and vomiting.
6. Anatomical and histological structure of the liver, features of liver enzymes during the neonatal period. Synthesis and transport of bile, structure of the biliary system.
7. Anatomical and physiological features of the small and large intestines. Frequency and character of stool in different periods of childhood.

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[7,8]

Key questions covered in lesson 7. **Semiotics of the digestive system diseases. The basic symptoms and syndromes of GIT diseases in children. Peculiarities of main syndromes of Gall-bladder and Liver-pathology in children.**
1. Features of collecting anamnesis in children.
2. The most common complaints in diseases of the gastrointestinal tract (abdominal pain, the significance of their localization, nature, connection with food intake for diagnosis; vomiting and the nature of the vomit; diarrhea and its classification; constipation; heartburn; belching).
3. Methods of additional examination of the gastrointestinal tract (endoscopic, x-ray, ultrasound, laboratory methods). Standard indicators of clinical blood test, level of bilirubin and its fractions, ALT, AST, alkaline phosphatase, gamma-glutaminase, coprological examination.

4. The main syndromes of disorders of the gastrointestinal tract: syndrome of gastritis, enteritis, colitis; gastrointestinal bleeding; jaundice syndrome; liver failure syndrome; portal hypertension syndrome; malabsorption syndrome.
5. Anatomical and physiological features of the biliary system in children.
6. Definition and Diagnostic criteria of Syndrome of jaundice (Neonatal and Elder child)
7. Definition and Diagnostic criteria of Syndrome of hepato-splenomegaly.
8. Definition and Diagnostic criteria of Syndrome of acute liver failure, causes & diagnosis
9. Definition and Diagnostic criteria of Syndrome of Chronic Liver Disease. Causes, clinical features and management of Portal hypertension.

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[7,8]

Key questions covered in lesson 8. **Radiology of the gastrointestinal tract.**
1. Radiation anatomy and physiology of the esophagus.
2. Barium contrast study.
3. Radiation diagnostics of diseases of the esophagus (foreign bodies of the pharynx and esophagus, burns, diverticula, dyskinesia, hiatal hernia, esophagitis and ulcers of the esophagus, achalasia, tumors of the esophagus).
4. Radiation anatomy and physiology of the stomach and duodenum.
5. Radiation diagnosis of diseases of the stomach and duodenum (gastritis, peptic ulcer, cancer of the stomach, benign tumors of the stomach).
6. Radiation anatomy and physiology of the small and large intestine.
7. Radiation diagnosis of diseases of the small and large intestine: dyskinesia, inflammatory diseases, malabsorption syndrome, benign and malignant tumors. Mechanical and dynamic intestinal obstruction.

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[9,11]

Key questions covered in lesson 9. **Radiology of the hepatobiliary system, pancreas and spleen.**
1. Imaging methods of the liver and bile ducts.
2. Radiological anatomy of the liver, bile ducts, pancreas, and spleen.
3. Imaging pattern of liver and biliary tract lesions: diffuse and focal liver lesions, parasitic diseases, fatty liver diseases, cirrhosis, portal hypertension, malignances.
4. Biliary duct pathology: cholecystitis types, cholelithiasis, gallbladder obstruction.
5. Pancreatic pathology: acute and chronic pancreatitis, pancreatic cystic lesions, pancreatic cancer.
6. Imaging of spleen disorders

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[9,11]

Key questions covered in lesson 10. **Unit №2**
**Module questions**
1. Anatomy of the digestive system.
2. Stages and phases of digestion, composition of digestive juices, process of absorption of food components.
3. Features of the oral cavity, the composition of saliva, its difference from the composition of adult saliva.
4. Features of the stomach and gastric juice in children.
5. Causes of regurgitation in young children. Difference between regurgitation and vomiting.
6. Anatomical and histological structure of the liver, features of liver enzymes during the neonatal period. Synthesis and transport of bile, structure of the biliary system.
7. Anatomical and physiological features of the small and large intestines. Frequency and character of stool in different periods of childhood.
8. Features of collecting anamnesis in children.
9. The most common complaints in diseases of the gastrointestinal tract (abdominal pain, the significance of their localization, nature, connection with food intake for diagnosis; vomiting and the nature of the vomit; diarrhea and its classification; constipation; heartburn; belching).
10. Methods of additional examination of the gastrointestinal tract (endoscopic, x-ray, ultrasound, laboratory methods). Standard indicators of clinical blood test, level of bilirubin and its fractions, ALT, AST, alkaline phosphatase, gamma-glutaminase, coprological examination.
11. The main syndromes of disorders of the gastrointestinal tract: syndrome of gastritis, enteritis, colitis; gastrointestinal bleeding; jaundice syndrome; liver failure syndrome; portal hypertension syndrome; malabsorption syndrome.
12. Anatomical and physiological features of the biliary system in children.
13. Definition and Diagnostic criteria of Syndrome of jaundice (Neonatal and Elder child)
14. Definition and Diagnostic criteria of Syndrome of hepato-splenomegaly.
15. Definition and Diagnostic criteria of Syndrome of acute liver failure, causes & diagnosis

16. Definition and Diagnostic criteria of Syndrome of Chronic Liver Disease. Causes, clinical features and management of Portal hypertension.
17. Imaging techniques for infants and children presenting with suspected gastrointestinal pathology.
18. Neonatal intestinal obstruction imaging: esophageal atresia, duodenal obstruction, malrotation, small bowel atresia and stenosis, Meconium ileus, Colonic atresia, Hirschsprung's disease, Anorectal malformation.
19. Imaging of intestinal obstruction in infant and older children.
20. Imaging of necrotizing enterocolitis
21. Imaging of acute appendicitis
22. Imaging of inflammatory bowel disease
23. Imaging of Meckel's diverticulitis
24. Imaging of gastrointestinal trauma.

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[7,8,9,11]

Key questions covered in lesson 11. **Methods of identifying the syndrome of dysphagia and esophageal bleeding.**
1. Inquiring and examination of patients with esophageal diseases.
2. Methods for identifying and diagnostic criteria for dysphagia syndrome and esophageal bleeding.
3. Instrumental and laboratory methods for detecting diseases of the esophagus.
4. Differential diagnosis of bleeding from the esophagus (x-ray, endoscopic, Ph-metry of juice from the esophagus).
5. Interpretation of laboratory test results.
6. Solving situational cases.

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[4,5,6]

Key questions covered in lesson 12. **Methods of identifying the syndrome of gastric dyspepsia, peptic ulcer, gastro - intestinal bleeding.**
1. Inquiring and examination of patients with diseases of the stomach and duodenum.
2. Clinical and laboratory-instrumental signs of the syndromes of gastric dyspepsia, peptic ulcers, gastrointestinal bleeding.
3. Interpretation of research results (x-ray, endoscopic, Ph-metry of gastric juice).
4. Criteria for diagnosing syndromes.
5. Solving situational cases.

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[4,5,6]

Key questions covered in lesson 13. **Methods for detection of intestinal syndromes, dyspepsia, malabsorption.**
1. Inquiring and examination of patients with intestinal diseases.
2. Clinical signs of intestinal dyspepsia syndrome, malabsorption syndrome.
3. Laboratory and instrumental methods for identifying the syndrome.
4. Interpretation of survey results.
5. Solving situational cases.

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[4,5,6]

Key questions covered in lesson 14. **Unit №3**
**Module questions**
1. Anatomy and physiology of the esophagus
2. Physiology of swallowing
3. Objective and instrumental methods for studying the esophagus
4. What complaints do patients with esophageal diseases present?
5. What does dysphagia mean?
6. Identify the main symptoms of dysphagia
7. Determine esophageal bleeding syndrome
8. Principles of treatment of patients with diseases of the esophagus
9. Anatomy and physiology of the stomach
10. Mechanisms of dyspepsia
11. Types of gastritis
12. Methods for detecting HP gastritis

13. Differential diagnosis of functional and organic dyspepsia.
14. Differential diagnosis of peptic ulcers
15. physical examination of patients with gastric diseases
16. Symptoms of gastrointestinal bleeding
17. Laboratory and instrumental methods for identifying peptic ulcer syndrome and gastrointestinal bleeding
18. Principles of treatment of patients with gastric dyspepsia, peptic ulcer, gastrointestinal bleeding
19. Palpation of the sigmoid colon. Determine the clinical significance of the symptoms.
20. Palpate the cecum. Determine the clinical significance of the symptoms.
21. Types of intestinal dyspepsia.
22. Definition and causes of malabsorption syndrome.
23. What signs are characteristic of enzymatic dyspepsia
24. What signs are characteristic of putrefactive dyspepsia
25. Laboratory and instrumental signs of intestinal syndromes. Diagnostic criteria.

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[4,5,6]

Key questions covered in lesson 15. **Clinical syndromes of hepatobiliary system pathology**
1. Clinical and laboratory signs of detection of jaundice syndrome (hyperbilirubinemia).
2. Clinical and laboratory signs of detection of hepatocellular failure syndrome.
3. Differential diagnosis of jaundice.
4. Interpretation of the results of biochemical studies of blood, urine, feces.
5. Criteria for diagnosing syndromes.

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[4,5,6]

Key questions covered in lesson 16. **Methods for detection of hepatobiliary diseases. Syndrome of hepatomegaly. Portal hypertension syndrome. Syndrome of splenomegaly and hypersplenism.**
1. Methods for identifying syndromes of diseases of the hepatobiliary system (hepatomegaly, portal hypertension, splenomegaly and hypersplenism) during questioning and examination of patients.
2. Interpretation of results of laboratory and instrumental methods.
3. Criteria for diagnosis and differential diagnosis of syndromes.

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[4,5,6]

Key questions covered in lesson 17. **Methods for detection of syndromes: an inflammation of the gallbladder and biliary tract. Exocrine pancreatic insufficiency.**
1. Clinical and instrumental methods for identifying diseases of the gallbladder and biliary tract, pancreas.
2. Criteria for diagnosing the syndrome of inflammation of the gallbladder and biliary tract, the syndrome of exocrine pancreatic insufficiency.
3. Interpretation of the results of clinical, laboratory and instrumental studies.
4. Solving situational cases.

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets. \
[4,5,6]

Key questions covered in lesson 18. **Unit №4**
**Module questions**
1. Anatomy and physiology of the liver
2. Basic biochemical indicators of liver function
3. physical examination of patients with liver diseases
4. Symptoms of liver diseases
5. Instrumental methods for detecting liver diseases
6. Differential diagnosis of jaundice syndrome (hyperbilirubinemia)
7. Laboratory examinations of patients with hepatocellular insufficiency
8. Principles of treatment of patients with liver diseases.
9. Differential diagnosis of portal hypertension syndrome
10. Physical examination of patients with spleen diseases
11. Methods for detecting hepatomegaly
12. Interpretation of the results of biochemical blood tests
13. Anatomy and physiology of the biliary tract and pancreas and their sizes

14. Differential diagnosis of various forms of biliary dyskinesia.
15. Differential diagnosis of dyskinesia syndrome and gallbladder
16. Methods for studying the liver and biliary tract.
17. What complaints do patients with pathology of the gallbladder and bile ducts present?
18. What complaints are typical for patients with pancreatic pathology?
19. What diseases with pathology of the gallbladder and bile ducts do you know?
20. What diseases with pathology of the pancreas do you know?
21. physical examination of patients with pancreatic pathology
22. Symptoms of the pathology of pancreatic exocrine insufficiency.
23. Symptoms of gallbladder inflammation
24. Methods for examining the pathology of pancreatic exocrine insufficiency.
25. Laboratory examinations of patients with pancreatic insufficiency.
26. Laboratory examinations of patients with inflammation of the gallbladder and bile ducts.
27. Principles of treatment of patients with inflammation of the gallbladder and bile ducts: exocrine pancreatic insufficiency.

Recommended reading for the lesson/unit (if necessary); serial number is indicated in square brackets.
[4,5,6]

**Methodological instructions for the implementation of independent work on the discipline**

**Methodological instructions for making an abstract:**

1. To study the curriculum and the working curriculum.
2. Determine the place of the topic of this lecture in the structure of the discipline according to the thematic plan.
3. Find out all the issues that need to be studied.
4. To study material, which is in the syllabus, to clarify the amount of missing material on the basis of control questions, tasks for control work and questions submitted for the module (see the program discipline and the working curriculum).
5. Determine the literature in which there is the necessary educational material, and the sequence of its assimilation.
6. To process each educational material in the following way.
7. Read it in dynamics to understand the general essence.
8. Read the study material a second time, understanding each word and sentence
9. For the third time to identify the basic concepts, the essence of phenomena and processes, their structure and content, as well as the links between them.
10. Write it all down in a synopsis.
11. To establish a connection with the previous educational material.
12. Independently answer all control questions on this topic.

**Methodological instructions for independent work:**

1. Study the theoretical material well; master the method of applying knowledge in practice.
2. Be able to use the necessary equipment, materials, equipment for measurements.
3. To study the recommendations for specific laboratory or practical work, which are set out in textbooks and methodological developments.
4. Make a plan for laboratory or practical work.
5. Prepare the necessary material.
6. Perform tasks of laboratory or practical work.
7. Interpret the results and describe the identified phenomena.
8. Draw conclusions.
9. Draw up everything accordingly.