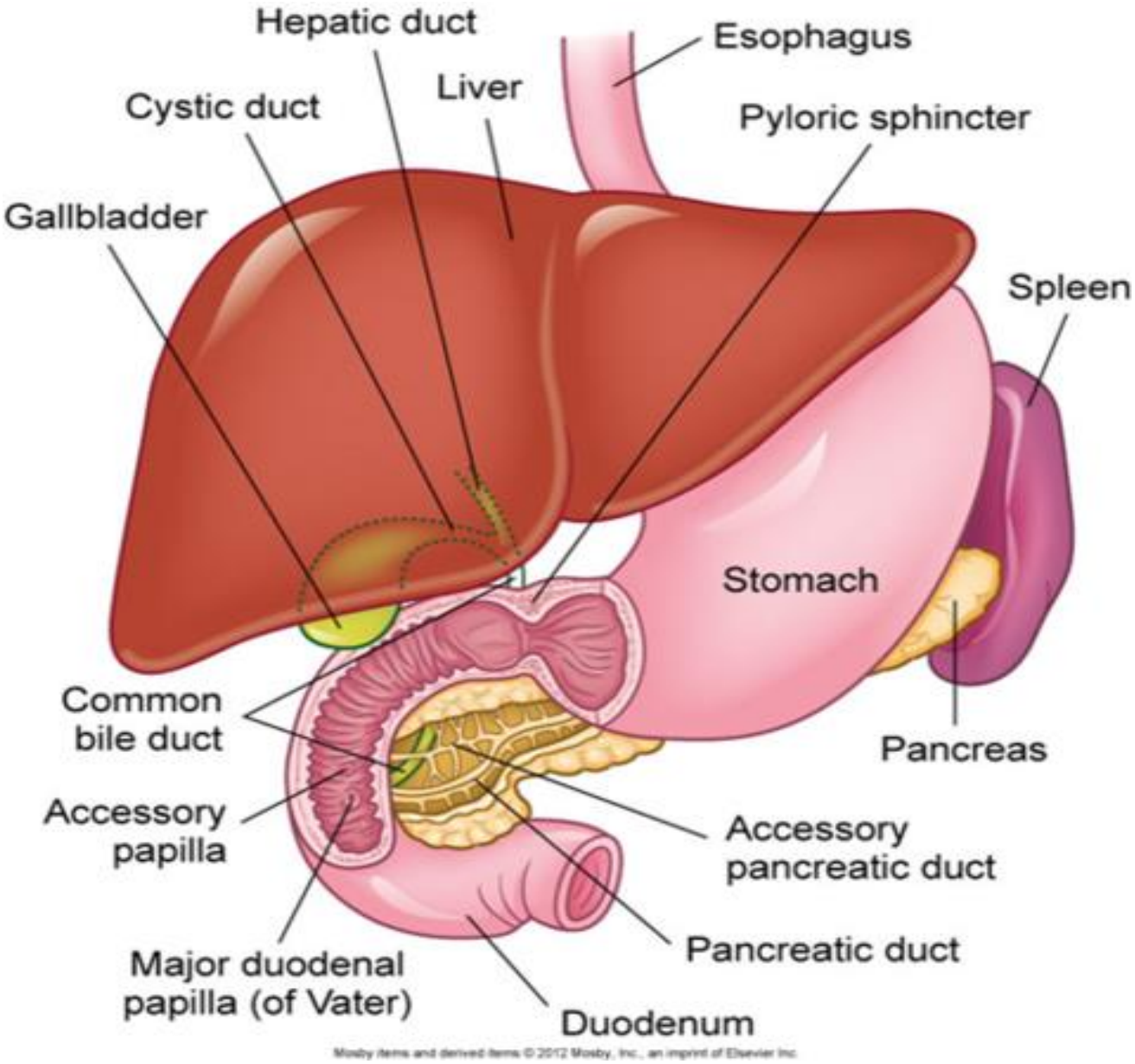
LIAQUAT NATIONAL HOSPITAL AND MEDICAL COLLEGE

Institute for Postgraduate Medical Studies & Health Science

GIT II MODULE

26-AUGUST-2024 TO 28- SEPTEMBER 2024



STUDY GUIDE FOR GIT & HEPATOBILIARY MODULE

Module name: **GIT & Hepatobiliary** *Year:* ***Three*** *Duration:* ***5 weeks (Aug-Sep 2024)***

Timetable hours: **Lectures, Case-Based Integrated Learning (CBIL), Clinical Rotations, Laboratory, Practical, Demonstrations, Skills, Self-Study**

MODULE INTEGRATED COMMITTEE

MODULE COORDINATOR:	• Prof. Tabassum Zehra (**Pharmacology**)
CO-COORDINATORS:	• Dr. Afifa Tabassum (**DHPE**) • Dr. Faiza agha (**Biochemistry**)

DEPARTMENTS & RESOURCE PERSONS FACILITATING LEARNING

BASIC HEALTH SCIENCES	CLINICAL AND ANCILLARY DEPARTMENTS
ANATOMY Professor Zia-ul-Islam	***GASTROENTEROLOGY*** • Professor M. Mansoor-ul-Haq • Dr. Shahid Karim
COMMUNITY MEDICINE Dr. Saima Zainab	
FORENSIC MEDICINE Professor Syed Mukkaram Ali	
MICROBIOLOGY Professor Shaheen Sharafat	
PATHOLOGY Professor Naveen Faridi	
PHARMACOLOGY Professor Tabassum Zehra	
DEPARTMENT of HEALTH PROFESSIONS EDUCATION • Professor Nighat Huda • Professor Sobia Ali • Dr. Afifa Tabassum • Dr. Yusra Nasir	
LNH&MC MANAGEMENT • Professor Karimullah Makki, Principal LNH&MC • Dr. Shaheena Akbani, Director A.A & R.T LNH&MC	
STUDY GUIDE COMPILED BY: ***Department of Health Professions Education***	

INTRODUCTION

WHAT IS A STUDY GUIDE?

It is an aid to:

- Inform students how the student learning program of the module has been organized
- Help students organize and manage their studies throughout the module
- Guide students on assessment methods, rules, and regulations

THE STUDY GUIDE:

- Communicates information on the organization and management of the module. This will help the student to contact the right person in case of any difficulty.
- Defines the objectives which are expected to be achieved at the end of the module.
- Identifies the learning strategies such as Interactive Lectures, small group teachings, clinical skills, demonstrations, tutorials, and case-based learning that will be implemented to achieve the module objectives.
- Provides a list of learning resources such as books, computer-assisted learning programs, web-links, and journals, for students to consult to maximize their learning.
- Highlights information on the contribution of continuous and module examinations on the student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's achievement of objectives.
- Focuses on information about examination policy, rules, and regulations.

CURRICULUM FRAMEWORK

Students will experience an integrated curriculum similar to previous modules.

INTEGRATED CURRICULUM comprises system-based modules such as Foundation II, Blood II, Locomotor II, Respiratory system-II, CVS-II, and GIT Liver II which links basic science knowledge to clinical problems. Integrated teaching means that subjects are presented as a meaningful whole. Students will be able to have a better understanding of basic sciences when they repeatedly learn about clinical examples.

LEARNING EXPERIENCES: Case-based integrated discussions, and skills acquisition in the skills lab. Computer-based assignments, learning experiences in clinics, wards, and outreach centers

LEARNING METHODOLOGIES

The following teaching/learning methods are used to promote better understanding:

- Interactive Lectures
- Tutorial
- Case- Based Learning (CBL)
- Clinical Experiences
    - Clinical Rotations
- Skills session
- Self-Directed Learning

INTERACTIVE LECTURES: In a large group, the Interactive Lectures introduce a topic or common clinical conditions and explains the underlying phenomena through questions, pictures, videos of patients' interviews, exercises, etc. Students are actively involved in the learning process.

TUTORIAL: This format helps students to clarify concepts, and acquire skills or desired attitudes. Sessions are structured with the help of specific exercises such as patient cases, interviews, or discussion topics. Students exchange opinions and apply knowledge gained from Interactive Lectures, tutorials, and self-study. The facilitator's role is to ask probing questions, summarize, or rephrase to help clarify concepts.

- **CASE-BASED LEARNING (CBL)**: A small group discussion format where learning is focused on a series of questions based on a clinical scenario. Students discuss and answer the questions by

applying relevant knowledge gained previously in clinical and basic health sciences during the module and constructing new knowledge. The CBIL will be provided by the concerned department.

CLINICAL LEARNING EXPERIENCES: In small groups, students observe patients with signs and symptoms in hospital wards, clinics, and outreach centers. This helps students relate knowledge of the module's basic and clinical sciences and prepare for future practice.

CLINICAL ROTATIONS: In small groups, students rotate in different wards like Medicine, Pediatrics, Surgery, Obs & Gyne, ENT, Eye, Family Medicine clinics, outreach centers & Community Medicine experiences. Here students observe patients, take histories and perform supervised clinical examinations in outpatient and inpatient settings. They also get an opportunity to observe medical personnel working as a team. These rotations help students relate basic medical and clinical knowledge in diverse clinical areas

SKILLS SESSION: Skills relevant to the respective module are observed and practiced where applicable in the skills laboratory.

SELF-DIRECTED LEARNING Students assume responsibilities for their learning through individual study, sharing and discussing with peers, and seeking information from Learning Resource Center, teachers, and resource persons within and outside the college. Students can utilize the time within the college's scheduled hours of self-study.

MODULE 6: GIT & HEPATOBILIARY

INTRODUCTION

Gastrointestinal and liver diseases impose a substantial burden on health, and are responsible for approximately 8 million deaths per year worldwide. Diarrheal disease is the eight leading cause of death globally and is responsible for 1.4 million deaths in 2015. Pakistan is one of the countries in MENA (Middle East and North Africa) region with the highest overall burden of Gastrointestinal and Liver Diseases including esophageal cancers, diarrheal diseases, hepatitis and cirrhosis.

This module aims to equip medical undergraduates with the essential knowledge and skills required for dealing with prevalent GI disorders in the local context. This is the second module on Gastrointestinal tract in MBBS course. This module will provide an integrative understanding of molecular processes and physiological pathways underpinning healthy and disease states in the gastrointestinal tract and hepatobiliary system. It will focus on common infections of the gastrointestinal tract, molecular factors influencing the host –pathogen interaction, the mode-of-action of common gastrointestinal therapeutics, environmental interactions, including metabolic, genetic and nutritional disorders and cancerous and non-cancerous gastrointestinal diseases.

COURSE OBJECTIVES AND STRATEGIES

At the end of the module the students will be able to:

ANATOMY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
Overview and Congenital abnormalities of GIT	Interactive Lecture
• Describe the gross anatomy of GIT	
• Discuss the clinical features of common congenital anomalies of GIT including Atresia, fistulae, duplications, Diaphragmatic Hernia, Omphalocele, Gastroschisis. Ectopia, Meckel diverticulum, Congenital hypertrophic pyloric stenosis, Hirschsprung disease	
• Discuss the relevant investigation of common congenital anomalies of GIT	

GASTROENTEROLOGY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Abdominal Examination	Small Group Session
• Perform correct abdominal examination on a patient	
2. Approach to patients with gastritis	Case Based Discussion
• Discuss the approach to a patient with Hepatitis	

COMMUNITY MEDICINE

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Introduction to nutrition	Interactive Lecture/Small Group Discussion
• Define Nutrition	
• Classify micro and macronutrients	
• List the diseases caused by micronutrient deficiencies	
• Explain prevention of micronutrient deficiencies	
2. Balanced diet and bioavailability of nutrients	
• Describe the composition of macronutrient in balanced diet	
• Describe standard nutrient intake and recommendation	
• Calculate energy value from macronutrient	
3. Food hygiene and food poisoning	Small Group

• Define food borne illness	Discussion
• Discuss physical, biological and chemical hazards of food	
• Describe the preservation of food	
• Define fortification	
• Explain food adulteration	
4. Assessment of nutritional status- Growth Chart	
• Describe nutritional assessment	
• Explain Nutritional Care Process (NCP)	
• List the tools for nutritional status	
• Explain the importance of Growth Charts	
5. Malnutrition and prevention	
• Define malnutrition	
• Classify malnutrition	
• Explain the process of assessment of malnutrition	
• Discuss control and prevention of malnutrition	
6. Hepatitis, its types and prevention	Interactive Lecture
• Classify Hepatitis	
• Discuss the clinical features of Hepatitis	
• Explain the epidemiological triangle of Hepatitis	
• Explain the control and prevention of Hepatitis	
• Discuss the Hepatitis control programme in Pakistan	
7. Enteric Fever and its prevention	
• Describe enteric fever	
• Discuss the epidemiology of enteric fever	
• Describe the measures of control and prevention of enteric fever	
8. Diarrheal diseases and its prevention	Tutorial
• Describe diarrheal disease	
• Classify diarrheal disease	
• Describe the epidemiology of diarrheal diseases	
• Explain the clinical features, assessment and diagnostic criteria of diarrheal diseases	
• Discuss measure of control and prevention of diarrheal diseases	
9. Cholera and its prevention	
• Describe cholera disease	
• Describe the epidemiology of cholera.	
• List risk factors of cholera	
• Discuss the measures of control and prevention of Cholera	
10. Worm infestations and their prevention	
• Describe worm infestation	

• Classify medically important worms	
• Describe the epidemiology of worm infestations	
• List the risk factors of worm infestation	
• Discuss measures of control and prevention of worm infestations	
11. Amoebiasis and its prevention	Interactive Lecture
• Describe Amoebiasis	
• Describe epidemiology of Amoebiasis	
• Discuss risk factors of Amoebiasis	
• Discuss measures of control and prevention of Amoebiasis	
12. Zoonotic Diseases and its prevention	Tutorial
• Describe Zoonosis	
• Classify medically important zoonotic diseases	
• Describe epidemiology of zoonotic diseases	
• Describe Scabies	
• Discuss measures of control and prevention of zoonotic diseases	
13. Leishmaniasis and its prevention	Interactive Lecture
• Describe Leishmaniasis	
• Discuss epidemiology of Leishmaniasis	
• List risk factors of Leishmaniasis	
• Discuss measures of control and prevention of Leishmaniasis	
14. Water Pollution and Water Related Diseases	Interactive Lecture
• Describe water pollution	
• List the sources of water pollution	
• Classify water related diseases	
• Discuss control and prevention of water related diseases	
15. Water Purification	
• Describe Water purification	
• Enumerate the methods of water purification	
• Explain WHO standards for water safety	

FORENSIC MEDICINE

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Regional Injuries-I (Head, injuries to scalp & Fractures of Skull)	Interactive Lecture
• Describe Injuries of the scalp including forensic aspects of anatomy of the scalp and their medico legal aspects	
• Enumerate the types of fractures of the skull and their forensic aspects	
• Explain the mechanism of production of fractures of the skull and their medico legal significance	
2. Regional Injuries-II (Intracranial hemorrhages)	

• Describe the types of intracranial haemorrhages along with forensic anatomy of blood vessels commonly involved	
• List the signs and symptoms of different types of intracranial haemorrhages and methods to diagnose them	
• Explain the medico legal aspects of intracranial hemorrhages	
3. Regional Injuries-III (Brain Injuries, Spinal Injuries)	
• Enumerate the different types of injuries to the brain and spine	
• Explain the mechanisms of brain injuries such as Concussion/Contusion/ Irritation, Coup and contre coup injuries	
• Describe the mechanism and sign and symptoms of brain injuries to boxers	
• Discuss Spinal injuries with special emphasis on Railway spine	
• Describe the medico legal aspects of brain and spinal injuries	
4. Regional Injuries-IV (Injuries of Face, Neck, Chest, Abdomen, Pelvis)	
• Describe the common injuries of medico legal significance to the face and neck including	
i. Cervical fractures	
ii. Whiplash injuries	
iii. Homicidal and suicidal cut throat	
iv. Chest injuries including traumatic asphyxia, injuries to ribs, lungs, heart with special emphasis on penetrating injuries and Commotio Cordis	
• Describe the abdominal injuries with medico legal aspects of rupture of liver, spleen, injuries to abdominal aorta and intestines	
• Discuss Pelvic injuries of medico legal significance	
5. Special Trauma-Road Traffic Accidents	
• Explain the various causes of road traffic accidents	
• Discuss briefly the fitness certificate for driving license	
• Describe the various types of injuries to pedestrians, driver and passengers	
• Discuss the use of air bags and seat belt syndrome	
• Explain the injuries to motor cyclists with special stress on tail gating	
• List the Complications of run over injuries with their medico legal significance	
6. Special trauma (Blast Injuries)	
• Define common terms related to blast injuries	
• Classify explosives	
• Discuss the physics of bomb blast	
• Describe the various types of blast injuries	
• Discuss the management of blast injuries	
7. Causes of death due to trauma	
• Describe the immediate and delayed (remote) causes of death due to wounds	
8. Forensic Psychiatry-I	
• State the salient features of Mental Health Ordinance 2001	
• Define insane person as per law	
• Differentiate between Legal and Medical Insanity	

• Describe subjective disorders as delusions, hallucinations, illusion, obsession, impulse and their medico legal significance	
9. Forensic Psychiatry-II	
• Define the various terms of medico legal significance such as affect, fugue, confabulation, I.Q, psychopath, twilight state	
• Discuss legal tests of insanity i.e. McNaughton's Rule	
• List motives of feigned insanity	
• Differentiate between true and feigned insanity	
• Explain the procedure of admission in a mental hospital	
• Discuss the civil and criminal responsibilities of insane	
10. Metallic Poisons-Arsenic and Mercury	
• Explain the sign and symptoms, diagnosis, treatment, postmortem findings and medico legal importance of acute and chronic poisoning by Arsenic and Mercury	
11. Metallic Poisons-Lead and Copper	
• Explain the sign and symptoms, diagnosis, treatment, postmortem findings and medico legal importance of acute and chronic poisoning by Lead and Copper	
12. Food poisoning	
• Enumerate the types of food poisoning	
• Differentiate between Toxin type and Infection type of food poisoning	
• Explain the sign and symptoms, diagnosis, and postmortem findings of food poisoning	
• Discuss role of forensic expert in cases of food poisoning	
13. Opium & its derivative poisons	
• Enumerate the derivatives of Opium	
• Explain the sign and symptoms, diagnosis, treatment, postmortem findings and medico legal importance of Opium poisoning	
14. Corrosives poisoning	Small Group Discussion
• Discuss the sign and symptoms, treatment and medico legal significance of corrosive poisons; including HCL, H2SO4, Nitric acid, Vitriolage	
15. Organic Acids and Alkalies	
• Discuss the sign and symptoms, treatment and medico legal significance of:	
i. Oxalic acid	
ii. Carbolic acid	
iii. Salicylic acid	
iv. Hydrocyanic acid & cyanides,	
v. Alkalies; Caustic Soda and Caustic Potash	
16. Non Metallic Poison- Phosphorus	
• Discuss the sign and symptoms, treatment and medico legal significance of Phosphorus	
17. Therapeutic poisons-II (Barbiturates, Diazepam and Tranquilizer) and common household poisons	
• Describe the mode of action, signs and symptoms depending upon concentration in blood, treatment and postmortem findings of therapeutic poisons Barbiturates, Diazepam and Tranquilizer	
• Enumerate common household poisons	
• Discuss the sign and symptoms, treatment and medico legal significance of common household poisons	
18. Drug addiction and dependence	

• Define drug addiction and dependence	
• List the drugs that cause addiction and dependence	
• Discuss their sign and symptoms, treatment and medico legal significance	

MICROBIOLOGY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Infections of the upper Gastrointestinal tract	Interactive Lecture
• List the microorganisms which causes infections of oral cavity & upper GI tract	
• Discuss the important properties of Helicobacter pylori and Candida	
• Describe the pathogenesis, epidemiology clinical findings and laboratory diagnosis of H. Pylori & Candida	
2. Infectious enterocolitis due to Escherichia coli and Mycobacterium tuberculosis	
• Define the term diarrhea	
• List the infectious causative agents of diarrhea	
• Discuss the characteristics of inflammatory and non-inflammatory diarrhea.	
• Discuss important properties, pathogenesis and clinical findings, laboratory diagnosis, treatment and prevention of diarrhea caused by Escherichia coli	
• Discuss briefly the role of Mycobacterium tuberculosis in causing diarrhea	
3. Infectious enterocolitis due to Salmonella species and Shigella	
• Describe the important properties of Salmonella and Shigella	
• List the different species of Salmonella	
• Discuss diarrhea caused by Salmonella and Shigella	
• Discuss the pathogenesis, clinical findings, laboratory diagnosis, treatment and prevention of typhoid fever and Shigella	
4. Role of viruses in infecting gastrointestinal tract	
• List the important viruses that cause gastrointestinal tract infections	
• Discuss the important properties, replicative cycle, transmission, epidemiology, pathogenesis, clinical findings, laboratory diagnosis, treatment and prevention of Polio and Rota viruses	
5. Intestinal protozoa	
• Classify major protozoan pathogens	

• Discuss the diseases, important properties, pathogenesis, epidemiology, clinical findings, laboratory diagnosis, treatment and prevention of Entamoeba histolytica and Giardia lambdia
• Discuss briefly the minor intestinal protozoa
6. Intestinal Cestodes
• Discuss the diseases, important properties, pathogenesis, epidemiology, clinical findings, laboratory diagnosis, treatment and prevention of:
i. Taenia solium
ii. Taenia saginata
iii. Diphyllobothrium latum
iv. Hymenolepis nana
v. Dipylidium caninum
7. Trematodes
• Discuss the diseases, important properties, pathogenesis, epidemiology, clinical findings, laboratory diagnosis, treatment and prevention of:
i. Schistosoma
ii. Clornorchis
iii. Paragonimus
iv. Faschiola Fasciolopsis
v. Heterophyes
8. Intestinal Nematodes-I
• Discuss the diseases, important properties, pathogenesis, epidemiology, clinical findings, laboratory diagnosis, treatment and prevention of:
i. Enterobius vermicularis
ii. Ascaris lumbricoides
iii. Strongyloides
9. Intestinal Nematodes-II
• Discuss the diseases, important properties, pathogenesis, epidemiology, clinical findings, laboratory diagnosis, treatment and prevention of:
i. Ancylostoma and Necator
ii. Trichuris trichura
iii. Trichinella
10. Anaerobic infections of the Gastrointestinal tract (peritonitis and appendicitis)
• List the microorganisms causing peritonitis and appendicitis
• Discuss briefly acute appendicitis and peritonitis
• Discuss in detail the important properties, pathogenesis, epidemiology, clinical findings, laboratory diagnosis, treatment and prevention of Bacteriodes and Prevotella
11. Hepatotropic Viruses-I
• Discuss the important properties, summary of replicative cycle, transmission, epidemiology pathogenesis, clinical finding, laboratory diagnosis, treatment and prevention of Hepatitis B, C and D
12. Hepatotropic viruses -II

• Discuss the important properties, summary of replicative cycle, transmission, epidemiology pathogenesis, clinical finding, laboratory diagnosis, treatment and prevention of Hepatitis A, E and G	
13. Bacterial and Parasitic infections relating to the liver	
• List the important protozoa, Cestodes and trematodes infecting the liver	
• Discuss in detail the important properties, pathogenesis, epidemiology, clinical finding, laboratory diagnosis, treatment and prevention of Leptospira, Echinococcosis granulosus, Echinococcosis multilocularis	
14. Stool Detailed Report	Practical
• List the clinical indications of stool detailed report	
• Describe the methods of doing stool DR	
• Discuss the physical, chemical and microscopic features of stool DR with regards to infectious and non-infectious causes	
• Identify the eggs of important worms	
15. Infectious enterocolitis due to Vibrio cholera, Campylobacter jejuni, Yersenia enterocolitica	Interactive Lecture
• Discuss the important properties, pathogenesis, clinical findings, laboratory diagnosis, treatment and prevention of vibrio cholera, Campylobacter jejuni and Yersinia enterocolitica	
16. Food Poisoning	
• Define food poisoning	
• List the causative microorganisms of food poisoning	
• Discuss briefly food poisoning due to Staphylococcus Aureus & Listeria	
• Discuss the important properties, pathogenesis,epidemiology,clinical findings, laboratory diagnosis, treatment and prevention of Bacillus and Clostridia	
• Discuss antibiotic associated pseudomembranous colitis due to Clostridium Difficile	
17. Lab diagnosis of enteric fever & GIT pathogens	Tutorial
• Discuss the important tests in diagnosing enteric fever	

PATHOLOGY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Lesions of oral cavity (Inflammatory/reactive, precancerous and cancerous)	Interactive Lecture
• Discuss apthous ulcers & fibroproliferative lesions of oral cavity	
• Discuss the characteristic features of precancerous oral cavity lesions	
• List the risk factors for oral cancer especially squamous cell carcinoma	
• Discuss the pathogenesis, molecular biology and morphology of squamous cell carcinoma	
2. Inflammation & neoplasms of salivary glands	
• Discuss sialadenitis and mucocele	
• Classify common benign and malignant tumors of salivary glands	
• Describe the characteristic features, pathogenesis and morphology of the most common salivary gland tumors	
3. Esophageal obstruction, achalasia, esophagitis & Barrett esophagus	
• Explain esophageal obstruction, varices and achalasia	

• Classify esophagitis	
• Discuss the risk factors, pathogenesis, morphology and clinical features of Barrett esophagus	
4. Esophageal tumors	Interactive Lecture/ Tutorial
• Classify tumors of esophagus	
• Explain the etiology and pathogenesis of esophageal tumors	
• Identify the morphology and common clinical features of esophageal tumors	
5. Gastritis, Stress related mucosal disease, Chronic Gastritis	Interactive Lecture
• Define Gastritis	
• Describe its pathogenesis, morphology & clinical features	
• Define stress related mucosal disease	
• Discuss its pathogenesis, morphology & clinical features	
• Explain the pathogenesis, morphology & clinical features of chronic gastritis (with special emphasis on H. Pylori gastritis and autoimmune eosinophilic, lymphocytic & granulomatous gastritis)	
6. Complications of chronic gastritis	
• Discuss risk factors, pathogenesis, morphology, clinical features & complications of peptic ulcer disease	
• Define mucosal atrophy, intestinal metaplasia, dysplasia & gastritis cystica in relation to gastritis	
• Discuss hypertrophic gastropathies	
7. Gastric polys & tumors of stomach	Interactive Lecture/ Tutorial
• Discuss the types, sites, risk factors & morphology of gastric polyps.	
• Classify gastric tumors based on macroscopic and microscopic grounds	
• Discuss epidemiology, risk factors, pathogenesis, molecular biology, morphology and clinical features of gastric adenoma & adenocarcinoma	
• Explain gastric lymphoma, carcinoid tumor and gastrointestinal stromal tumors	
8. Intestinal obstruction/ Ischemic bowel diseases/ Angiodysplasia	Tutorial
• Describe types of intestinal obstructions	
• Discuss the risk factors and morphology of intestinal obstructions	
• Describe the pathogenesis, morphology, clinical features of Ischemic bowel disease	
• Define Angiodysplasia	
• Discuss the pathogenesis and morphology of Angiodysplasia	
9. Malabsorption & Diarrhea	
• Define malabsorption & diarrhea	
• Classify diarrhea	
• Enumerate different malabsorption diseases including Cystic fibrosis, Celiac disease, environmental enteropathy, Autoimmune enteropathy, Lactase deficiency & Abetalipoproteinemia	
• Discuss the pathogenesis, risk factors, morphology and clinical features of Celiac disease	
• Discuss etiopathogenesis of Whipple disease	
10. Irritable bowel syndrome (IBS), Inflammatory bowel disease (IBD), Indeterminate colitis & Colitis associated neoplasia	Interactive Lecture
• Define irritable bowel syndrome and inflammatory bowel disease	
• Explain its pathogenesis & clinical features	
• Describe its types (Crohn & ulcerative colitis) and their pathogenesis	
• Explain the morphology and clinical features of both types of IBD	
• Differentiate between Crohn & ulcerative colitis	
• Define intermediate colitis	

• Describe long term complications of ulcerative colitis & Crohn disease	
• Define diversion colitis, microscopic colitis, sigmoid diverticulosis & graft versus host disease	
11. Polyps of small & large intestine (Familial adenomatous polyposis FAP)	Tutorial
• Classify non-neoplastic & neoplastic polyps of intestine	
• Describe its morphology & clinical features	
• Discuss briefly gastrointestinal polyposis syndromes	
12. Tumors of small & large intestines, Hemorrhoids, appendicitis, Peritonitis, tumors of anal canal & peritoneum	
• Classify tumors of intestines	
• Discuss the risk factors and pathogenesis of adenoma-adenocarcinoma sequence	
• Describe the gross and microscopic features of intestinal tumors	
• Discuss the clinical features, grading and staging of intestinal tumors	
• Discuss briefly tumors of anal canal, hemorrhoids, acute appendicitis, tumors of appendix, peritonitis & peritoneal mesothelioma	
13. General features of liver diseases	Interactive Lecture
• Describe the mechanism of injury & repair	
• Elaborate the laboratory diagnosis of hepatic diseases	
• Describe acute & chronic liver failure	
• Explain morphology & clinical features of liver failure	
• Define acute-on-chronic liver failure	
14. Hepatitis; Viral, Autoimmune & Drug Induced	
• Discuss the morphological features of viral hepatitis	
• Define autoimmune & drug induced hepatitis	
• Describe clinicopathlogic features, morphology & diagnostic criteria of autoimmune hepatitis	
• Describe patterns of drug & toxin induced hepatic injury	
• Define clinicopathologic syndromes of viral hepatitis, chronic hepatitis & carrier state	
15. Alcoholic & Non-Alcoholic Liver Disease (NAFLD)	Tutorial
• Explain the pathogenesis, morphology & clinical features of Alcoholic Liver Disease	
• Define non-alcoholic liver disease & World Health Organization criteria for the metabolic syndrome	
• Discuss the pathogenesis, morphology & clinical features of NAFLD	
16. Storage and metabolic disorders of liver	Interactive Lecture
• List the types of storage & metabolic disorders of liver	
• Discuss the genetic alterations, pathogenesis, morphology & clinical presentation of Hemochromatosis, Wilson disease and α1 anti-trypsin deficiency	
17. Cholestatic Diseases, Autoimmune Cholangiopathies. & structural anomalies of the biliary tree	
• Explain bilirubin & bile formation	
• Describe pathophysiology & causes of jaundice	
• Discuss pathogenesis & morphology of cholestasis, large bile duct obstruction, cholestasis of sepsis, primary hepatolithiasis, neonatal cholelithiasis & biliary atresia	
• Describe the pathogenesis, morphology & clinical features of primary biliary cirrhosis, primary sclerosing cholangitis	
• Define choledochal cyst & fibropolycystic disease	
18. Circulatory Disorders, Hepatic complications of organ or Hematopoietic stem cell transplantation, Hepatic diseases associated with pregnancy	Tutorial

• Describe the clinical manifestation & morphology of various circulatory disorders of liver	
• Describe morphology of graft-versus host disease & liver graft rejection, preeclampsia & eclampsia, acute fatty liver of pregnancy & intrahepatic cholestasis of pregnancy	
19. Tumors of liver	Interactive Lecture
• Classify liver tumors	
• Discuss the molecular profile, pathogenesis and morphology of benign liver tumors	
• Discuss the risk factors, pathogenesis, morphology, clinical features and diagnosis of malignant tumors of liver	
20. Pathological diseases, and tumors of gall bladder	
• Discuss the etiology, pathogenesis, gross morphological & histological features of different types of cholecystitis, cholelithiasis	
• Discuss risk factors, pathogenesis, morphology and diagnosis of carcinoma of gall bladder	
21. Non neoplastic diseases of pancreas	
• Describe non-tumorous conditions of Pancreas including congenital anomalies, acute and chronic pancreatitis	
22. Neoplastic cysts, Neoplasms of Pancreas	
• Discuss Congenital cysts & Pseudocysts	
• Discuss cystic neoplasm of Pancreas	
• Describe precursors to pancreatic cancers, and the pathogenesis, morphology & clinical features of pancreatic carcinoma	
• Define Acinar cell carcinoma & Pancreatoblastoma	
23. Laboratory diagnosis of liver disease	Tutorial
• Discuss the liver function tests	
24. Histopathology of oral cavity, salivary glands, pre-malignant & malignant lesions of esophagus	Practical
• Describe the morphology of:	
i. Leucoplakia & eythroplakia	
ii. Most common salivary gland tumors	
iii. Barrett esophagus	
iv. Squamous cell carcinoma & adenocarcinoma of esophagus	
25. Histopathology of gastric diseases and gastric tumors	
• Describe the morphological features of gastritis, and peptic ulcer disease	
• Discuss morphological features of gastric polyps, adenoma & adenocarcinoma	
26. Histopathology of polyps & intestinal tumors	
• Classify intestinal polyps	
• Discuss intestinal polyps	
• Discuss the morphological features of intestinal tumors	
27. Biochemical tests to identify microorganisms especially of the GIT	
• Identify lactose and non-lactose fermenting colonies on MacConkeys agar	
• Discuss the importance of:	
i. Triple sugar iron agar test	
ii. Sulphur Indole Motility agar test	
iii. Citrate utilization test	
iv. Urease test	

PHARMACOLOGY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Prokinetics and Anti-Emetics	Interactive Lecture/ Tutorial
• Classify prokinetic and anti-emetic agents	
• Discuss the basic & clinical pharmacology of those agents	
2. Serotonin Agonists & Antagonists (as potent anti-emetics)	
• Explain the mechanism(s) of action, therapeutic uses, adverse effects, and contraindications of serotonin agonists and antagonists	
• Explain the role of serotonin, its agonists and antagonists in different clinical conditions	
• Discuss the basic and clinical pharmacology of serotonin agonists and antagonists	
3. Drugs used in Acid Peptic Disorder including H. Pylori-I & II	Interactive Lecture
• Classify drugs used in the treatment of acid peptic disorder including H. Pylori	
• Discuss the basic & clinical pharmacology of drugs used in acid peptic disease	
• Discuss drug regimens used in the treatment of acid peptic diseases including treatment of H. Pylori associated ulcers	
• Discuss the clinical uses, adverse effects, pharmacokinetics and pharmacodynamics of notable drugs	
4. Drug Management of Viral Hepatitis (Anti-Viral Drugs-II)	
• Explain different treatment strategies for viral hepatitis	
• Discuss the basic & clinical pharmacology of drug groups used in viral hepatitis including role of Interferons	
• Discuss the basic and clinical pharmacology of various drug regimens used in viral hepatitis	
5. Laxatives (drugs used in constipation)	
• Classify laxatives/purgatives	
• Explain the pharmacokinetics and dynamics and adverse effects of laxatives/ purgatives	
6. Treatment of Amebiasis (Anti-Protozoal Drugs-II) & Diarrhea & Irritable Bowel Syndrome (IBS)	Tutorial
• Classify drugs used in the treatment of Amebiasis	
• Explain the basic & clinical Pharmacology of drugs used in the treatment of Amebiasis	
• Discuss various drug regimens used in the treatment of amebiasis, diarrhea and IBS	
7. Anti-Diarrheal Drugs & Treatment of Irritable Bowel Syndrome (IBS)	Interactive Lecture/ Case- Based Integrated Learning
• Classify anti-diarrheal drugs	
• Discuss drug treatment of infectious diarrhea	
• Explain the basic & clinical pharmacology of anti-diarrheal drugs	
• Discuss the drug treatment of IBS	
8. Anti-Helminthic Drugs	Tutorial
• Classify drugs used in the treatment of helminthic infections	
• Describe basic and clinical pharmacology of anti-helminthic drugs	
9. Treatment of Typhoid Infection	Interactive

• Discuss the drug regimens used in typhoid infection along with their basic and clinical pharmacology	Lecture
10. Preparation of Tyrode solution	Practical
• Demonstrate the preparation of Tyrode solution for practical setup	
• State its contents and their quantities for solution preparation	
• List its experimental uses	
• Explain the method of calculation for preparation of various strength of solution used experimentally	
11. Evaluate the effects of given drug on the intestine of Rabbit	
• Demonstrate the effect of different drugs on the isolated piece of Rabbit's intestine by using Power Lab System	

Apart from attending daily scheduled sessions, students too should engage in self-study to ensure that all the objectives are covered

LEARNING RESOURCES

SUBJECT	*RESOURCES*
ANATOMY	**TEXT BOOKS** 1. K.L. Moore, Clinically Oriented Anatomy
COMMUNITYMEDICINE	**TEXTBOOKS** 1. Community Medicine by Parikh 2. Community Medicine by M Illyas 3. Basic Statistics for the Health Sciences by Jan W Kuzma
FORENSIC MEDICINE	**TEXT BOOKS** 1. Nasib R. Awan. Principles and practice of Forensic Medicine 1st ed. 2002. 2. Parikh, C.K. Parikh's Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology. 7th ed.2005. **REFERENCE BOOKS** 3. Knight B. Simpson's Forensic Medicine. 11th ed.1993. 4. Knight and Pekka. Principles of forensic medicine. 3rd ed. 2004 5. Krishan VIJ. Text book of forensic medicine and toxicology (principles and practice). 4th ed. 2007 6. Dikshit P.C. Text book of forensic medicine and toxicology. 1st ed. 2010 7. Polson. Polson's Essential of Forensic Medicine. 4th edition. 2010. 8. Rao. Atlas of Forensic Medicine (latest edition). 9. Rao.Practical Forensic Medicine 3rd ed ,2007. 10. Knight: Jimpson's Forensic Medicine 10th 1991,11th ed.1993 11. Taylor's Principles and Practice of Medical Jurisprudence. 15th ed.1999 **WEBSITES:** www.forensicmedicine.co.uk
PATHOLOGY/MICROBIOLOGY	**TEXTBOOKS** 1. Robbins &Cotran,Pathologic BasisofDisease,9thedition. 2. RapidReviewPathology,4theditionbyEdwardF. GoljanMD
	WEBSITES: 1. http://library.med.utah.edu/WebPath/webpath.html 2. http://www.pathologyatlas.ro/
PHARMACOLOGY	**A. TEXTBOOKS** 1. Lippincot Illustrated Pharmacology 2.Basic and Clinical Pharmacology byKatzung

ASSESSMENT METHODS:

- MCQs (Multiple Choice Questions)
- **Objective Structured Practical/Clinical Examination (OSPE or OSCE)**
- MCQs and unobserved OSPE will be conducted on the LNH&MC Moodle platform
- Observed OSPE will constitute multiple examiner-based stations

Internal Evaluation

- Students will be assessed comprehensively through multiple methods.
- 20% marks of internal evaluation will be added to JSMU final exam. That 20% includes mid-module & end of module examinations, mid-term & pre-professional examinations.

Formative Assessment

Individual departments may hold quizzes or short answer questions to help students assess their learning. The marks obtained are not included in the internal evaluation

For JSMU Examination Policy, please consult the JSMU website!

More than 75% attendance is needed to sit for the internal and final examinations

LNH&MC EXAMINATION RULES & REGULATIONS

- Students must report to the examination hall/venue, 30 minutes before the exam.
- **The exam will begin sharply at the given time.**
- No student will be allowed to enter the examination hall after 15 minutes of the scheduled examination time.
- Students must sit according to their roll numbers mentioned on the seats.
- **Cell phones are strictly not allowed in the examination hall.**
- If any student is found with a cell phone in any mode (silent, switched off, or on) he/she will not be allowed to continue their exam.
- No students will be allowed to sit in exams without University Admit Card, LNMC College ID Card, and Lab Coat.
- Students must bring the following stationary items for the exam: Pen, Pencil, Eraser, and Sharpener.
- Indiscipline in the exam hall/venue is not acceptable. Students must not possess any written material or communicate with their fellow students

SCHEDULE:

WEEKS	3RD YEAR	MONTH
5 WEEKS	GIT & LIVER II MODULE	26TH August 2024
		28th September 2024
PRE PROF. EXAMINATION		

*Final dates will be disclosed later