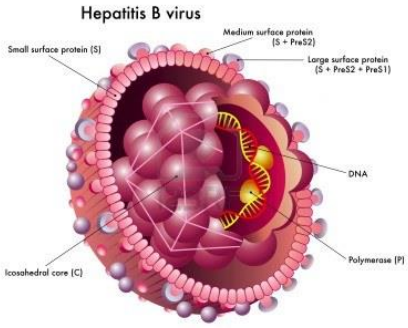
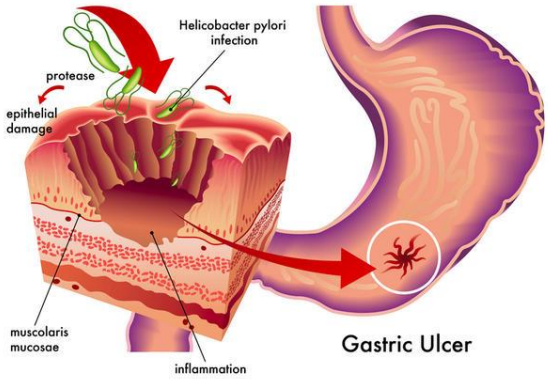
STUDY GUIDE

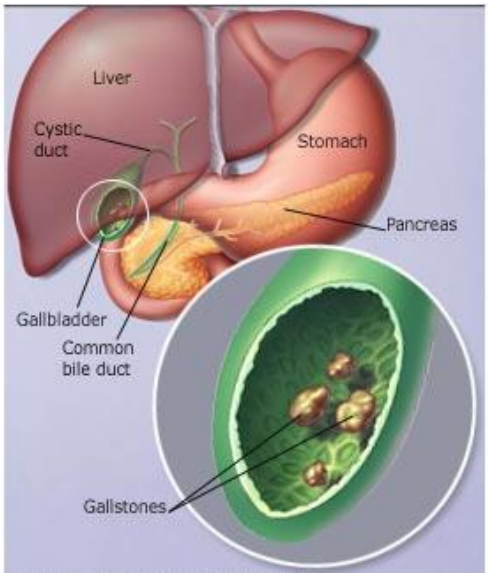
GASTROINTESTINAL TRACT & HEPATOBILIARY MODULE

THIRD YEAR MBBS SEMESTER 6

08th April – 25th May 2019







LIAQUAT NATIONAL HOSPITAL & MEDICAL COLLEGE

STUDY GUIDE FOR GIT & HEPATOBILIARY MODULE

Module name: **GIT & Hepatobiliary**
Semester: **Six** *Year:* ***Three*** *Duration:* ***7 weeks (April - May 2019)***

Timetable hours: **Lectures, Case-Based Integrated Learning (CBIL), Clinical Rotations, learning experience in LNH outreach centers, Laboratory, Practical, Demonstrations, Skills, Self-Study**

MODULE INTEGRATED COMMITTEE

MODULE COORDINATOR:	• Prof. M. Mansoor-ul-Haq (Gastroenterology)
CO-COORDINATORS:	• Dr. Afifa Tabassum (DHCE) • Dr. Shahid Karim (Gastroenterology)

DEPARTMENTS & RESOURCE PERSONS FACILITATING LEARNING

BASIC HEALTH SCIENCES	CLINICAL AND ANCILLARY DEPARTMENTS
ANATOMY • Prof. Zia-ul-Islam	***ENT*** • Prof. Shakil Aqil
PHYSIOLOGY • Prof. Syed Hafeez-ul-Hassan	***GASTROENTEROLOGY*** • Prof. M. Mansoor-ul-Haq • Dr. Shahid Karim
BIOCHEMISTRY Prof. Naheed Qadir	***GENERAL SURGERY*** • Prof. Rufina Soomro
PHARMACOLOGY • Prof. Nazir Ahmad Solangi	***PEDIATRICS*** • Prof. Samina Shamim • Dr. Nazish Azeem
FORENSIC MEDICINE • Prof. Murad Zafar Marri	***MEDICINE*** • Prof. KU Makki
COMMUNITY MEDICINE • Prof. Rafiq Soomro	***RADIOLOGY*** • Dr. Roomi Mahmud
MICROBIOLOGY • Prof. S. Khursheed Hasan Hashmi	***RESEARCH & SKILLS DEVELOPMENT CENTER*** • Dr. Kahkashan Tahir
PATHOLOGY • Prof. Naveen Faridi	
RESEARCH • Dr. Shaheena Akbani	
DEPARTMENT of HEALTHCARE EDUCATION Professor Nighat Huda Dr. Sobia Ali Dr Afifa Tabassum Dr Muhammad Suleman Sadiq Dr Mehnaz Umair	
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 Care Education	• Dr. Afifa Tabassum

INTRODUCTION

WHAT IS A STUDY GUIDE?

It is an aid to:

- Inform students how student learning program of the semester-wise 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 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 lectures, small group teachings, clinical skills, demonstration, tutorial 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, journals, for students to consult in order to maximize their learning.
- Highlights information on the contribution of continuous and semester 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 pertaining to examination policy, rules and regulations.

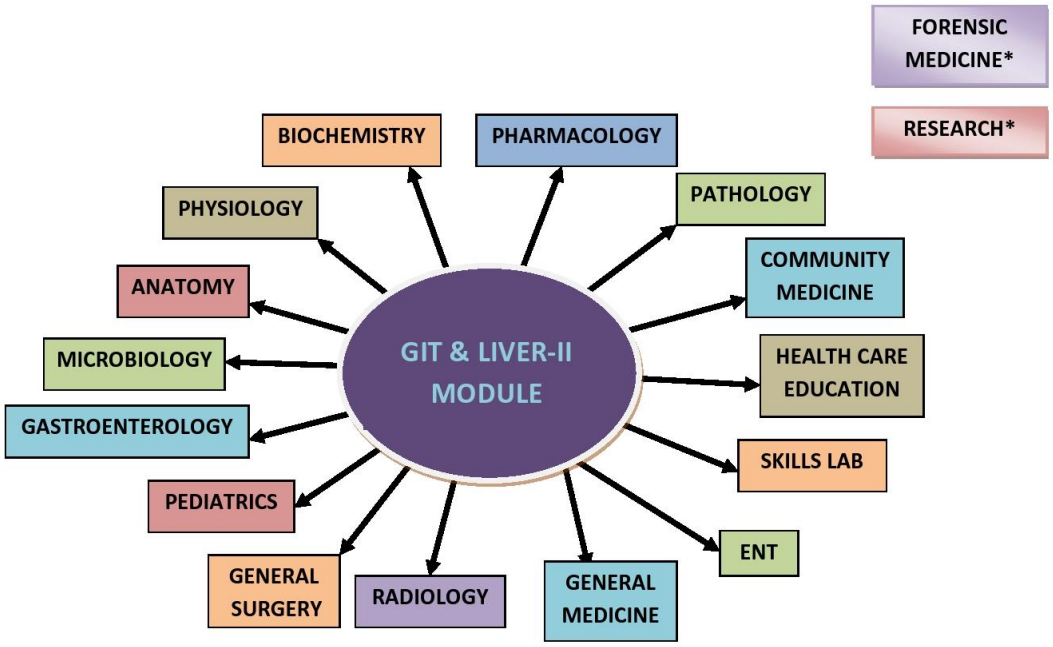
CURRICULUM FRAMEWORK

Students will experience *integrated curriculum* similar to previous modules of all 5 semesters**.**

INTEGRATED CURRICULUM comprises of system-based modules such as GIT & Hepatobiliary, Renal & Excretory System II and Endocrinology 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 better understanding of basic sciences when they repeatedly learn in relation to clinical examples.

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

INTEGRATING DISCIPLINES OF GASTROINTESTINAL TRACT (GIT) & HEPATOLOGY MODULE



Note: *Forensic Medicine Curriculum & Research will run parallel in 5th and 6th Semester

Not

LEARNING METHODOLOGIES

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

- Interactive Lectures
- Small Group Discussion
- Case- Based Discussion (CBD)
- Clinical Experiences
  - Clinical Rotations
- Skills session
- Self directed study

INTERACTIVE LECTURES: In large group, the lecturer introduces 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.

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

CASE-BASED DISUCSSION (CBD): A small group discussion format where learning is focused around a series of questions based on a clinical scenario. Students' discuss and answer the questions applying relevant knowledge gained previously in clinical and basic health sciences during the module and construct new knowledge. The CBD 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 to relate knowledge of basic and clinical sciences of the module 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 respective module are observed and practiced where applicable in skills laboratory.

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

SEMESTER 6 MODULE 1 : 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 is the second module on Gastrointestinal tract in MBBS course. In MBBS 2nd year GIT I module addressed the basics of GI tract including anatomy, physiology, biochemistry, pathology and introduction to clinical presentations.

GIT II module aims to equip medical undergraduates with the essential knowledge and skills required for dealing with prevalent GI disorders in the local context. 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.

Reference:

1. Top ten causes of death. WHO. Available from: http://www.who.int/mediacentre/factsheets/fs310/en/
2. Sepanlou, S. G., Malekzadeh, F., Delavari, F., Naghavi, M., Forouzanfar, M. H., Moradi-Lakeh, M., … Pourshams, A. (2015). Burden of Gastrointestinal and Liver Diseases in Middle East and North Africa: Results of Global Burden of Diseases Study from 1990 to 2010. *Middle East Journal of Digestive Diseases*, *7*(4), 201–215.

COURSE OBJECTIVES AND STRATEGIES

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

TOPICS & OBJECTIVES	FACULTY	LEARNING STRATEGY
OVERVIEW OF GIT & NUTRITION		
• Describe the structure of digestive system	Anatomy	Interactive Lecture
• Discuss the major dietary Carbohydrates & their sources • Discuss functions of different types of carbohydrates	Biochemistry	
• Define Glycemic Index & Glycemic load • Explain the importance of Glycemic index in dietary planning		
• Discuss qualitative proteins		
• Explain the consequences of dietary protein deficiencies & their related disorders		
• Explain Nitrogen balance, positive & negative nitrogen balance		
• Perform correct abdominal examination on a patient	Gastroenterology	Hands-on Practical session
• Explain the importance of malnutrition in children • Describe the factors that lead to malnutrition • Classify malnutrition according to Gomez and WHO classification • Differentiate between Marasmus and Kwashiorkor. • List the complications of malnutrition	Pediatrics	Interactive Lecture
ORAL CAVITY		
• Describe the structure of salivary glands along with composition and functions of saliva • Explain the regulation of salivary secretions	Physiology	Interactive Lecture
• Explain the process of mastication along with the stages of deglutition reflex		
• Perform nasogastric intubation on a mannequin	Skills Lab	Simulation Based Practice
• Discuss risk factors of oral cancer • Discuss the histo-pathology of tongue including different types of papillae	Pathology	Interactive Lecture
• List differential diagnosis of white patch / plaque in oral cavity		
• Describe precancerous lesion of oral cavity		

• Discuss step by step pathogenesis and morphology of squamous cell carcinoma		
• Discuss inflammatory disease and neoplasms of salivary gland • Describe the characteristic features, pathogenesis and morphology of the most common salivary gland tumors		Interactive Lecture
• Discuss classification of salivary gland tumor		Small Group Discussion
• Discuss the causes of dysphagia along with the clinical presentation, investigations and management plan	Gastroenterology	Interactive Lecture
• Explain the clinical manifestations of salivary gland diseases • Comprehend differential diagnosis of salivary gland dysfunction • Demonstrate knowledge of different strategies for the treatment of salivary gland disorders • Classify salivary gland tumors on histopathological ground • Describe etiology & clinical presentation of salivary gland neoplasms • Explain the management approach of a patient with salivary gland tumor	ENT	Interactive Lectures
ESOPHAGUS		
• Explain esophagitis and barret esophagus	Pathology	Interactive Lecture
• Explain the etiology and pathogenesis of esophageal tumors • Discuss the common clinical features of esophageal malignancies		Interactive Lecture
• Identify Tumors of the esophagus on basis of histo-pathological findings		Practical
• Explain major causes of upper and lower GI bleeding and important elements of the history • Discuss the guidelines for effective therapeutic strategies	Gastroenterology	Interactive Lecture
STOMACH		
• Differentiate between acute and chronic gastritis • Explain the pathology of peptic ulcer disease	Pathology	Interactive Lecture
• Identify the typical clinical presentation and risk factors for acid peptic disease • Describe appropriate diagnostic plan based on individual	Medicine	Interactive Lecture

risk factors • Explain a suitable therapeutic regimen for dyspepsia		
• Discuss common causes of pain affecting upper abdomen • Explain approach to a patient with upper abdominal pain including history taking and performing physical examination • Recommend a management plan for patient with upper abdominal pain	Surgery	Interactive Lecture
• Discuss the etiology and management of peptic ulcer • Describe the treatment and discuss pharmacological agents of H. pylori infection. • Discuss principles of infection eradication	Pharmacology	Case-Based Learning
• Differentiate between normal histology of the stomach and gastric adenocarcinoma	Pathology	Practical
• Classify gastric tumors • Discuss epidemiology, risk factors, pathogenesis, molecular biology, morphology and clinical features of gastric adenocarcinoma • Explain the significance of staging in dictating treatment and prognosis of gastric lymphomas		Interactive Lecture
• List the causes for pyloric stenosis • Identify the need for adequate fluid resuscitation and stabilization of electrolytes and acid base balance before surgical treatment • Discuss the management options for pyloric stenosis	Surgery	Interactive Lecture
LIVER		
• Classify the jaundice along with their causes	Pathology	Small Group Discussion
• Explain general features of hepatic disease which include liver failure, liver cirrhosis, portal hypertension, ascites and porto-systemic shunts		Interactive Lectures
• Explain the patterns of hepatic injury • Differentiate morphologically between acute and chronic hepatitis		
• Discuss alcoholic liver disease • Explain key morphological features of alcoholic liver disease along with its pathophysiology • Describe morphology Nonalcoholic Fatty Liver Disease (NAFLD)		
• Discuss metabolic liver disorders		

• Explain clinical presentation, mode of transhistocyte, serological features, markers and morphology of viral hepatitis	Pathology	Small Group Discussions
• Discuss a logical approach for investigations of raised liver function test and or liver disease including lab diagnosis of hepatitis • Interpret hepatitis B serologic test results		
• Discuss the types of storage disorders of liver		Interactive Lectures
• Explain circulatory disorders of liver		
• Describe the pathophysiology and clinical features of Hydatid disease		
• Describe benign liver tumors		
• Describe the risk factors of benign and malignant liver tumors		
• Discuss diagnosis, type and morphological features of hepatocellular carcinoma		
• Discuss the sign and symptoms of hepatic disease • Discuss the complications of viral hepatitis	Gastroenterology	Interactive Lecture
• Differentiate various stages of hepatitis B virus infection • Summarize the spectrum of clinical manifestations of hepatitis B virus • Explain the basic virological and serological hallmarks of hepatitis B virus infection • Discuss treatment with particular emphasis on choice of agents		Interactive Lectures
• Describe the etiology, incidence, pathology and clinical manifestations of hepatitis C infection • Illustrate updated guidelines for screening and • evaluating patients for HCV • Discuss antiviral therapy for HCV • Relate the importance of monitoring patients for antiviral treatment response and toxicities		
• Discuss clinical presentation, relevant investigation, treatment, complications and adverse effect of drugs for fulminant hepatic failure		
• Describe the classification, prevalence, and etiology of hepatic encephalopathy • Identify the different categories of diagnostic methods for hepatic encephalopathy • Define Hepatorenal Syndrome • Explain the pathophysiology of hepatorenal syndrome • Recognize the clinical assessment • Demonstrate understanding of basic therapeutic considerations • Discuss prevention of this syndrome		
• Discuss the clinical presentation, causes, relevant investigation and management plan for obstructive jaundice		

• List the causes of liver abscess • Discuss the clinical features of liver abscess • Name the investigations related to liver abscess	Gastroenterology	Interactive Lecture
• Explain with examples the pattern of drug or toxin induced liver diseases such as autoimmune hepatitis, Drug and Toxins induced hepatitis • Discuss logical approach for investigation of raised liver function tests and liver diseases	Pathology	Interactive Lecture
• Discuss hyperbilirubinemia and jaundice in children • Explain the causes of jaundice in newborns that is physiological and pathological • Discuss the clinical evaluation of neonatal jaundice along with its treatment	Pediatrics	Interactive Lecture
• Discuss the importance of imaging in recognition of normal and abnormal hepatobiliaty structures on o U/S o CT scan o MRI+MRCP o Flouroscopy o Nuclear studies	Radiology	Interactive Lecture
• Identify the signs and symptoms of viral hepatitis • Differentiate the various stages of HBV infection • Discuss the diagnostic tests • Explain prevention strategies-vaccinations for viral hepatitis A & B • Explain the treatment and management of viral hepatitis A, B, & C • Discuss new treatment protocols for viral hepatitis C	Medicine	Interactive Lecture/Case-Based Learning
• Identify the underlying causes of ascites • Describe its pathogenesis • Explain paracentesis • Discuss management strategies		Interactive Lecture
• List common causes of hepatomegaly • Discuss the clinical features of common diseases causing hepatomegaly		
• Discuss the management of acute and chronic hepatitis C • Discuss pharmacological agents used for the treatment of Hepatitis B • Discuss side effects and their management • Discuss the management of hepatitis C with co-morbidities e.g cirrhosis, transplantation or HIV • Identify the management strategy for the treatment of partial responders, nonresponders, and relapsers with HCV. • Discuss pros and cons of current treatment option for chronic HBV and HCV infection	Pharmacology	Interactive Lecture

• Discuss liver cirrhosis along with its different types and its predisposing factors • Explain the patho-physiology and clinical manifestations of liver cirrhosis • Analyze the initial evaluation of a patient with suspected portal hypertension	Pathology	Interactive Lecture
• Explain pathology of obstructive jaundice • State the investigations for obstructive jaundice • Describe management of obstructive jaundice	Surgery	Interactive Lecture
GALL BLADDER & PANCREAS		
• Classify pancreatic tumors	Pathology	Interactive Lecture
• Discuss imaging features of tumors of pancreas (Solid and cystic pancreatic tumors)		Small Group Discussion
• Explain the morphology and histological features in case of cholecystitis, cholilithiasis and carcinoma of gallbladder • Discuss extra-hepatic biliary tract pathology • Describe the morphological features in cases of acute pancreatitis, chronic pancreatitis and pancreatic adenocarcinoma		Interactive Lecture
• Discuss the management of acute and chronic cholecystitis • Enlist the pharmacological agents that can be given • List the choice of antibiotics	Pharmacology	Case-Based Learning
• Identify risk factors that contribute to the development of cholelithiasis • Explain various presentations and complications of gall stone disease • Enlist the techniques of removal of gall bladder	Surgery	Interactive Lecture/Case-Based Learning
SMALL INTESTINE		
• Discuss malabsorption • Identify the major patho-physiological mechanisms responsible for generalized malabsorption and malabsorption of specific nutrients • Discuss differential diagnosis for a patient with suspected malabsorption • Identify the most appropriate tests to identify malabsorption of specific nutrients	Pathology	Small group discussion
• Identify the various histo-pathological types of tumors of intestines		Practical
• Analyze the effect of pilocarpine on rabbit's small intestine	Pharmacology	Practical
• Analyze the effects of parasympathetic and sympathetic agents on small intestine		

• Prepare and compose Tyrode Solution along with the role of its different components		
• Discuss the differential diagnosis of an abdominal wall or inguinal mass • Describe the potential sites for abdominal wall hernias • Explain the embryology leading to the development of inguinal hernia and hydrocele • Identify anatomic differences between direct inguinal, indirect inguinal and femoral hernia • Discuss the management of paraumblical and umbilical hernia in adults and children • Discuss the clinical conditions that may predispose to development of hernia • Discuss the indications, surgical options, and normal post-operative course for Inguinal and femoral hernia repair • Discuss the clinical significance of incarcerated, strangulated, reducible and Richter's hernias • Describe clinical factors contributing to the development an incisional hernia and its repair	Surgery	Interactive Lecture
LARGE INTESTINE		
• Describe types of intestinal obstructions • Discuss risk factors and morphology of obstructions • Discuss the risk factors for enterocolitis and ischemic colitis • Describe the patho-physiology and clinical features of necrotizing enterocolitis	Pathology	Interactive Lectures
• Differentiate between diarrhea and dysentery along with the common infective agents causing diarrhea/dysentery		
• Explain pathology of inflammatory bowel disease • Differentiate between ulcerative colitis and Crohn's disease		
• Classify tumors of the large and small bowel • Discuss the pathogenisis and molecular pathway of colorectal carcinoma • Discuss the different Polyposis syndromes		
• List bacterial, viral and parasitic infections of enterocolitis	Pathology	Small group discussion
• Identify the levels of dehydration • Recognize clinical signs of dehydration • Assess dehydration in young infants and sick children • Classify diarrhoea and severity of dehydration using IMNCI charts • Develop a management plan for diarrhoea • Justify selection of plans A, B or C for dehydration based on the patient's condition	Pediatrics	Interactive Lecture

• Describe various types of acute gastroenteritis • Discuss patho-physiology and common organisms responsible for acute gastroenteritis • Identify severity of dehydration • Describe management of acute gastroenteritis and associated dehydration • Explain rationale behind ORS & its use • Describe preventive measures for acute gastroenteritis • Discuss the complications of acute gastroenteritis	Medicine	Interactive Lecture
• Discuss the classification, mechanism of action, pharmacokinetics, therapeutic uses and adverse effects of laxatives and purgatives • Enlist the drugs that promote gastrointestinal motility • Classify antiemetic drugs along with their pharmacokinetic profile and adverse effects	Pharmacology	Case-Based Discussion
• Discuss the causative factors for inflammatory bowel disease (IBD) • Explain importance of endoscopic, histological, radiological and biochemical investigations to finalize the diagnosis of Ulcerative colitis/Crohn's disease • Discuss the complications of chronic diarrhea	Medicine	Interactive Lectures
• Discuss pharmacological and surgical management of IBD • Discuss various complications of IBD		
• Discuss the causes and mechanism of malabsorption • Discuss commonest diseases associated with malabsorption such as celiac sprue , whipples disease, Short Bowel Syndrome, Bacterial overgrowth syndrome and tropical sprue • Identify the diagnostic tests for celiac disease • Describe how to effectively manage patients with Malabsorption Syndrome and celiac disease • Discuss complications of the disease		
• Discuss the aetiological factors of Irritable bowel syndrome • Diagnose Irritable bowel syndrome when given written data • Justify management plan for the given condition • Discuss complications of the disease	Medicine	Interactive Lecture
• Discuss the treatment of Irritable Bowel Syndrome (IBS) and constipation • Enlist the drugs used in IBS along with their pharmacokinetic profile	Pharmacology	Interactive Lecture

• List the main types of patho-physiologic mechanisms of abdominal pain • Describe the relative likelihood of common causes of abdominal pain according to the quadrant in which the pain is located • Discuss the signs and symptoms indicative of an acute abdomen • Describe the key diagnostic criteria for common causes of abdominal pain, based on a history, physical exam and laboratory testing • Discuss the steps in a critical pathway for patients with an acute abdomen	Surgery	Interactive Lectures
• Describe the patho-physiology of dynamic and adynamic intestinal obstruction • Discuss the cardinal features of intestinal obstruction on history and examination • Enlist the causes of small and large bowel obstruction • Recommend and infer laboratory and radiological investigations in a patient with intestinal obstruction • Discuss the basic management principles for intestinal obstruction		
• Describe surgical anatomy of the anus and anal canal • List common causes of bleeding per rectum • Discuss the important clinical features of different causes of bleeding per rectum • Outline an investigation plan for a patient with bleeding per rectum		
COMMNUNITY MEDICINE		
Health Policy • Describe the Walt and Gilson model of health policy analysis • Describe the health policy history of Pakistan • Explain the stages of health policy process • Explain the health policy issues of Pakistan • Discuss how to solve issues related to health policy of Pakistan	Community Medicine	Interactive Lectures
Leadership in health • Discuss the importance of leadership in health system of Pakistan • Describe the concept of leadership • Explain the leadership quality		

Health Programme in Pakistan • Discuss the various health care programs of Pakistan and explain their importance in enhancing quality of life • identify the issues in health program of Pakistan • discuss how to solve issues related to health programs of Pakistan	Community Medicine	Interactive Lectures
Health Planning • Discuss the different steps of the planning cycle • Describe the health planning process of Pakistan Explain the types of health planning • Discuss the planning bodies of Pakistan • Explain the health planning issues of Pakistan • Discuss how to solve issues related to health planning of Pakistan		
Health Sector Reforms • Discuss the main objectives and components of health sector reforms of Pakistan • Explain the major weaknesses and challenges of the health sector reforms • Explain health sector reforms of Pakistan • Discuss the level of health sector reforms • List the recent health sector reforms of Pakistan • Identify the components of health sector reforms		
Health Management • Discuss health care management and its basic activities • Describe the concept of Administration		
Quality of Health Care Management • Describe the concept of quality • Explain the Total Quality Management		
Research • Collect data for research proposal developed in the previous year • Describe the types of data and variables • Use a statistical package (SPSS) for entering data and later analysis • Display and summarize data sets • Apply the concepts of measures of central tendency and spread. • Describe the basic concepts of inferential statistics • Use SPSS for inferential statistics • Apply the concepts of hypothesis testing (alpa beta errors, confidence interval)		

FORENSIC MEDICINE		
Head Injuries • Enlist regional injuries • Define and classify head injuries • Recognize injuries to scalp & face including medicolegal implications	Forensic Medicine	Interactive Lectures
Fractures of Skull • Describe forensic anatomy of head (scalp, skull, face, neck and spinal cord) • Discuss types and Mechanism of production of fractures of the skull and their medico legal interpretation		Small Group Discussion
Scene of crime and lie detection • Discuss examination of scene of crime and collection of evidence for crime investigation • List uses of Psycho-physiological testing of credibility by polygraph		Small Group Discussion
Intracranial Haemorrhages • Evaluate different types of intracranial haemorrhages along with forensic anatomy of blood vessels commonly involved • Recognize signs and symptoms of different types of intracranial haemorrhages and methods to diagnose them • Discuss medico legal aspects of intracranial hemorrhages		Interactive Lecture
Brain injuries • Discuss different types of injuries to the brain and spine • Explain mechanism of brain injuries such as Concussion/Contusion/ Irritation • Describe Coup and contre coup injuries with their mechanism • Recognize brain injuries to boxers **Injuries to spinal cord** • Discuss spinal injuries with special emphasis on Railway spine • Analyze Medico legal aspects of brain and spinal injuries		Interactive Lectures
Injuries to Face& Neck • Recognize common injuries of medico legal significance to the face, • Demonstrate understanding of different cervical fractures, whiplash injuries, homicidal and suicidal cut throat,		Interactive Lecture
Injuries to thorax & abdomen • Explain chest injuries including traumatic asphyxia, injuries to ribs, lungs, heart with special emphasis on penetrating injuries and Commotio Cordis. • Discuss abdominal injuries with medico legal aspects of rupture of liver, spleen, injuries to abdominal aorta and intestines • Explain pelvic injuries of medico legal significance		Interactive Lecture

Road Traffic Accidents • List Various causes of road traffic accidents, • Identify various types of injuries to pedestrians, driver and passengers, • State complications of run over injuries with their medico legal significance	Forensic Medicine	Interactive Lecture
• Explain injuries to motor cyclists with special stress on tail gating • Recognize use of air bags and seat belt syndrome • Discuss how to issue fitness certificate for driving license		Interactive Lecture
Mass Disasters • Define 'Mass Disasters' according to World Health Organization • Describe the various methods of identification of victims • Explain the process of Triage i.e. how to categorize victims for treatment • Summarize the types of triage i.e. Simple, Advance, Reverse		Interactive Lecture
• Define questioned documents • List examples of questioned documents		Small Group Discussion
Medicolegal report and examination of person who consumes alcohol • Explain how to prepare and set out an expert report to ensure compliance with court rules		Small Group Discussion
Insanity & Forensic psychiatry-I • Define insane person as per mental health ordinance 2001 • Differentiate between Legal and Medical Insanity • Explain Procedure of admission in a mental hospital		Interactive Lecture
Mental disorders • Explain different subjective disorders as delusions, hallucinations, illusion, obsession, impulse and their medico legal significance • Define various terms of medico legal significance such as affect, fugue, confabulation, I.Q, psychopath, twilight state		Interactive Lecture
McNaughton's Rule • Describe Legal test of insanity i.e. McNaughton's Rule • Discuss Civil and criminal responsibilities of insane		Interactive Lecture
True & feigned insanity • Differentiate between true and feigned insanity • Recognize motives of feigned insanity		Interactive Lecture
Cannabis indica & Cocaine poisoning. • Discuss common preparations of Cannabis, chief symptoms of acute and chronic poisoning, run amoke and medicolegal aspects		

• Discuss signs & symptoms of acute and chronic cocaine intoxication. • Explain cocaine body packers, cocaine drug addiction **Kerosene oil poisoning/ dhatura poisoning** • Discuss signs and symptoms of kerosene oil poisoning • Discuss clinical presentation of dhatura poisoning **Drug addiction & Drug Dependence** • List the sources ofAmphetamine • State the dose of amphetamine required for toxicity and for dependence • Describe the signs and symptoms for amphetamine addiction and toxicity • Justify management plan for amphetamine addiction and toxicity • Define questioned documents • List examples of Questioned documents in Forensic investigation **Opium & its derivatives** • List the sources of Opium • State the dose of Opium required for toxicity and for dependence • Describe the Signs and symptoms for Opium addiction and toxicity • Justify management plan for Opium addiction and toxicity	Forensic Medicine	Small Group Discussions

Injuries and deaths from starvation, cold & heat
• Define and describe clinical features of injuries due to
  o starvation,
  o cold, hypothermia, frost bite, trench foot
  o heat stroke, exhaustion, cramps
• Explain postmortem findings and medicolegal importance in deaths due to
  o starvation
  o cold
  o heat
		Interactive Lecture

Thermal Injuries • Define and classify thermal injuries • Explain types of burns and effects of burns		Interactive Lecture
Burns • Calculate the surface area of burns in adults and children • Enlist causes of death due to burns • Differentiate ante mortem and postmortem burning for medico legal purposes • Enlist the postmortem findings and artifacts due to burns • Differentiate burns due to dry heat, moist heat and chemicals for medico legal purposes		Interactive Lecture

Forensic electrocution • Describe features of injuries due to various types of electrical current. Causes of death due to electrocution • Lightning injuries and lightning deaths	Forensic Medicine	Small Group Discussion

Paediatric Forensic Medicine
• Discuss the terminologies related to foetus child destruction
  ○ Infanticide
  ○ Feticide
  ○ Dead born/stillborn baby
  ○ Maceration
  ○ Criminal abortion
  ○ Concealment of birth
		Interactive Lecture

Status of Infant • Estimate Foetal age • Discuss live- born baby • Analyze Precipitate labor/ Unconscious delivery • Discuss criminal causes of death of new born babies i.e. Acts of commission and Acts of omission **Paediatric death investigation** • Explain Autopsy on bodies of new born babies • How to prepare and set out an autopsy report of cause of death to ensure compliance with court rules		Interactive Lectures
Battered baby Syndrome • Define battered Baby Syndrome or Caffey's Syndrome • Explain Etiology of Battered baby Syndrome • Recognize Clinical Features of a battered baby **Shaken baby syndrome** • Discuss injuries seen in Shaken Baby Syndrome with mechanism **Sudden infant death syndrome (SIDS)** • Relate SIDS and various possibilities of death with postmortem findings • State Medico legal importance of SIDS		Interactive Lectures
Alcohol intoxication • Describe sources, routes of absorption, metabolism and excretion of alcohol • Explain various stages of acute alcohol intoxication • State selective impairment from alcohol intoxication with special reference to human behavior and driving a motor vehicle **Medicolegal report and examination for drunkenness** • Describe clinical examination of a drunkard as proof of alcoholic intoxication • List specimens/tests required to diagnose • Prepare medico legal report of alleged alcohol intoxication case as a duty medical officer	Forensic Medicine	Interactive Lectures

Alcoholism • Explain chronic alcoholism, treatment and alcohol withdrawal syndrome • Evaluate postmortem findings of alcoholic intoxication • Describe Methyl Alcohol intoxication, its complications and postmortem findings		
Medicolegal aspects of virginity • Identify Signs of virginity on medico legal examination • Differentiate between true and false virgin on examination • Defloration along with causes of rupture of hymen • Estimate Age of a torn hymen		Interactive Lecture
Medicolegal aspects pregnancy • Calculate EDD (Expected date of delivery) • Recognize Signs of pregnancy (presumptive, probable and definite signs) • Diagnose pregnancy in medico legal cases • Explain Motives of feigned pregnancy • Discuss Abnormal forms of pregnancy • Define Legitimacy- Legitimate child as per law		Interactive Lecture
Medicolegal aspects recent delivery • Recognize Signs of recent delivery in living • Recognize Signs of recent delivery in dead • Identify Signs of remote delivery in living • Inspect Signs of remote delivery in dead • Relate Medico legal aspects of delivery	Forensic Medicine	Interactive Lectures
Marriage & Nullity of marriage (Forensic Approach) • Define Marriage • Discuss Consummation of marriage, causes of nullity of marriage and divorce from legal aspects **Artificial insemination and Surrogacy** • Describe Artificial Insemination, its types , procedure, precautions in selecting a donor and legal implications, • Discuss Surrogate mother &Surrogate birth- legal and ethical issues **Abortion** • Define Abortion • Classify its types • Discuss grounds for abortion with special emphasis on pregnancy after rape • Discuss criminal abortion & its type according to Pakistan panel code, Unskilled, semi-skilled and skilled methods of criminal abortion • List the complications of criminal abortion • List the causes of death in criminal abortion and autopsy findings		

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*
COMMUNITY MEDICINE	**TEXT BOOKS** 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 **CDs:** 1. Lectures on Forensic Medicine. 2. Atlas of Forensic Medicine. **WEBSITES:** www.forensicmedicine.co.uk
GENERAL MEDICINE	**REFERENCE BOOKS:** 1. Hutchison's Clinical Methods, 23rd Edition 2. MacLeod's clinical examination 13th edition 3. Davidson's Principles and Practice of Medicine 4. Kumar and Clark's Clinical Medicine 5. HCAI guidelines CDC

PATHOLOGY/MICROBIOLOGY	**TEXT BOOKS** 1. Robbins & Cotran, Pathologic Basis of Disease, 9th edition. 2. Rapid Review Pathology, 4th edition by Edward F. Goljan MD
	WEBSITES: 1. http://library.med.utah.edu/WebPath/webpath.html 2. http://www.pathologyatlas.ro/
PEDIATRICS	**TEXT BOOK:** 1. Basis of Pediatrics (8th Edition Pervez Akbar)
PHARMACOLOGY	**A. TEXT BOOKS** 1. Lippincot Illustrated Pharmacology 2. Basic and Clinical Pharmacology by Katzung

ADDITIONAL LEARNING RESOURCES

Hands-on Activities/ Practical	Students will be involved in Practical sessions and hands-on activities that link with the CVS II module to enhance learning.
Labs	Utilize the lab to relate the knowledge to the specimens and models available.
Skills Lab	Provides the simulators to learn the basic skills and procedures. This helps build confidence when approaching patients in real settings.
Videos	Familiarize the student with the procedures and protocols to assist patients.
Computer Lab/CDs/DVDs/Internet Resources:	To increase knowledge and motivation of students through the available internet resources and CDs/DVDs. This will be an additional advantage to meaningful learning.
Self Learning	Self Learning is when students seek information to solve cases, read through different resources and discuss among peers, and with the faculty to clarify the concepts.

ASSESSMENT METHODS:

- **Best Choice Questions (BCQs)** also known as MCQs (Multiple Choice Questions)
- **Objective Structured Practical/Clinical Examination OSPE or OSCE**

BCQs:

- A BCQ has a statement or clinical scenario of four options (likely answers).
- **Correct answer carries one mark, and incorrect 'zero mark'. There is NO negative marking.**
- Students mark their responses on specified computer-based sheet designed for LNHMC.

OSCE:

- All students rotate through the same series of stations in the same allocated time.
- At each station, a brief written statement includes the task. Student completes the given task at one given station in a specified time.
- Stations are observed, unobserved, interactive or rest stations.
- In unobserved stations, flowcharts, models, slide identification, lab reports, case scenarios may be used to cover knowledge component of the content.
- Observed station: Performance of skills /procedures is observed by assessor
- Interactive: Examiner/s ask questions related to the task within the time allocated.
- In Rest station, students in the given time not given any specific task but wait to move to the following station.

Internal Evaluation

- Students will be assessed comprehensively through multiple methods.
- 20%marksofinternalevaluationwillbeaddedintheoryofsemesterexam.That20%may include class tests, assignment, journals, and the modular exam which will all have specific marks allocation.

Example: Number of Marks allocated for Semester Theory and Internal Evaluation			
JSMU Examination	**Theory Marks**	**Internal Evaluation (Class tests +Journals + Assignments + Modular Exam)**	**Total(Theory)**
	80%	**20%**	100%

Formative Assessment

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

For JSMU Examination Policy, please consult JSMU website!

MODULAR EXAMINATION RULES & REGULATIONS (LNH&MC)

- Student must report to examination hall/venue, 30minutes before the exam.
- **Exam will begin sharp at the given time.**
- No student will be allowed to enter the examination hall after 15 minutes of scheduled examination time.
- Students must sit according to their roll numbers mentioned on the seats.
- **Cell phones are strictly not allowed in examination hall.**
- If any student is found with 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 exam without University Admit Card, LNMC College ID Card and Lab Coat
- Student must bring the following stationary items for the exam: Pen, Pencil, Eraser, and sharpener.
- In discipline in the exam hall/venue is not acceptable. Students must not possess any written material or communicate with their fellow students.

More than75% attendance is needed to sit for the modular and JSMU examination

SCHEDULE:

WEEKS	3rd Year SEMESTER 6	DATES
WEEK 1	GIT & HEPATOBILIARY MODULE	08 April 2019
WEEK 2		
WEEK 3		
WEEK 4		
WEEK 5		
WEEK 6		
WEEK 7		25 May 2019
	MODULAR EXAM	30 & 31 May* 2019
WEEK 1	RENAL & EXCRETORY SYSTEM II MODULE	June 2019*
WEEK 2		
WEEK 3		
WEEK 4		
	MODULAR	June-July 2019*
WEEK 1	ENDOCRINOLOGY II MODULE	July 2019*
WEEK 2		
WEEK 3		
WEEK 4		
	MODULAR	July-August 2019*

*Final dates will be announced later