

# Dow University of Health Sciences



**GIT & LIVER – 1 MODULE**

**STUDY GUIDE**

**Second Year MBBS**

<b>S.No</b>	<b>TABLE OF CONTENTS</b>	<b>Page no.</b>
1	Introduction to Study Guide	<b>03</b>
2	Five Year Curricular Organization	<b>05</b>
3	Overview	<b>06</b>
4	Integrated Module Committee	<b>07</b>
5	Module description	<b>08</b>
6	Rationale	<b>08</b>
7	Learning Outcomes	<b>08</b>
8	Discipline-wise Objectives and Contents	<b>09-14</b>
9	Learning Resources	<b>15</b>
10	Assessment Methods	<b>16</b>

## INTRODUCTION

### WHAT IS A STUDY GUIDE?

A study guide provides a focus for different educational activities in which the students are engaged. It equips students with information on the topic of study and assists in management of student learning. Furthermore, it imparts relevant information about the organization of the module and thus helps students organize their educational activities accordingly. Another important purpose of a study guide is the dissemination of information about rules and policies and teaching and assessment methods.

### HOW DOES A STUDY GUIDE HELP LEARNERS?

- Includes information on organization and management of the module.
- Advises the learners about representatives who can be contacted in case of need.
- Defines the outcomes and objectives which are expected to be achieved at the end of the module.
- Elaborates the teaching and learning strategies which will be implemented during the module.
- Inform learners about the learning resources in order to maximize their learning.
- Provides information about the assessment methods that will be held to determine every student's achievement of objectives.

### CURRICULUM MODEL:

Integrated modular curriculum is followed at Dow University of Health Sciences for MBBS program. This implies that instead of studying basic and clinical sciences separate and apart, students will experience a balanced and integrated combination of basic and clinical sciences in the form of a system-based modules.

The modular curriculum followed by Dow University of Health Sciences is integrated both in the vertical and the horizontal directions. However, in order to prepare the students for clinical teaching with a sound background knowledge of the basic sciences, the curriculum has been divided in three spirals.

The three spirals are:

1. Spiral -1 Basic Sciences
2. Spiral -2 Clinical Sciences
3. Spiral -3 Integrated Supervised Practical Training

The Basic Sciences Spiral is spread over the first two years and Clinical Sciences Spiral is distributed over the next two years. In the final year students are given practical hands-on training in the role similar to that of a shadow house officer. The whole curriculum is divided into modules, each module being related to a particular system. For example, Cardiovascular 1 module is in the Basic Sciences Spiral-1 and Cardiovascular 2 module is in the Clinical Sciences Spiral-2 and the relevant practical and clinical teaching/learning will be accomplished in Final year Spiral-3.

### **TEACHING & LEARNING METHODOLOGIES:**

The following teaching/ learning methods may be used to facilitate the learning process:

1. **Interactive Lectures:** Lectures are considered as an efficient means of transferring knowledge to large audiences.
2. **Small Group Discussion:** Small group discussion such as Demonstrations, tutorials and case- based learning (CBL) sessions facilitate interactive learning which helps students develop discussion skills and critical thinking.
3. **Practicals:** Practical related to Basic Sciences are held to facilitate student learning.
4. **Skills:** Skills sessions are scheduled parallel with various modules at fully equipped Skills Lab and Simulation Lab in which students observe and learn skills relevant to the respective modules under guidance of Clinical Faculty.
5. **Self-Directed Learning (Self- Study):** Students have a measure of control over their own learning. They diagnose their needs, set objectives in accordance to their specific needs, identify resources and adjust their pace of learning

**5 YEAR CURRICULAR ORGANIZATION**

Spiral	year	Modules					
First Spiral	I	<b>FND1- Foundation</b> Cell, Genetics & Cell Death (Basics of Anatomy, Physiology, Biochemistry, Gen. Pathology, Gen. Pharmacology, Community Medicine & Behavioral Sciences, <b>9 Weeks</b>			<b>HEM1- Blood Module</b> Immunity, Inflammation, Tissue repair, Antimicrobials & Neoplasia <b>9 Week</b>		
		<b>LCM1- Locomotion</b> Bones, Joints, Nerves & Muscles, 9weeks		<b>RSP1- Respiratory System</b> 6 weeks	<b>CVS1- Cardiovascular System</b> 4 weeks		
	II	<b>NEU1- Nervous System</b> 8 weeks		<b>HNN1- Head &amp; Neck &amp; Special</b> 6 weeks	<b>END1- Endocrinology</b> 5weeks		
		<b>GIL 1-GIT and Liver</b> 8 weeks		<b>EXC1- Renal and Excretory System</b> 5 weeks	<b>REP1- Reproductive System</b> 5 weeks		
Second Spiral	III	Foundation 2 2 wks	<b>IDD 1- Infectious diseases</b> 6 weeks	<b>HEM2- Hematology</b> 5 weeks	<b>RSP2- Respiratory System</b> 5 weeks	<b>CVS2- Cardiovascular System</b> 4 weeks	
		<b>GIL 2-GIT and Liver (including Nutritional Disorders)</b> 8weeks			<b>EXC2- Renal &amp; Excretory System</b> 4 weeks	<b>END2- Endocrinology</b> 5 weeks	
	IV	<b>ORT2- Orthopedics, Rheumatology, Trauma</b> 7 weeks		<b>PMR-Physical Medicine &amp; Rehabilitation</b> <b>DPS-Dermatology Plastic Surgery / Burns</b> <b>GEN-Genetics</b> 6 weeks		<b>REP2- Reproductive System</b> 8 Weeks	
		<b>NEU2- Neurosciences and Psychiatry</b> 8 weeks			<b>ENT*</b> 4 weeks	<b>OPHTHALMOLOGY/ EYE</b> 4 weeks	
Third Spiral	V	Clinical Rotation 9:45 to 3:00 (with Ambulatory, Emergency, Intensive care) In Medicine, Pediatrics, Cardiology and Neurology units <ul style="list-style-type: none"> <li>▪ Lecture on problem based approach, twice a week</li> <li>▪ Ward tutorial twice a week</li> <li>▪ Student research presentation once a week</li> </ul>			Clinical Rotation 9:45 to 3:00 (Inpatient, Ambulatory, Emergency, Intensive care and Operation Theatres) In Surgery, Gynecology & Obstetrics, Orthopedics and Neurosurgery. <ul style="list-style-type: none"> <li>▪ Lecture on problem based approach, twice a week</li> <li>▪ Ward tutorial twice a week</li> <li>▪ Student research presentation once a week</li> </ul>		

**OVERVIEW**

<b>Program</b>	<b>MBBS</b>	
Year	Second year	
Module Title	GIT & LIVER MODULE - I	
Module Code	GIL-1	
Duration	08 weeks	
	Anatomy	35
	Pathology	27
	Biochemistry	24
	Physiology	23
	Pharmacology	06
	Community Medicine	07
	Behavioral Sciences	03
	Medicine	02
	Radiology	02
	Skills	03
Total Hours	GIT & LIVER MODULE - I	132

**INTEGRATED MODULE COMMITTEE**

<b>RESPONSIBILITIES</b>	<b>NAMES</b>	<b>DESIGNATION</b>	<b>EMAILS</b>
Chairperson Curriculum Committee, DUHS Chief Module coordinator	Prof. Naheed Khan	Prof. and Chairperson Anatomy	<a href="mailto:naheed.khan@duhs.edu.pk">naheed.khan@duhs.edu.pk</a>
Coordinator DIMC	Dr. Tanzeela Khan	Assistant Professor, Anatomy	<a href="mailto:tanzeela.khan@duhs.edu.pk">tanzeela.khan@duhs.edu.pk</a>
Co-coordinator DMC	Dr. Amna Mughal	Assistant Professor	<a href="mailto:amna.mughal@duhs.edu.pk">amna.mughal@duhs.edu.pk</a>

### **MODULE DESCRIPTION**

This module has been designed for students to introduce them to the basic concepts of GIT & Liver Module. This module includes Anatomy, Physiology, Biochemistry, Pathology, Pharmacology, Community medicine and Behavioral sciences.

Lectures, tutorials, small group sessions including CBL and practicals are important components of this module. History taking, as part of clinical skills, is included in this module. Your co-operative and teamwork abilities will be improved by working in different teams. You will be able to develop problem solving skills to apply your medical knowledge to practical situations by means of group and individual tasks. This study guide has been developed to assist you and keep you focused to achieve your goals.

### **RATIONALE:**

The anatomical relationships of gastrointestinal tract organs to each other are important to understand as often diseases afflicting one of these also affect other organs by contiguity. It is necessary to study this region as a separate entity although it is not a separate system. This module provides the basic understanding of the anatomy and physiology of the components of gastrointestinal tract along with associated glands and enzymes.

### **LEARNING OUTCOMES:**

At the end of Five years MBBS program, student shall be able to:



**DISCIPLINE-WISE LEARNING OBJECTIVES AND CONTENTS**

At the end of the module, the student of 2nd year MBBS should be able to:

**ANATOMY****Lectures / Demonstrations:**

- Introduction & divisions of GIT+ abdominal quadrants
- Division of abdomen into regions and quadrants and their contents
- Anterior abdominal wall
- Inguinal canal
- Overview of peritoneal Cavity & peritoneal reflections + horizontal disposition
- Overview of peritoneal Cavity & peritoneal reflections + vertical disposition
- Oesophagus (Abdominal part), Stomach
- Duodenum and pancreas
- Abdominal Aorta+ blood supply of abdomen
- Small Intestine & large intestine+(comparison of two)
- Liver
- Hepatic portal system
- Gall bladder and biliary tract
- Spleen
- Lumbar Vertebrae
- Posterior abdominal wall (boundaries, Muscles, fascia)
- Inferior vena cava+ venous drainage of abdomen
- Nerves of abdomen
- Rectum
- Anal canal
- Surface anatomy of abdomen

**HISTOLOGY**

- General plan of G.I.T+ Oesophagus
- Stomach
- Oesophagus+ stomach
- Small intestine
- Large intestine
- Duodenum and pancreas
- Pancreas
- Small and large intestine(practical)
- Liver and gall bladder
- Histology of Liver and gallbladder
- Rectum and anal canal

**EMBRYOLOGY**

- Development of GIT(derivatives of fore gut)
- Development Anatomy of GIT (2) (derivatives of mid and hindgut)
- Development of liver,Gall bladder and pancreas
- Gross &Development of Diaphragm

**Practicals:**

- Histology of Oesophagus + stomach
- Small intestine & large intestine
- Histology of Duodenum and pancreas
- Histology of Liver and gallbladder
- Histology of Rectum and anal canal
- Histology of Liver and gall bladder

**Simulation Study (Digital Dissection):**

- Dissection of Oesophagus, stomach, small intestine and large intestine
- Dissection of Liver gall bladder pancreas

**PHYSIOLOGY****Topics/Contents:****Lectures:**

- Introduction to the Digestive System
- Functions of smooth muscles & their electrical properties; Neural control of digestive tract
- Mechanism of Swallowing, dysphagia, achalasia of esophagus
- Motor functions of stomach
- Gastric secretions (composition, function & regulation)
- Pancreatic secretion (composition, function & regulation)
- Functions of liver
- Bile secretion (composition, function & regulation)
- Jaundice, liver function tests, & their interpretation
- Movements & secretion of small Intestine
- Digestion of Carbohydrate, Proteins, & Fats
- Absorption of Carbohydrate, Proteins, & Fats
- Movements & secretions of large Intestine
- Hormones of the digestive system

- Vomiting and Defecation
- Diarrhea and Constipation
- Regulation of feeding and energy expenditure

**Tutorials:**

- Gastric function tests
- Salivary secretions (composition, function & regulation)

**BIOCHEMISTRY****Topics/ Contents:****Lectures:**

- Biochemical (exocrine) functions of liver and pancreas
- Co-enzymes derived from vitamins and their role in metabolic reactions
- Overview of Digestion, Absorption and processing of complex and simple carbohydrates, and proteins
- Common metabolic pathway for energy provision (TCA Cycle)
- Gluconeogenesis
- Glycogen metabolism
- Pentose Phosphate (HMP) pathway, Uronic Acid and Sorbitol pathway
- Allosteric and hormonal Regulation of metabolic pathways
- Amino acid degradation and synthesis: Nitrogen removal and Urea Cycle
- Inborn errors of amino acid metabolism (Phenylketonuria, maple syrup urine disease, albinism, homocystinuria, alkaptonuria)
- Biological oxidation: Respiratory chain (ETC) and Oxidative Phosphorylation
- Electron transport chain & uncouplers & inhibitors

**Practicals:**

- Serum estimation of bilirubin

**Tutorials:**

- Glycogen storage Disorders
- Disorders related to fructose & galactose metabolism
- LFTs (Liver enzymes)
- Biochemical complications of chronic liver disease (Hyperammonemia/encephalopathy/hypoproteinemia)
- Metabolic changes in Obesity/Diabetes Mellitus/ metabolic syndrome
- Phenylalanine and Tyrosine Metabolism

**PATHOLOGY****Topics/ Contents:****Lectures:**

- Oral Inflammatory Lesions and Non-Neoplastic Diseases of the Salivary Glands
- Neoplastic and Precursor Lesions of Oral Cavity and Tumors of Salivary Glands
- Esophagus Motor Disorders, Varices , Esophagitis and Barrets
- Acute and Chronic Gastritis
- Peptic Ulcer and H. pylori
- Peptic Ulcer Histology and Lab Investigations for H. Pylori
- Intestinal Obstruction
- Diarrheal Diseases: Overview
- Pancreatitis
- General Features of Hepatic Disease (Patterns of Hepatic Injury, Hepatic Failure, Jaundice & Cholestasis)
- Acute Hepatitis: Signs, Symptoms and Pathogenesis
- Organisms Causing Liver Infections : Overview
- Autoimmune Hepatitis, Drug & Toxins Induced Hepatitis & Metabolic Disorders
- Gross Pathology Museum: Intestinal infections and Obstruction, Liver Abscess
- Alcoholic & Non Alcoholic (Nash) Steatohepatitis
- Jaundice and Cholestatic Syndromes
- Circulatory Disorders of Liver
- Overview of Pathology of gall bladder
- Liver failure and Hepatic Encephalopathy

**Practicals:**

- Histopathology of Liver Disease
- Lab Diagnosis of Hepatitis and Disease Monitoring
- Chronic Hepatitis and Cirrhosis
- Histopathological features of Acute and Chronic Gastritis
- Lab Investigations for Jaundice and their interpretation

**Museum Study:**

- Gross Pathology Museum: Esophagus, Stomach and Intestine
- Gross Pathology Museum: Intestinal infections and Obstruction, Liver Abscess
- Gross Pathology: Fatty Liver and Cirrhosis

**PHARMACOLOGY****Topics:****Lectures:**

- Over view of drugs used in peptic ulcer disease-I (Anti-secretory drugs)
- Over view of drugs used in peptic ulcer disease-II (Mucosal protecting agents & Antacids)
- Drugs used to treat constipation
- Antiemetics & prokinetic agents
- Classification of drugs used in Hepatitis A & B
- Classification of drugs used in Hepatitis-C

**COMMUNITY MEDICINE****Topics:****Lectures:**

- Common nutritional problems of public health importance
- Food safety and fortification
- Diarrheal diseases: risk factors and prevention
- Hepatitis: risk factors and prevention
- Prevention and control of GIT and liver diseases
- Dynamics of disease transmission

**Video Lecture:**

- Epidemiology and control of acute diarrhea

**BEHAVIORAL SCIENCES**

- Theories of Motivation
- Self-Actualization and Peak Psychological Experiences
- Learning about the Self

**MEDICINE**

- Fatty liver disease
- Liver function tests

**RADIOLOGY**

- Radiological evaluation of GIT on plain x-rays, barium studies and ultrasound
- Radiological evaluation of GIT on CT scan

**SKILLS**

- Abdominal examination
- Nasogastric tube intubation

**The contents are subjected to be altered according to the requirement of academic calendar.**

**LEARNING RESOURCES****ANATOMY:**

- Clinically oriented anatomy Keith.L.Moore, Arthur F. Dalley, Anne M.R. Agur 7<sup>th</sup> or latest edition
- Gray's Anatomy for students Drake & Vogl & Mitchell 3rd or latest edition
- Clinical Anatomy By Regions (Reference Book) Richard S. Snell 9<sup>th</sup> Edition
- Last's Anatomy: Regional & Applied (Reference Book) Chummy S. Sinnatamby 12<sup>th</sup> Or Latest Edition
- Atlas of Human Anatomy Frank H.Netter 6<sup>th</sup> Edition

**EMBRYOLOGY:**

- Langman's Medical Embryology T.W.Sadler 13<sup>th</sup> Edition
- The Developing Human Clinically Oriented Embryology (Reference Book) Moore & Persaud & Torchia 10<sup>th</sup> Edition.

**HISTOLOGY:**

- Wheaters Functional Histology Barbara Young 5th Edition
- Basic Histology (Text And Atlas) (Reference Book) Luiz Junqueira, Jose Carneiro 11<sup>th</sup> or Latest Edition

**PHYSIOLOGY:**

- Guyton and Hall Textbook of Medical Physiology- Guyton And Hall 13th Edition

**BIOCHEMISTRY:**

- Lippincott's Illustrated Reviews Series Denise R. Ferrier 6th Edition
- Harpers Illustrated Biochemistry (Reference Book) Victor Rodwell, David Bender, Kathleen M. Botham, Peter J. Kennelly, P. Anthony Weil 28th Edition

**PATHOLOGY:**

- Robbins Basic Pathology Kumar & Abbas 10<sup>th</sup> Edition
- Robbins & Cotran Pathologic Basis Of Disease Kumar & Abbas & Aster 10<sup>th</sup> Edition

**COMMUNITY MEDICINE:**

- Public Health And Community Medicine Shah, Ilyas, Ansari 7<sup>th</sup> Edition

**PHARMACOLOGY:**

- Lippincott's Illustrated Review Pharmacology Karen Whalen 6th or Latest Edition
- Basic And Clinical Pharmacology Bertram G. Katzung 11th Edition.

**ASSESSMENT**

Assessment will be done in two parts:

**At the end of module**

- Module Exam (Theory) -20%
- Module Exam Practical Internal Evaluation- 20%

**At the end of Year**

- Annual Exam (Theory) -80%
- Annual Exam (ospe, Viva)-80%

MCQs (Multiple choice questions), OSPE (Objective Structured Practical Exam) and structured vivas will be the main assessment tool.

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