

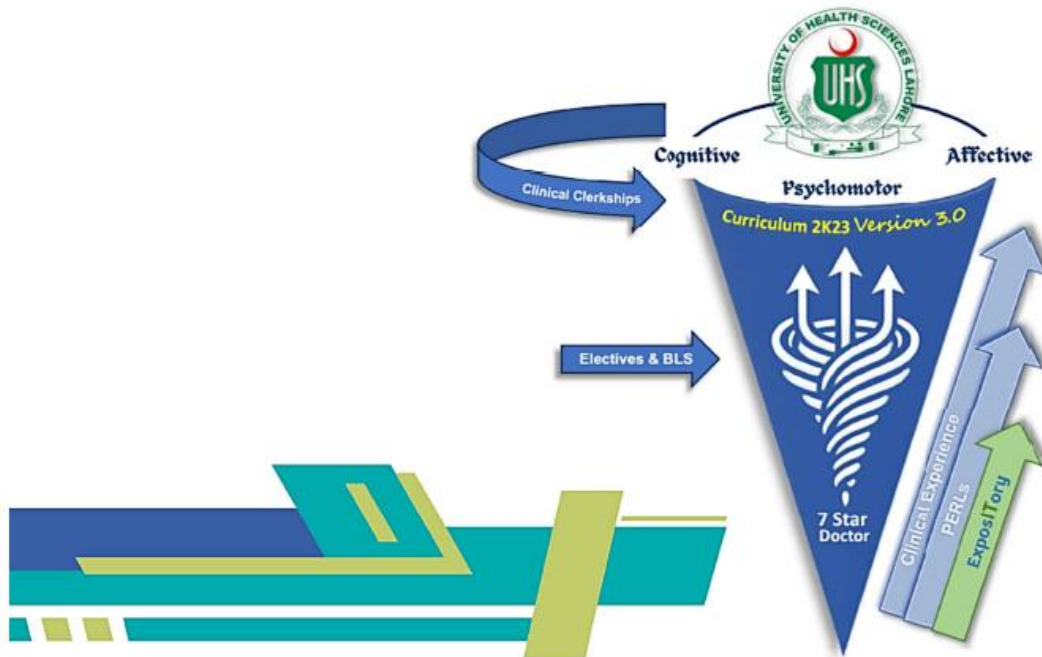




# Modular Integrated Curriculum 2K23

*version 3.0*

## BLOCK-04





## **Block-4**

### **Study Guide 2026**

#### **2<sup>nd</sup> Year MBBS**

# **ISLAM MEDICAL COLLEGE Sialkot–Pakistan**

# TABLE OF CONTENTS

|                                                |    |
|------------------------------------------------|----|
| TABLE OF CONTENTS .....                        | 4  |
| BLOCK LEAD DETAILS .....                       | 7  |
| GIT & NUTRITION-1 MODULE STUDY GUIDE .....     | 8  |
| MODULE RATIONALE .....                         | 10 |
| THE UNIVERSITY OF HEALTH SCIENCES .....        | 10 |
| VISION .....                                   | 10 |
| ISLAM MEDICAL COLLEGE VISION AND MISSION ..... | 11 |
| VISION .....                                   | 11 |
| MISSION .....                                  | 11 |
| CURRICULAR OUTCOMES (PLOS) .....               | 12 |
| MODULE OUTCOMES .....                          | 13 |
| THEMES .....                                   | 14 |
| CLINICAL RELEVANCE .....                       | 14 |
| IMPLEMENTATION TORS .....                      | 15 |
| SYLLABUS .....                                 | 16 |
| THEORY .....                                   | 17 |
| GROSS ANATOMY .....                            | 18 |
| EMBRYOLOGY & POST-NATAL DEVELOPMENT .....      | 24 |
| HISTOLOGY .....                                | 26 |
| MEDICAL PHYSIOLOGY .....                       | 28 |
| BIOCHEMISTRY .....                             | 32 |
| AGING .....                                    | 37 |
| PATHOPHYSIOLOGY AND PHARMACOTHERAPEUTICS ..... | 37 |
| PRACTICAL .....                                | 38 |
| HISTOLOGY .....                                | 39 |
| BIOCHEMISTRY .....                             | 40 |

|                                                       |           |
|-------------------------------------------------------|-----------|
| <i>PHYSIOLOGY</i> .....                               | 40        |
| <i>PATHOLOGY</i> .....                                | 40        |
| <i>PHARMACOLOGY</i> .....                             | 40        |
| <b>RENAL-1 MODULE</b> .....                           | <b>42</b> |
| <b>STUDY GUIDE</b> .....                              | <b>42</b> |
| <b>MODULE RATIONALE</b> .....                         | <b>44</b> |
| <b>MODULE OUTCOMES</b> .....                          | <b>44</b> |
| <b>THEMES</b> .....                                   | <b>44</b> |
| <b>CLINICAL RELEVANCE</b> .....                       | <b>45</b> |
| <b>IMPLEMENTATION TORS</b> .....                      | <b>45</b> |
| <b>SYLLABUS</b> .....                                 | <b>46</b> |
| THEORY .....                                          | 47        |
| <i>GROSS ANATOMY</i> .....                            | 48        |
| <i>EMBRYOLOGY &amp; POST-NATAL DEVELOPMENT</i> .....  | 49        |
| <i>MICROSCOPIC STRUCTURE</i> .....                    | 50        |
| <i>MEDICAL PHYSIOLOGY</i> .....                       | 51        |
| <i>MEDICAL BIOCHEMISTRY</i> .....                     | 55        |
| <i>PATHOPHYSIOLOGY AND PHARMACOTHERAPEUTICS</i> ..... | 56        |
| <i>DISEASE PREVENTION AND IMPACT</i> .....            | 58        |
| <i>AGING</i> .....                                    | 58        |
| PRACTICAL .....                                       | 59        |
| <i>HISTOLOGY</i> .....                                | 60        |
| <i>PHYSIOLOGY</i> .....                               | 60        |
| <i>BIOCHEMISTRY</i> .....                             | 61        |
| <i>PATHOLOGY</i> .....                                | 61        |
| <i>PHARMACOLOGY</i> .....                             | 61        |
| .....                                                 | 62        |
| <b>TENTATIVE TIMETABLE</b> .....                      | <b>63</b> |
| <b>ASSESSMENT TOOLS</b> .....                         | <b>68</b> |
| <b>TABLE OF SPECIFICATION (TOS)</b> .....             | <b>70</b> |

|                                         |            |
|-----------------------------------------|------------|
| <b>LIST OF RESOURCES.....</b>           | <b>71</b>  |
| <b>C-FRC-2 (YEAR-2) .....</b>           | <b>76</b>  |
| DATE OBSERVED:.....                     | 78         |
| DATE OBSERVED:.....                     | 84         |
| DATE OBSERVED:.....                     | 86         |
| DATE OBSERVED:.....                     | 88         |
| <b>FEMALE CATHETERIZATION .....</b>     | <b>91</b>  |
| DATE OBSERVED:.....                     | 91         |
| DATE OBSERVED:.....                     | 94         |
| <b>PERLS .....</b>                      | <b>97</b>  |
| <b>MODULE RATIONALE .....</b>           | <b>99</b>  |
| 1. IMPORTANCE OF PROFESSIONALISM: ..... | 99         |
| 2. ETHICAL DECISION-MAKING:.....        | 99         |
| 3. RESEARCH COMPETENCE: .....           | 99         |
| 4. LEADERSHIP DEVELOPMENT:.....         | 99         |
| <b>MODULE LEARNING OUTCOMES .....</b>   | <b>100</b> |
| <b>STUDENT PORTFOLIO .....</b>          | <b>109</b> |
| <b>BLOCK-4 COORDINATORS.....</b>        | <b>120</b> |
| <b>IMPORTANT NOTE .....</b>             | <b>122</b> |
| <b>DISCLAIMER .....</b>                 | <b>122</b> |

## BLOCK LEAD DETAILS

I am **Dr. Rana Muhammad Zeeshan**, serving as **Assistant Professor** in the Department of Anatomy at Islam Medical and Dental College, Sialkot, and currently leading the **Block-4**.

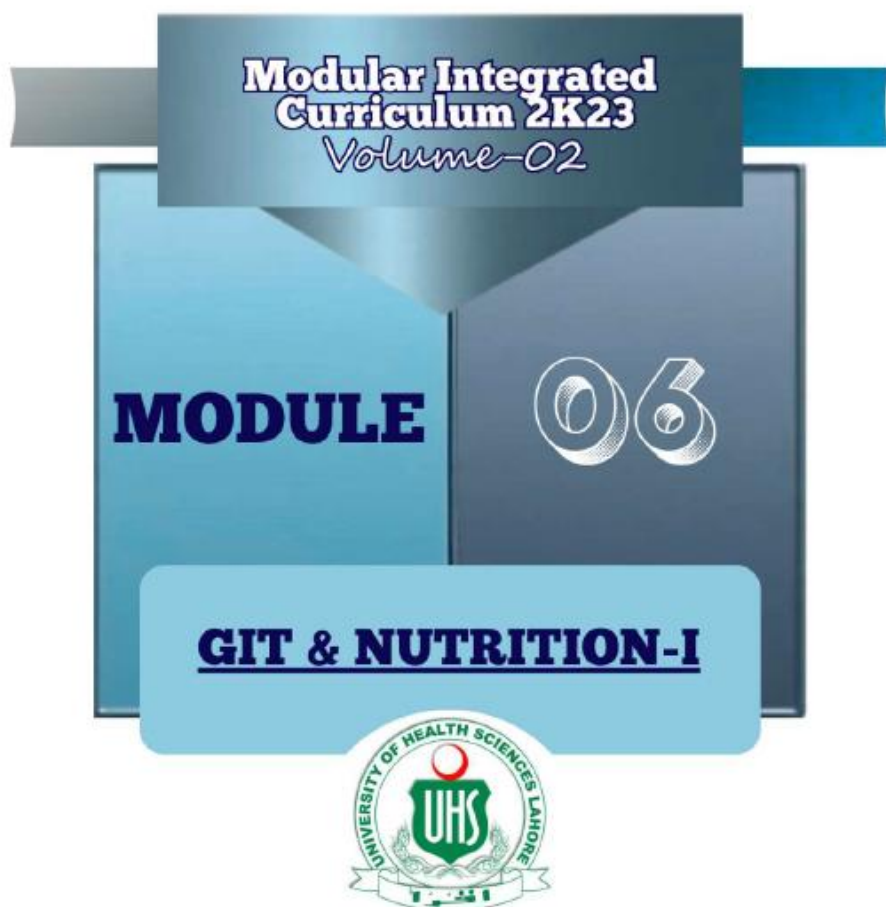
I completed my **MBBS** from **FMH College of Medicine and Dentistry, Lahore (2015)**, followed by a **Certificate in Health Professions Education (CHPE)** from **Khyber Medical University, Peshawar (2023)**. I obtained my **MPhil in Anatomy** from the **University of Health Sciences, Lahore in 2024**. My academic and teaching experience is centered on promoting integrated, student-focused learning aligned with modern medical education standards.

Students are encouraged to actively engage with the study guide, participate in learning activities, and seek guidance whenever needed. I remain available for academic support and consultation during working hours.

I am available for consultation in the **Department of Anatomy, Academic Block 1**, from **08:00 to 15:00 hours** on weekdays. I can also be contacted via email at [shani3687@gmail.com](mailto:shani3687@gmail.com).

# **BLOCK 4**

## **GIT & NUTRITION-1 MODULE STUDY GUIDE**



# MODULE RATIONALE

Gastrointestinal system is an integral part of human body which is primarily related to consumption, digestion and assimilation of food to provide nutrition and calories on regular basis to human body which are essential for basic functioning of each organ of human beings.

We will study in detail regarding different parts of gastrointestinal system, their functional, embryological and histological anatomy, physiological and biochemical aspects of its functioning.

Students will also be briefly introduced to clinical and pathological aspects, pharmacological interventions and preventive measures of common diseases related to the system.

We have assigned six (6) weeks in academic calendar of 2nd year curriculum of MBBS to Gastrointestinal Module. We have divided our module into eight (8) themes. For every theme, anatomy, physiology, biochemistry, pathology, pharmacology, community medicine, behavioral sciences, general medicine and surgery will need to plan for integrated teaching of students for better comprehension and understanding of subject. We have outlined learning outcomes for each discipline along with allocated time to be taught.

## THE UNIVERSITY OF HEALTH SCIENCES VISION

UHS is a leading University aiming to keep its graduates apt with the ever-emerging global health challenges, evolving educational methodologies and emerging technological advancements to maintain its distinguishable position as a Medical University.

(<https://www.uhs.edu.pk/vision-mission.php>)

# ISLAM MEDICAL COLLEGE VISION AND MISSION

## VISION

"To be a globally recognized center of excellence, where Islam Medical College empowers competent and ethical healthcare professionals through holistic education, innovative teaching, and groundbreaking research."

## MISSION

"Islam Medical College is dedicated to comprehensive medical education that instills values of integrity, empathy, and professionalism. We empower our Students with knowledge, skills, and a patient-centered attitude for lifelong learning."

# CURRICULAR OUTCOMES (PLOS)

The PLOs are articulated in view of the desirable competencies of our graduates. Following are the PLOs of MBBS Program desired to highlight the attributes amongst our graduates after their graduation

**PLO-1** Demonstrate the ability to independently manage non-critical clinical problems (Knowledge, Skill)

**PLO-2** Exhibit proficiency in life-saving procedures and the ability to assist in the management of critically ill patients. (Skill)

**PLO-3** Adhere to ethical principles and display attributes such as honesty, integrity, and confidentiality. (Attitude)

**PLO-4** Conduct research that contributes to the advancement of medical knowledge and brings relevance to healthcare practices (Knowledge, Skill)

**PLO-5** Act as an efficient community health promotor by advocating for health promotion and disease prevention. (Skill)

**PLO-6** Exhibit comprehensive scientific knowledge in all professional activities. (Knowledge)

**PLO-7** Demonstrate clear and efficient written and verbal communication skills to effectively communicate with patients, colleagues and other healthcare professionals. (Skills, Attitude)

**PLO-8** Embrace a lifelong learning mind set to maintain expertise, keep up with advancements in medical practices and improve professional development. (Knowledge, Skill)

# MODULE OUTCOMES

- To describe gross and microscopic anatomy of different parts of the gastrointestinal system and associated organs (PLO-6, PLO-1)
- To describe the embryological development of different parts of the gastrointestinal system and associated organs (PLO-6)
- To describe the functional anatomy and physiology of different parts of the gastrointestinal system and associated organs (PLO-1, PLO-6)
- To describe the motility, secretory, and digestive functions of the gastrointestinal system (PLO-1, PLO-6)
- To describe the biochemical aspects of carbohydrate metabolism (PLO-6)
- To discuss pathological aspects and management of gastrointestinal-related diseases (PLO-1, PLO-2, PLO-6)
- To discuss the pharmacological treatment of diarrhea (PLO-1, PLO-2, PLO-6)
- To discuss the psychosocial impact of gastrointestinal diseases in society (PLO-3, PLO-7)
- To discuss preventive measures related to gastrointestinal diseases (PLO-5, PLO-8)
- To comprehend the concept of balanced diet and malnutrition (PLO-5, PLO-6, PLO-8)

## THEMES

- Oral cavity & Esophagus (O &E)
- Walls of Abdomen & Peritoneum
- Stomach
- Small intestine
- Large intestine (Cecum, Appendix, Colon, Rectum & Anal Canal)
- Liver & Biliary tree
- Pancreas & Spleen
- Nutrition

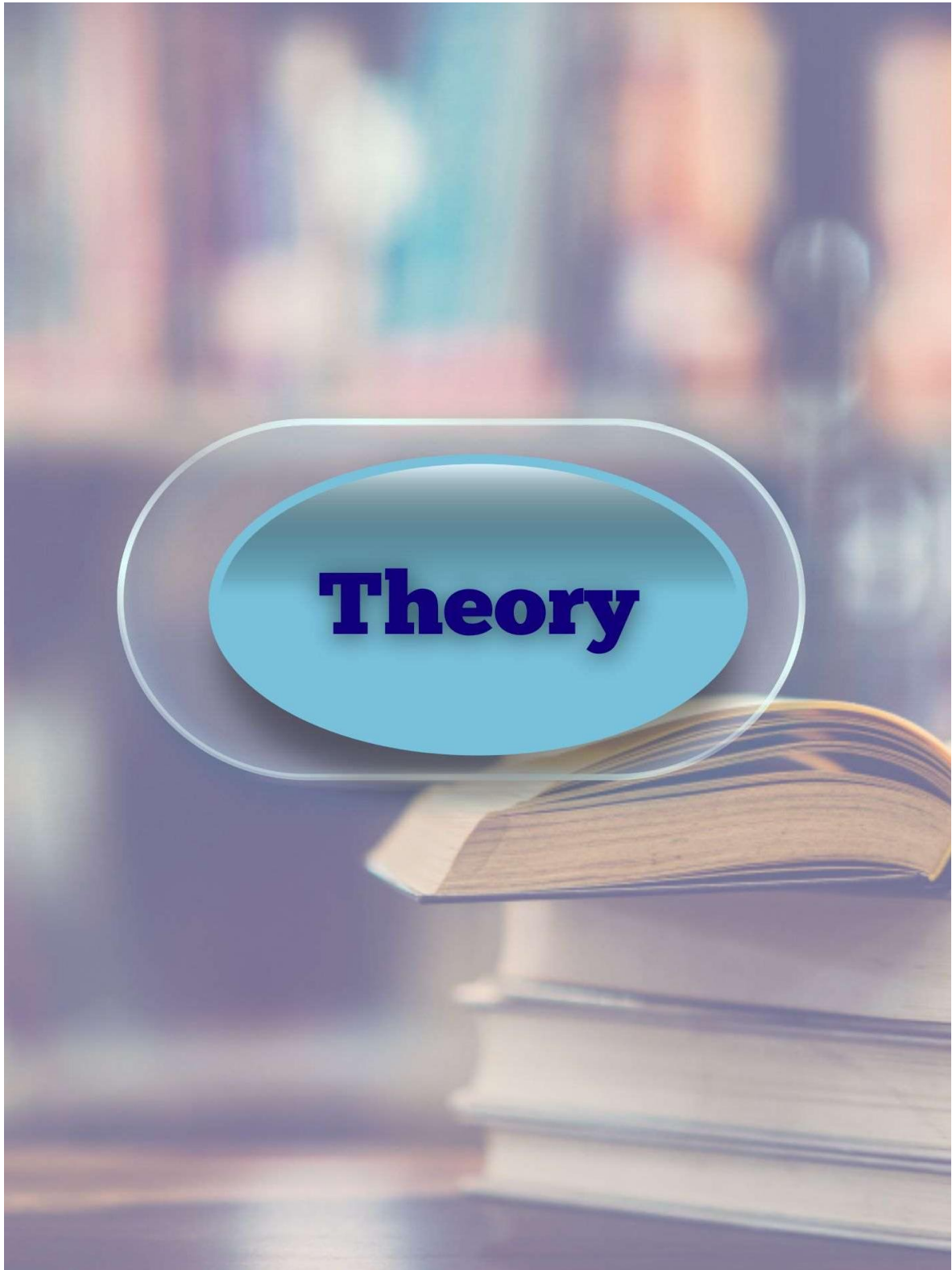
## CLINICAL RELEVANCE

- Diseases of oral cavity, esophagus and stomach
- Diseases of small and large intestines
- Diseases of hepatobiliary system
- Diseases related to malnutrition

## IMPLEMENTATION TORs

- The time calculation for completion of modules and blocks is based on 35 hours per week. Total hours of teaching, learning and formative/summative internal assessment to be completed in a year are 1200.
- The hours mentioned within each module are the mandatory minimum required. The rest of the hours are left to the discretion of the institution that can be used in teaching, learning and assessment as per decision of the institutional academic council.
- The content and the intended learning outcomes written are mandatory, to be taught, at the level required, as the end year assessment will be based on these.
- However, the level of cognition can be kept at a higher level by the institution.
- The Table of Specifications provided will be used for the three papers of the Second professional examination. The same table of specifications should be used for the respective three block exams for internal assessment.





| NORMAL STRUCTURE |                                                                                                                                                                                 |                  |             |                   |                  |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|-------------------|------------------|
| GROSS ANATOMY    |                                                                                                                                                                                 |                  |             |                   |                  |
| CODE             | SPECIFIC LEARNING OUTCOMES                                                                                                                                                      | TOTAL HOURS = 35 |             |                   |                  |
|                  |                                                                                                                                                                                 | DISCIPLINE       | TOPIC       | TEACHING/LEARNING | ASSESSMENT TOOLS |
| GIT-A-001        | Describe the gross anatomical features of oral cavity with its neurovascular supply and lymphatic drainage                                                                      | Human Anatomy    | Oral Cavity | SGD               | MCQs             |
|                  | Discuss the location, anatomical features, relations and vascular supply of tonsils: nasopharyngeal, palatine and lingual.                                                      |                  |             | SGD               | MCQs             |
|                  | Discuss the skeletal framework of hard palate with its neurovascular supply and lymphatic drainage                                                                              |                  |             | SGD               | MCQs             |
|                  | Describe the gross anatomical features of soft palate with its neurovascular supply and lymphatic drainage                                                                      |                  |             | SGD               | MCQs             |
|                  | Describe the attachments, nerve supply and actions of muscles of soft palate                                                                                                    |                  |             | SGD               | MCQs             |
|                  | Describe the structure of tongue with attachments of muscles, blood supply, nerve supply and lymphatic drainage.<br>Discuss the anatomical basis of injury to hypoglossal nerve |                  |             | SGD               | MCQs             |
|                  | Describe anatomical features, relations and neurovascular supply of parotid gland and its duct, mentioning the structures entering and exiting the gland.                       |                  |             | SGD               | MCQs             |
|                  | Discuss the clinical correlates of parotid gland: parotiditis, Mumps, Frey's syndrome, parotid duct injury and parotid tumor surgery with its complications.                    |                  |             | SGD               | MCQs             |
|                  | Describe the Waldeyer's ring.                                                                                                                                                   |                  |             | SGD               | MCQs             |
|                  | Describe anatomical features, relations and neurovascular supply of submandibular and sublingual glands with their ducts.                                                       |                  |             | SGD               | MCQs             |

|           |                                                                                                                                                                                                                                           |               |                       |      |             |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------|------|-------------|
| GIT-A-002 | Describe the planes and quadrants of abdomen                                                                                                                                                                                              | Human Anatomy | Anterior Abdomen Wall | LGIS | MCQs        |
|           | Draw and label the cutaneous innervation and dermatomes of anterior abdominal wall and anterolateral Abdominal wall and describe the clinical correlates (Abdominal pain, Muscle rigidity, Referred pain, anterior abdominal nerve block) |               |                       | SGD  | MCQs & OSPE |
|           | Describe the fascia of anterior abdominal wall with its clinical significance<br>Describe anterolateral Abdominal wall arteries, Veins and Lymphatics and related clinical correlates—Caput Medusae                                       |               |                       | SGD  | MCQs        |
|           | Describe the attachments, nerve supply and actions of muscles of anterior abdominal wall                                                                                                                                                  |               |                       | SGD  | MCQs        |
|           | Identify the muscles of anterolateral abdominal wall on anatomical model and/or cadaver                                                                                                                                                   |               |                       | SGD  | OSPE        |
|           | Describe the extent, formation and contents of rectus sheath                                                                                                                                                                              |               |                       | SGD  | MCQs        |
|           | Give the formation and extent of inguinal ligament                                                                                                                                                                                        |               |                       | SGD  | MCQs        |
|           | Describe the formation of superficial and deep inguinal rings and conjoint tendon                                                                                                                                                         |               |                       | SGD  | MCQs        |
|           | Locate the position of superficial and deep inguinal rings on simulated subject or Cadaver                                                                                                                                                |               |                       | SGD  | OSPE        |
|           | Describe the extent, boundaries and contents of inguinal canal                                                                                                                                                                            |               |                       | SGD  | MCQs        |
|           | Define the following hernias: umbilical, epigastric, incisional, Spigelian, lumbar, femoral, internal and inguinal                                                                                                                        |               |                       | SGD  | MCQs        |
|           | Differentiate between direct and indirect inguinal hernias                                                                                                                                                                                |               |                       | SGD  | MCQs        |
|           | Describe the location of abdominal surgical incisions                                                                                                                                                                                     |               |                       | SGD  | MCQs        |

|           |                                                                                                                                                                                                               |               |            |            |      |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------|------------|------|
|           | Mark the abdominal incisions on simulated patient/ subject and explain their anatomical basis                                                                                                                 | Human Anatomy |            | SGD        | OSPE |
|           | List the structures and coverings of spermatic cord                                                                                                                                                           |               |            | SGD        | MCQs |
| GIT-A-003 | Trace the horizontal and vertical peritoneal reflections                                                                                                                                                      |               | Peritoneum | LGIS       | OSPE |
|           | Describe the relationship of viscera to the peritoneum                                                                                                                                                        |               |            | LGIS       | MCQs |
|           | Describe the gross anatomical features of the following:<br>1. Mesentery<br>2. Omentum<br>3. Peritoneal ligaments<br>4. Peritoneal fold<br>5. Peritoneal sac,<br>6. Recesses,<br>7. Spaces and<br>8. Gutters  |               |            | LGIS       | MCQs |
|           | Describe the nerve supply of Peritoneum                                                                                                                                                                       |               |            | LGIS       | MCQs |
|           | Describe the anatomical basis and manifestations of the following:<br>1. Peritonitis and ascites<br>2. Peritoneal adhesions (and adhesiostomy)<br>3. Abdominal paracentesis                                   |               |            | LGIS       | MCQs |
|           |                                                                                                                                                                                                               |               |            |            |      |
| GIT-A-004 | Describe the extent of esophagus, its constrictions, neurovascular supply and lymphatic drainage<br>Discuss the anatomical basis of esophageal varices, achalasia and Gastro Esophageal Reflux Disease (GERD) |               | Esophagus  | SGD & LGIS | MCQs |

|           |                                                                                                                                                                                                                                    |               |                         |            |      |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------|------------|------|
| GIT-A-005 | Describe the location, position, parts, external and internal structure, relations, vascular and nerve supply and lymphatic drainage of stomach                                                                                    | Human Anatomy | Stomach                 | SGD        | MCQs |
|           | Draw and label a diagram illustrating the lymphatic drainage of Stomach                                                                                                                                                            |               |                         | SGD        | OSPE |
|           | Describe the clinical presentation and the anatomical basis and manifestations of the following conditions:<br>Carcinoma of stomach and peptic ulcers                                                                              |               |                         | SGD & LGIS | MCQs |
|           | Identify and demonstrate the parts, external and internal features of stomach on anatomical model and cadaver                                                                                                                      |               |                         | SGD        | OSPE |
| GIT-A-006 | Describe the location, position, parts, relations, neurovascular supply and lymphatic drainage of duodenum, Jejunum & Ileum (Small Intestine)                                                                                      |               | Small & Large Intestine | SGD        | MCQs |
|           | Describe the anatomical basis and manifestations of the following conditions:<br>1. Duodenal Ulcers<br>2. Ileal diverticulum<br>3. Diverticulosis<br>4. Large bowel cancer<br>5. Appendicitis<br>6. Volvulus<br>7. Intussusception |               |                         | SGD & LGIS | MCQs |
|           | Demonstrate the various positions of appendix                                                                                                                                                                                      |               |                         | SGD        | OSPE |
|           | Identify and demonstrate the Parts and external features of small and large intestines on anatomical model and cadaver                                                                                                             |               |                         | SGD        | OSPE |

|           |                                                                                                                                                                                  |               |                      |            |      |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------|------------|------|
| GIT-A-007 | Describe the origin, course, branches (tributaries in case of veins) and distribution of the blood vessels of GIT                                                                | Human Anatomy | Blood vessels of GIT | LGIS       | MCQs |
|           | Describe the formation, tributaries and drainage of hepatic- portal vein                                                                                                         |               |                      | LGIS       | MCQs |
|           | Discuss the sites and vessels contributing in portosystemic anastomosis                                                                                                          |               |                      | LGIS       | MCQs |
|           | Describe the clinical picture and anatomical basis for the blockage of porto-systemic anastomosis                                                                                |               |                      | LGIS       | MCQs |
|           | Identify the blood vessels supplying GIT on anatomical model and cadaver                                                                                                         |               |                      | LGIS       | OSPE |
| GIT-A-008 | Describe location, lobes, important relations, peritoneal ligaments, blood supply, lymphatic drainage, nerve supply, related clinical correlates of liver and subphrenic spaces. |               | Liver                | SGD        | MCQs |
| GIT-A-009 | Describe components of Biliary tree- hepatic duct and bile duct                                                                                                                  |               | Biliary System       | SGD        | MCQs |
|           | Describe relations, functions, blood supply, lymphatic drainage and nerve supply of Gallbladder                                                                                  |               |                      | SGD        | MCQs |
|           | Describe related clinical correlates- gall stones, biliary colic, cholecystectomy, gallbladder gangrene                                                                          |               |                      | SGD & LGIS | MCQs |
| GIT-A-010 | Describe the location, surfaces, peritoneal reflections, relations, neurovascular supply and lymphatic drainage of pancreas                                                      |               | Pancreas             | SGD        | MCQs |
|           | Describe the anatomical basis and manifestations of pancreatitis and pancreatic cancer                                                                                           |               |                      | SGD & LGIS | MCQs |
|           | Identify the parts of the pancreas                                                                                                                                               |               |                      | SGD        | OSPE |

|           |                                                                                                                                                                                                                                             |                                       |                                    |            |      |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|------------------------------------|------------|------|
| GIT-A-011 | Describe the location, surfaces, peritoneal reflections, relations, neurovascular supply and lymphatic drainage of spleen                                                                                                                   | Human Anatomy                         | Spleen                             | SGD        | MCQs |
|           | Describe the anatomical basis and manifestations of splenic trauma and splenomegaly                                                                                                                                                         |                                       |                                    | SGD & LGIS | MCQs |
|           | Identify the borders, surfaces and Impressions of spleen                                                                                                                                                                                    |                                       |                                    | SGD        | OSPE |
|           | Demonstrate the correct anatomical positioning of spleen                                                                                                                                                                                    |                                       |                                    | SGD        | OSPE |
| GIT-A-012 | Describe the gross anatomical features, peritoneal relations, blood supply, nerve supply and lymphatic drainage of cecum ascending and descending colon, sigmoid colon, rectum and anal canal                                               | Human Anatomy                         | Sigmoid Colon, Rectum & Anal Canal | SGD        | MCQs |
|           | Describe the anatomical basis for Sigmoidoscopy, rectal prolapse, rectal examination, rectal cancer and hemorrhoids                                                                                                                         |                                       |                                    | SGD & LGIS | MCQs |
| GIT-A-013 | Outline the anatomical basis and surgical treatment plan for the following diseases:<br>1. Esophageal Injuries<br>2. Gastric Carcinoma<br>3. Intestinal Obstruction<br>4. Pancreatic Carcinoma<br>5. Obstructive Jaundice<br>6. Gall Stones | Human Anatomy integrated with Surgery | Surgical Intervention              | LGIS       | MCQs |

| EMBRYOLOGY & POST-NATAL DEVELOPMENT |                                                                                         |                 |             |                   |                  |
|-------------------------------------|-----------------------------------------------------------------------------------------|-----------------|-------------|-------------------|------------------|
| CODE                                | SPECIFIC LEARNING OUTCOMES                                                              | TOTAL HOURS = 8 |             |                   |                  |
|                                     |                                                                                         | DISCIPLINE      | TOPIC       | TEACHING/LEARNING | ASSESSMENT TOOLS |
| GIT-A-014                           | Describe the development of tongue                                                      | Embryology      | Oral Cavity | LGIS              | MCQs             |
|                                     | Describe the embryological basis of tongue tie                                          |                 |             | LGIS              | MCQs             |
|                                     | Describe the development of palate                                                      |                 |             | LGIS              | MCQs             |
|                                     | Describe the embryological basis of various facial clefts                               |                 |             | LGIS              | MCQs             |
|                                     | Identify the parts of the developing tongue and palate                                  |                 |             | LGIS              | OSPE             |
| GIT-A-015                           | Describe the formation and divisions of gut tube                                        |                 | Foregut     | LGIS              | MCQs             |
|                                     | Describe the molecular regulation of gut tube development.                              |                 |             | LGIS              | MCQs             |
|                                     | Describe the development of mesenteries                                                 |                 |             | LGIS              | MCQs             |
|                                     | Describe the development of esophagus                                                   |                 |             | LGIS              | MCQs             |
|                                     | Describe the embryological basis of esophageal atresia and/or tracheoesophageal fistula |                 |             | LGIS              | MCQs & OSPE      |
|                                     | Describe the development and rotation of stomach                                        |                 |             | LGIS              | MCQs             |
|                                     | Describe the embryological basis of pyloric stenosis                                    |                 |             | LGIS              | MCQs & OSPE      |
|                                     | Describe the development of duodenum, liver and gall bladder.                           |                 |             | LGIS              | MCQs             |
|                                     | Describe the molecular regulation of liver.                                             |                 |             | LGIS              | MCQs & OSPE      |
|                                     | Describe the embryological basis of intrahepatic and extrahepatic biliary atresia       |                 |             | LGIS              | MCQs & OSPE      |
|                                     | Describe the development of pancreas.                                                   |                 |             | LGIS              | MCQs             |
|                                     | Describe the molecular regulation of pancreas.                                          |                 |             | LGIS              | MCQs             |
|                                     | Describe the embryological basis of annular pancreas                                    |                 |             | LGIS              | MCQs & OSPE      |

|           |                                                                                                                                                                            |            |         |      |             |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------|------|-------------|
| GIT-A-016 | Describe the development of midgut, especially mentioning physiological herniation, rotation, retraction of herniated loops and mesenteries of the intestinal loops        | Embryology | Midgut  | LGIS | MCQs        |
|           | Describe the embryological basis of the following<br>1. mobile cecum<br>2. volvulus<br>3. retro colic hernia<br>4. Omphalocele<br>5. gastroschisis                         |            |         | LGIS | MCQs & OSPE |
|           | Describe the embryological basis of Meckel's diverticulum                                                                                                                  |            |         | LGIS | MCQs & OSPE |
|           | Describe the embryological basis of.<br>1. Gut rotation defects<br>2. Gut atresia and stenosis                                                                             |            |         | LGIS | MCQs & OSPE |
| GIT-A-017 | Describe the development of hindgut                                                                                                                                        |            | Hindgut | LGIS | MCQs        |
|           | Describe the embryological basis of;<br>1. Rectourethral and rectovaginal fistulas<br>2. Recto anal fistulas and atresia<br>3. Imperforate anus<br>4. Congenital megacolon |            |         | LGIS | MCQs & OSPE |
|           | Identify the parts of the developing foregut, midgut and hindgut originating from the endoderm                                                                             |            |         | LGIS | OSPE        |

# HISTOLOGY

| CODE      | SPECIFIC LEARNING OUTCOMES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | TOTAL HOURS = 7 |                         |                       |                     |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------|-----------------------|---------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | DISCIPLINE      | TOPIC                   | TEACHING/<br>LEARNING | ASSESSMENT<br>TOOLS |
| GIT-A-018 | Describe the light microscopic structure of.<br>1. Lips<br>2. Tongue including lingual papillae and taste buds<br>3. Oral Cavity (Cheeks, Teeth gums, hard & Soft palate)<br><br>Describe the histological structure of parotid, submandibular and sublingual glands.<br><br>Compare and contrast the histological structures of parotid, submandibular and sublingual glands.<br><br>Describe the serous and mucous acini and give histological differences between the two.<br><br>Describe the structure and location of serous demilunes. Describe histology of oropharynx | Histology       | Oral Cavity & Esophagus | LGIS                  | MCQs                |
|           | Relate the characteristics of various layers of GIT with their function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                 |                         | LGIS                  | MCQs                |
|           | Describe the light microscopic structure of esophagus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                 |                         | LGIS                  | MCQs                |
|           | Tabulate the histological differences between different parts of esophagus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                 |                         | LGIS                  | MCQs                |
|           | Describe the histological changes associated with reflux esophagitis and Barrett's esophagus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |                         | LGIS                  | MCQs                |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                         |                       |                     |

|           |                                                                                                                                            |           |                  |      |      |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------------|------|------|
| GIT-A-019 | Describe the light microscopic structure of stomach                                                                                        | Histology | Stomach          | LGIS | MCQs |
|           | Describe the role of parietal cells in pernicious anemia                                                                                   |           |                  | LGIS | MCQs |
| GIT-A-020 | Describe the light microscopic structure of<br>1. Duodenum<br>2. Jejunum<br>3. Ileum                                                       |           | Small Intestine  | LGIS | MCQs |
|           | Discuss the histological basis of celiac disease                                                                                           |           |                  | LGIS | MCQs |
|           | Discuss the histological basis of Crohn's disease                                                                                          |           |                  | LGIS | MCQs |
| GIT-A-021 | Describe the light microscopic structure of<br>1. Colon<br>2. Appendix<br>3. Rectum<br>Define colorectal cancer, anal abscess, hemorrhoids |           | Large Intestine  | LGIS | MCQs |
| GIT-A-022 | Describe the light microscopic structure of:<br>1. Liver<br>2. Gall Bladder<br>3. Pancreas                                                 |           | Accessory Organs | LGIS | MCQs |

| NORMAL FUNCTION    |                                                                                               |                    |                                                                            |                   |                  |
|--------------------|-----------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------|-------------------|------------------|
| MEDICAL PHYSIOLOGY |                                                                                               |                    |                                                                            |                   |                  |
| CODE               | SPECIFIC LEARNING OBJECTIVES                                                                  | TOTAL HOURS = 20   |                                                                            |                   |                  |
|                    |                                                                                               | DISCIPLINE         | TOPIC                                                                      | TEACHING/LEARNING | ASSESSMENT TOOLS |
| GIT-P-001          | Classify the components of enteric nervous system                                             | Medical Physiology | General Principles of GIT Function, Motility, Nervous Control & Blood Flow | LGIS              | MCQs             |
|                    | Discuss the location and significance of myenteric plexus                                     |                    |                                                                            | LGIS              | MCQs             |
|                    | Describe the Meissner's plexus                                                                |                    |                                                                            | LGIS              | MCQs             |
|                    | Differentiate between myenteric and Meissner's plexuses                                       |                    |                                                                            | LGIS              | MCQs             |
|                    | Explain the mechanism of developing slow wave                                                 |                    |                                                                            | LGIS              | MCQs             |
|                    | Explain the mechanism of developing spike potential                                           |                    |                                                                            | LGIS              | MCQs             |
|                    | Enlist the factors that depolarize & hyperpolarize the GIT membrane                           |                    |                                                                            | LGIS              | MCQs             |
|                    | Enlist the excitatory & inhibitory neurotransmitters of enteric nervous system                |                    |                                                                            | LGIS              | MCQs             |
|                    | Explain the role of sympathetic & parasympathetic nervous system in controlling GIT function. |                    |                                                                            | LGIS              | MCQs             |
|                    | Enlist the gastrointestinal reflexes & explain the function of these reflexes                 |                    |                                                                            | LGIS              | MCQs             |
|                    | Enlist the hormones acting on GIT, their stimuli, site of release and actions                 |                    |                                                                            | LGIS              | MCQs             |
|                    | Enumerate different types of movements that occur in GIT                                      |                    |                                                                            | LGIS              | MCQs             |
|                    | Discuss the functions and control of GIT movements                                            |                    |                                                                            | LGIS              | MCQs             |

|           |                                                                                                     |                                            |                         |      |      |
|-----------|-----------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------------|------|------|
|           | Discuss the effect of gut activity and metabolic factors on GIT blood flow / Splanchnic circulation |                                            |                         | LGIS | MCQs |
|           | Explain the nervous control of GIT blood flow / Splanchnic circulation                              |                                            |                         | LGIS | MCQs |
| GIT-P-002 | Trace the reflex arc of mastication                                                                 | Medical Physiology                         | Oral Cavity & Esophagus | LGIS | MCQs |
|           | Explain the process and importance of chewing reflex                                                |                                            |                         | LGIS | MCQs |
|           | Enlist the stages of swallowing                                                                     |                                            |                         | LGIS | MCQs |
|           | Describe the mechanism of voluntary stage of swallowing                                             |                                            |                         | LGIS | MCQs |
|           | Trace the reflex arc of involuntary stage of swallowing                                             |                                            |                         | LGIS | MCQs |
|           | Enlist the steps involved in involuntary stage of swallowing                                        |                                            |                         | LGIS | MCQs |
|           | Explain the effect of swallowing on respiration                                                     |                                            |                         | LGIS | MCQs |
|           | Discuss the mechanism of esophageal stage of swallowing                                             |                                            |                         | LGIS | MCQs |
|           | Enlist causes of dysphagia                                                                          | Medical Physiology integrates with Surgery |                         | LGIS | MCQs |
|           | Explain the types and role of different peristalsis originating in esophagus                        |                                            |                         | LGIS | MCQs |
|           | Discuss the role of Lower Esophageal Sphincter (Gastroesophageal)                                   |                                            |                         | LGIS | MCQs |
|           | Discuss the pathophysiology of achalasia & Megaesophagus                                            |                                            |                         | LGIS | MCQs |
|           | Enlist the features and treatment of achalasia                                                      |                                            |                         | LGIS | MCQs |
|           |                                                                                                     |                                            |                         |      |      |
| GIT-P-003 | Explain storage function of stomach                                                                 | Medical Physiology                         | Stomach                 | LGIS | MCQs |
|           | Describe the basic electrical rhythm of stomach wall                                                |                                            |                         | LGIS | MCQs |
|           | Explain the role of pyloric pump and pyloric sphincter in gastric emptying                          |                                            |                         | LGIS | MCQs |
|           | Explain the factors that promote Stomach Emptying                                                   |                                            |                         | LGIS | MCQs |
|           | Discuss the duodenal (nervous & hormonal) factors that inhibit Stomach emptying                     |                                            |                         | LGIS | MCQs |
|           | Enlist the factors that initiate enterogastric inhibitory reflexes                                  |                                            |                         | LGIS | MCQs |

|           |                                                                                                                        |                                             |                 |      |      |
|-----------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------|------|------|
| GIT-P-003 | Enumerate the causes, features, and pathophysiology of gastritis                                                       | Medical Physiology integrates with Medicine | Stomach         | LGIS | MCQs |
|           | Explain the physiological basis of each feature of gastritis                                                           | Medical Physiology integrates with Medicine |                 | LGIS | MCQs |
|           | Recommend treatment of gastritis                                                                                       | Medical Physiology integrates with Medicine |                 | LGIS | MCQs |
|           | Enumerate the causes, features, and pathophysiology of peptic ulcer                                                    |                                             |                 | LGIS | MCQs |
|           | Explain the physiological basis of each feature of peptic ulcer                                                        |                                             |                 | LGIS | MCQs |
| GIT-P-004 | Enumerate and explain the secretions and movements of small intestine                                                  | Medical Physiology                          | Small Intestine | LGIS | MCQs |
|           | Explain the term “peristaltic rush”                                                                                    |                                             |                 | LGIS | MCQs |
|           | Explain the functions of ileocecal valve and sphincter                                                                 |                                             |                 | LGIS | MCQs |
|           | Enumerate the types of intestinal sprue                                                                                | Medical Physiology integrates with Medicine |                 | LGIS | MCQs |
|           | Enlist the features of intestinal sprue                                                                                |                                             |                 |      |      |
|           | Explain the consequences of sprue on the body                                                                          |                                             |                 |      |      |
| GIT-P-005 | Enumerate the types of movements taking place in colon                                                                 | Medical Physiology                          | Large Intestine | LGIS | MCQs |
|           | Explain the mechanism of developing movements of colon and their control through Gastrocolic and Duodenocolic Reflexes |                                             |                 | LGIS | MCQs |
|           | Enlist the defecation reflexes                                                                                         |                                             |                 | LGIS | MCQs |
|           | Explain the mechanism of defecation reflex                                                                             |                                             |                 | LGIS | MCQs |
|           | Trace the reflex arc of defecation                                                                                     |                                             |                 | LGIS | MCQs |
|           | Name the other autonomic reflexes that affect bowel activity                                                           |                                             |                 | LGIS | MCQs |
|           | Explain the pathophysiology of constipation                                                                            | Medical Physiology integrates with Medicine |                 | LGIS | MCQs |
|           | Describe the cause of Hirschsprung's disease integrate with Medicine.                                                  | Medical Physiology                          |                 | LGIS | MCQs |

|            |                                                                                                                  |                                              |                          |      |      |
|------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|------|------|
|            | Describe the cause of Hirschsprung’s disease integrate with Medicine.                                            |                                              |                          | LGIS | MCQs |
| GIT-P-006  | Explain the functions of liver                                                                                   | Medical Physiology                           | Liver                    | LGIS | MCQs |
|            | Differentiate between liver and gall bladder bile and the hormones acting on them                                |                                              |                          | LGIS | MCQs |
|            | Enumerate the causes and composition of developing gall stones                                                   | Medical Physiology<br>Integrate with Surgery |                          | LGIS | MCQs |
| GIT-P-007  | Explain function and secretions of pancreas                                                                      | Medical Physiology                           | Pancreas                 | LGIS | MCQs |
|            | Enlist the causes and pathophysiology of acute and chronic pancreatitis                                          | Integrate with Medicine                      |                          | LGIS | MCQs |
|            | Enumerate the features of acute pancreatitis and explain the physiological basis of each feature of pancreatitis |                                              |                          | LGIS | MCQs |
| GIT-P-008. | Describe the stages of vomiting act                                                                              | Medical Physiology                           | Vomiting Reflex          | LGIS | MCQs |
|            | Trace the reflex arc of vomiting                                                                                 |                                              |                          | LGIS | MCQs |
|            | Explain the role of chemoreceptor trigger zone for initiation of vomiting by drugs or by motion sickness         |                                              |                          | LGIS | MCQs |
| GIT-P-009  | Define Acute Diarrhea                                                                                            | Integrated with Medicine<br>Gastroenterology | Acute & Chronic Diarrhea | LGIS | MCQs |
|            | Define Chronic Diarrhea                                                                                          |                                              |                          | LGIS | MCQs |
|            | Enlist various causes for acute and chronic diarrhea                                                             |                                              |                          | LGIS | MCQs |

| BIOCHEMISTRY |                                                                                                                                                                        |                  |                                                                                         |                   |                  |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------------------------------------------------------------------------------|-------------------|------------------|
| CODE         | SPECIFIC LEARNING OBJECTIVES                                                                                                                                           | TOTAL HOURS = 40 |                                                                                         |                   |                  |
|              |                                                                                                                                                                        | DISCIPLINE       | TOPIC                                                                                   | TEACHING/LEARNING | ASSESSMENT TOOLS |
| GIT-B-001    | Give the composition and importance of saliva and related clinical disorder (xerostomia)                                                                               | Biochemistry     | Biochemistry of GIT /GIT secretions & digestion and absorption of dietary carbohydrates | LGIS              | MCQs             |
|              | Give the composition and importance of gastric juice with special reference to mechanism of HCl secretion and related clinical disorders (achlorhydria, gastric ulcer) |                  |                                                                                         | LGIS              | MCQs             |
|              | Give the composition and importance of pancreatic juice, bile and succus entericus and related clinical disorders (pancreatitis, cystic fibrosis, cholelithiasis).     |                  |                                                                                         | LGIS              | MCQs             |
|              | Describe digestion and absorption of dietary carbohydrates along with inherited and acquired disorders (lactose intolerance, sucrase-isomaltase deficiency).           |                  |                                                                                         | LGIS              | MCQs             |
| GIT-B-002    | Elaborate key features of various transport systems for entry of glucose into cells.                                                                                   |                  | Carbohydrate metabolism/ Entry of glucose into cells                                    | LGIS              | MCQs             |
| GIT-B-003    | Enlist the hormones that play important roles in regulating carbohydrate metabolism.                                                                                   |                  | Carbohydrate metabolism/ Hormonal control of BSL                                        | LGIS              | MCQs             |
|              | Elaborate the metabolic effects of these hormones.                                                                                                                     |                  |                                                                                         | LGIS              | MCQs             |
|              | Infer the consequences of deficiency and excess of these hormones                                                                                                      |                  |                                                                                         | LGIS              | MCQs             |

|           |                                                                                                                                 |              |                                                         |      |      |
|-----------|---------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------------------------------------|------|------|
| GIT-B-004 | Describe the glycolytic pathway along with its regulation and significance.                                                     | Biochemistry | Carbohydrate metabolism/<br>Glycolysis                  | LGIS | MCQs |
|           | Compare key features of aerobic and anaerobic glycolysis.                                                                       |              |                                                         | LGIS | MCQs |
|           | Calculate the number of ATP produced during aerobic and anaerobic glycolysis.                                                   |              |                                                         | LGIS | MCQs |
|           | Explain hemolytic anemia in subjects with pyruvate kinase deficiency based on your biochemical knowledge.                       |              |                                                         | LGIS | MCQs |
|           | Clearly differentiate between substrate level phosphorylation and oxidative phosphorylation.                                    |              |                                                         | LGIS | MCQs |
| GIT-B-005 | Discuss the metabolic fates of pyruvate.                                                                                        |              | Carbohydrate metabolism/<br>Metabolic fates of pyruvate | LGIS | MCQs |
|           | Describe the transport of pyruvate from cytosol to mitochondria.                                                                |              |                                                         | LGIS | MCQs |
|           | Elaborate the reaction catalyzed by pyruvate dehydrogenase complex (PDH) along with regulation and significance.                |              |                                                         | LGIS | MCQs |
|           | Enlist inherited and acquired causes of lactic acidosis and give biochemical explanation for lactic acidosis in each condition. |              |                                                         | LGIS | MCQs |
| GIT-B-006 | Describe the TCA cycle along with regulation & significance. Calculate the energy yield of TCA                                  |              | Carbohydrate metabolism/<br>Kreb's Cycle                | LGIS | MCQs |

|           |                                                                                                                |              |                                                                    |      |      |
|-----------|----------------------------------------------------------------------------------------------------------------|--------------|--------------------------------------------------------------------|------|------|
| GIT-B-007 | Define gluconeogenesis and enumerate gluconeogenic substrates (precursors)                                     | Biochemistry | Carbohydrate metabolism/<br>Gluconeogenesis                        | LGIS | MCQs |
|           | Delineate the reactions involved in synthesis of glucose from various gluconeogenic substrates.                |              |                                                                    | LGIS | MCQs |
|           | Elaborate the regulation and importance of gluconeogenesis.                                                    |              |                                                                    | LGIS | MCQs |
|           | Explain the significance of Cori cycle and glucosealanine cycle                                                |              |                                                                    | LGIS | MCQs |
| GIT-B-008 | Illustrate the reactions of glycogenesis, glycogenolysis along with their regulation and significance          |              | Carbohydrate metabolism/<br>Glycogen metabolism                    | LGIS | MCQs |
|           | Enlist various types of glycogen storage diseases (GSDs)                                                       |              |                                                                    | LGIS | MCQs |
|           | Infer the key biochemical and clinical features of various GSDs from the respective enzyme deficiencies.       |              |                                                                    | LGIS | MCQs |
| GIT-B-009 | Describe the reactions and regulation of Hexose Mono Phosphate Pathway (HMP).                                  |              | Carbohydrate metabolism/ HMP<br>Hexose Monophosphate Pathway       | LGIS | MCQs |
|           | Discuss the importance of HMP shunt                                                                            |              |                                                                    | LGIS | MCQs |
|           | Explain hemolytic anemia in subjects suffering from G6PD deficiency.                                           |              |                                                                    | LGIS | MCQs |
|           | Diagnose G6PD (glucose-6-phosphate dehydrogenase) deficiency based on given data.                              |              |                                                                    | LGIS | MCQs |
| GIT-B-010 | Describe the reactions, regulation, and biomedical importance of uronic acid pathway and sorbitol pathway      |              | Carbohydrate metabolism/<br>Uronic acid pathway & sorbitol pathway | LGIS | MCQs |
| GIT-B-011 | Outline the reactions involved in ethanol metabolism.                                                          |              | Carbohydrate metabolism/<br>Ethanol metabolism                     | LGIS | MCQs |
|           | Explain how ethanol consumption causes hypoglycemia and fatty liver.                                           |              |                                                                    | LGIS | MCQs |
| GIT-B-012 | Diagrammatically illustrate the organization of electron transport chain (ETC) depicting the flow of electrons |              | Respiratory chain & oxidative phosphorylation /ETC                 | LGIS | MCQs |
|           | Enlist the components of complex I, II, III, and IV                                                            |              |                                                                    | LGIS | MCQs |
|           | Enumerate clinically important inhibitors of electron transport chain and mention their site of action.        |              |                                                                    | LGIS | MCQs |

|           |                                                                                                                                                                                             |                                               |                                                              |      |      |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--------------------------------------------------------------|------|------|
| GIT-B-013 | Elaborate the structure of ATP synthase (complex V).                                                                                                                                        | Biochemistry                                  | Respiratory chain & oxidative phosphorylation /ATP synthesis | LGIS | MCQs |
|           | Explain how the free energy generated by the transport of electrons by ETC is used to produce ATP from ADP + Pi (i.e. chemiosmotic hypothesis)                                              |                                               |                                                              | LGIS | MCQs |
|           | Elaborate the effect of oligomycin and uncouplers on ATP production.                                                                                                                        |                                               |                                                              | LGIS | MCQs |
|           | Describe the effect of arsenic poisoning on carbohydrate metabolism and ATP production.                                                                                                     |                                               |                                                              | LGIS | MCQs |
|           | Elaborate the glycerol 3-P shuttle and malate-aspartate shuttle for the transfer of reducing equivalents from cytosol into the mitochondria.                                                |                                               |                                                              | LGIS | MCQs |
| GIT-B-014 | Define and classify nutrients into macro and micronutrients.                                                                                                                                |                                               | Nutrition/<br>Balanced diet                                  | LGIS | MCQs |
|           | Elaborate the concept and importance of Balanced Diet                                                                                                                                       |                                               |                                                              | LGIS | MCQs |
|           | Enlist the components of balanced diet and elaborate the importance of each component.                                                                                                      |                                               |                                                              | LGIS | MCQs |
| GIT-B-015 | Delineate special nutritional requirements during pregnancy, lactation, growth, and old age.                                                                                                | Integrate with Community Medicine             | Nutrition/ Special nutritional requirements                  | LGIS | MCQs |
|           | Suggest dietary advice for patients suffering from diabetes mellitus, hypertension, obesity, renal disease, lactose intolerance, gluten enteropathy, hypercholesterolemia, and hemorrhoids. |                                               |                                                              | LGIS | MCQs |
| GIT-B-016 | Enlist causes and types of Protein Energy Malnutrition (PEM).                                                                                                                               | Integrate with community Medicine/ Pediatrics | Nutrition/ PEM                                               | LGIS | MCQs |
|           | Differentiate between Kwashiorkor and Marasmus based on the given data                                                                                                                      |                                               |                                                              | LGIS | MCQs |
|           | Enlist symptoms and signs<br>Outline treatment strategies                                                                                                                                   |                                               |                                                              | LGIS | MCQs |

|           |                                                                                                                                             |                                              |                                 |      |      |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|---------------------------------|------|------|
| GIT-B-017 | Define energy balance.                                                                                                                      | Biochemistry                                 | Nutrition/ Caloric requirements | LGIS | MCQs |
|           | Compare the energy content of macro nutrients and alcohol.                                                                                  |                                              |                                 | LGIS | MCQs |
|           | Suggest a simple method for estimating caloric requirements of sedentary adults, moderately active adults, and very active adults           |                                              |                                 | LGIS | MCQs |
| GIT-B-018 | Define basal metabolic rate (BMR)                                                                                                           |                                              | Nutrition/ BMR                  | LGIS | MCQs |
|           | Elaborate the effect of various physiological and pathological factors on BMR.                                                              |                                              |                                 | LGIS | MCQs |
| GIT-B-019 | Define body mass index (BMI).                                                                                                               | Integrate with community Medicine            | Nutrition/ BMI & Obesity        | LGIS | MCQs |
|           | Categorize individuals into underweight, normal, overweight, obese, and morbidly obese based on their BMI values.                           |                                              |                                 | LGIS | MCQs |
|           | Elaborate the role of genetic, environmental, and behavioral factors in determining body weight.                                            |                                              |                                 | LGIS | MCQs |
|           | Clearly differentiate between upper body obesity and lower body obesity.                                                                    |                                              |                                 | LGIS | MCQs |
|           | Enlist health risks associated with obesity.                                                                                                |                                              |                                 | LGIS | MCQs |
| GIT-B-020 | Define Marasmus and Kwashiorkor                                                                                                             | Integrated with Pediatrics                   | Malnutrition                    | LGIS | MCQs |
|           | Define Malnutrition<br>Identify various causes of malnutrition<br>Identify the risk factors of malnutrition<br>Outline treatment strategies | Integrated with Medicine<br>Gastroenterology |                                 | LGIS | MCQs |

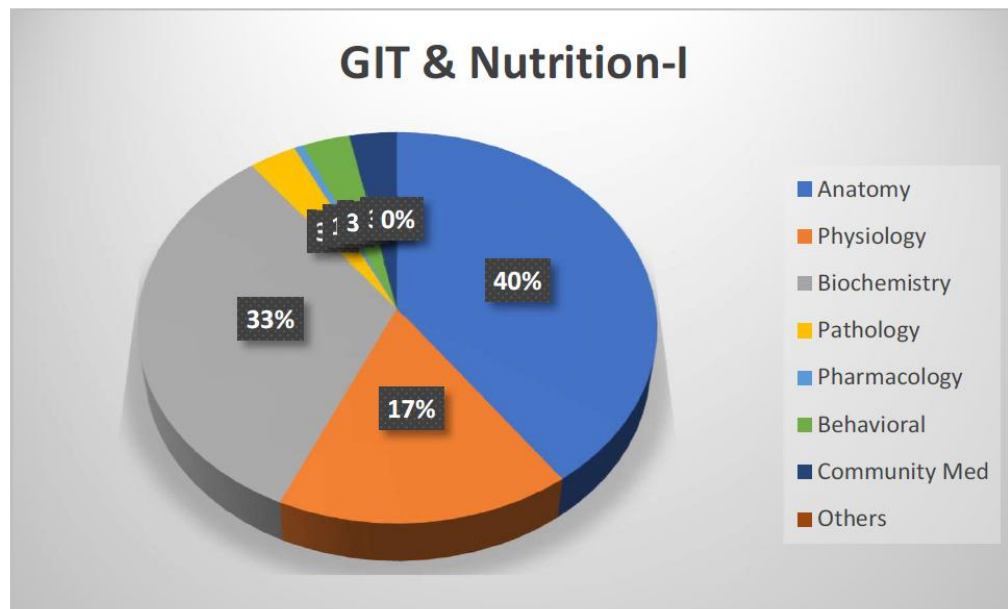
| AGING                                    |                                                                                                                                         |                    |                                   |                   |                  |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------------------|-------------------|------------------|
| CODE                                     | SPECIFIC LEARNING OBJECTIVES                                                                                                            | TOTAL HOURS = 01   |                                   |                   |                  |
|                                          |                                                                                                                                         | DISCIPLINE         | TOPIC                             | TEACHING/LEARNING | ASSESSMENT TOOLS |
| GIT-CM-001                               | Identify causes and risk factors for malnutrition in elderly                                                                            | Community Medicine | Preventive Medicine in Geriatrics | LGIS              | MCQs             |
|                                          | Outline treatment strategies                                                                                                            |                    |                                   | LGIS              | MCQs             |
| PATHOPHYSIOLOGY AND PHARMACOTHERAPEUTICS |                                                                                                                                         |                    |                                   |                   |                  |
| CODE                                     | SPECIFIC LEARNING OBJECTIVES                                                                                                            | TOTAL HOURS = 05   |                                   |                   |                  |
|                                          |                                                                                                                                         | DISCIPLINE         | TOPIC                             | TEACHING/LEARNING | ASSESSMENT TOOLS |
| GIT-Ph-001                               | Classify anti diarrheal drugs and describe the pharmacokinetics, mechanism of action, pharmacological effects, uses and adverse effects | Pharmacology       | Anti Diarrheal Drugs              | LGIS              | MCQs             |
| GIT-Pa-001                               | Define gastritis.<br>Enlist the types of gastritis                                                                                      | Pathology          | Gastritis                         | LGIS              | MCQs             |



## HISTOLOGY

| CODE      | SPECIFIC LEARNING OBJECTIVES                                                                                                                 | TOTAL HOURS = 12    |                                      |                       |                     |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------------------|-----------------------|---------------------|
|           |                                                                                                                                              | DISCIPLINE          | TOPIC                                | TEACHING/<br>LEARNING | ASSESSMENT<br>TOOLS |
| GIT-A-023 | Identify, draw and label the histological sections of Tongue and Lips and enumerate points of identification                                 | Histology Practical | Oral Cavity                          | LGIS & SGD            | VIVA<br>OSPE        |
| GIT-A-024 | Identify, draw and label the histological sections of Salivary glands (Submandibular, Sublingual and Parotid)                                |                     | Salivary Gland                       | LGIS & SGD            | VIVA<br>OSPE        |
| GIT-A-025 | Identify, draw and label the histological structure of the esophagus and enumerate points of identification                                  |                     | Upper GIT                            | LGIS & SGD            | VIVA<br>OSPE        |
|           | Identify, draw and label the histological structure of stomach and enumerate points of identification                                        |                     |                                      |                       |                     |
| GIT-A-026 | Identify, draw and label the histological structure of small intestine (Duodenum, Jejunum, and Ileum) and enumerate points of identification |                     | Small Intestine                      | LGIS & SGD            | VIVA<br>OSPE        |
| GIT-A-027 | Identify, draw and label the histological structure of large intestine and enumerate points of identification                                |                     | Large Intestine                      | LGIS & SGD            | VIVA<br>OSPE        |
| GIT-A-028 | Identify, draw and label the histological sections of Gall bladder, liver and enumerate points of identification                             |                     | Organs associated with GIT           | LGIS & SGD            | VIVA<br>OSPE        |
|           | Identify, draw and label the histological sections of pancreas and enumerate points of identification                                        |                     |                                      | LGIS & SGD            | VIVA<br>OSPE        |
| GIT-A-029 | Identify, draw and label the histological sections of Palatine tonsil, appendix, peyer's patches and enumerate points of identification      |                     | Lymphatic tissue associated with GIT | LGIS & SGD            | VIVA<br>OSPE        |

| BIOCHEMISTRY |                                                                                             |                        |                                     |                         |                  |
|--------------|---------------------------------------------------------------------------------------------|------------------------|-------------------------------------|-------------------------|------------------|
| CODE         | SPECIFIC LEARNING OBJECTIVES                                                                | TOTAL HOURS = 11       |                                     |                         |                  |
|              |                                                                                             | DISCIPLINE             | TOPIC                               | TEACHING/LEARNING       | ASSESSMENT TOOLS |
| GIT-B-021    | Estimate blood glucose level by glucose oxidase method and interpret the results            | Biochemistry Practical | Estimations of blood/urine analytes | LGIS / SGD<br>SKILL LAB | VIVA<br>OSPE     |
|              | Determine blood glucose level by glucometer and interpret the result.                       |                        |                                     | LGIS / SGD<br>SKILL LAB | VIVA<br>OSPE     |
|              | Interpret the graphs related to GCT and GTT                                                 |                        |                                     | LGIS / SGD<br>SKILL LAB | VIVA<br>OSPE     |
|              | Determine urine glucose by dipstick method and by chemical method and interpret the result. |                        |                                     | LGIS / SGD<br>SKILL LAB | VIVA<br>OSPE     |
|              | Estimate serum amylase and interpret the result.                                            |                        |                                     | LGIS / SGD<br>SKILL LAB | VIVA<br>OSPE     |
| GIT-B-022    | Calculate BMI of given subject and interpret the results.                                   |                        | Interpretation of results           | LGIS / SGD<br>SKILL LAB | VIVA<br>OSPE     |
| PHYSIOLOGY   |                                                                                             |                        |                                     |                         |                  |
| CODE         | SPECIFIC LEARNING OBJECTIVES                                                                | TOTAL HOURS = 06       |                                     |                         |                  |
|              |                                                                                             | DISCIPLINE             | TOPIC                               | TEACHING/LEARNING       | ASSESSMENT TOOLS |
| GIT-P-010    | Demonstrate Cranial nerve V, IX & X testing                                                 | Physiology             | Cranial nerve                       | LGIS / SGD<br>SKILL LAB | VIVA<br>OSPE     |
| PATHOLOGY    |                                                                                             |                        |                                     |                         |                  |
| CODE         | SPECIFIC LEARNING OBJECTIVES                                                                | TOTAL HOURS = 01       |                                     |                         |                  |
|              |                                                                                             | DISCIPLINE             | TOPIC                               | TEACHING/LEARNING       | ASSESSMENT TOOLS |
| GIT-Pa-004   | Identify microscopic features of: Acute and Chronic Gastritis, H.Pylori Induced Gastritis   | Pathology              | Gastritis                           | LGIS / SGD<br>SKILL LAB | VIVA<br>OSPE     |
| PHARMACOLOGY |                                                                                             |                        |                                     |                         |                  |
| CODE         | SPECIFIC LEARNING OBJECTIVES                                                                | TOTAL HOURS = 01       |                                     |                         |                  |
|              |                                                                                             | DISCIPLINE             | TOPIC                               | TEACHING/LEARNING       | ASSESSMENT TOOLS |
| GIT-Ph-002   | Preparation and calculation of oral rehydration salt (ORS)                                  | Pharmacology           | ORS                                 | LGIS / SGD<br>SKILL LAB | VIVA<br>OSPE     |



| Module Weeks | Recommended Minimum Hours |
|--------------|---------------------------|
| 06           | 155                       |

**BLOCK 4**

**RENAL-1 MODULE**

**STUDY GUIDE**

**Modular Integrated  
Curriculum 2K23**  
*Volume-02*

**MODULE**

**07**

**RENAL-I**



## MODULE RATIONALE

The renal module for second-year MBBS (Bachelor of Medicine, Bachelor of Surgery) students is a crucial component of the medical curriculum. This module is designed to provide students with a comprehensive understanding of the structure, function, and pathology of the kidneys, as well as the principles of renal physiology and the clinical management of and electrolyte balance, acid- base balance, and blood pressure. Understanding renal physiology is essential for comprehending various disease renal disorders. Here are some key rationales for including a renal module in the curriculum:

## MODULE OUTCOMES

- Discuss the gross and microscopic anatomy of the kidney and urinary system (PLO-1, PLO-6)
- Explain the embryological development of the kidney and urinary tract (PLO-6)
- Explain common developmental abnormalities of the renal system (PLO-1, PLO-6)
- Identify the role of the renal system in maintaining blood pressure and acid-base balance (PLO-1, PLO-6)
- Enlist the functions of the kidney and related pathologies (PLO-1, PLO-6)
- Explain the mechanisms of electrolyte balance and associated pathologies (PLO-6, PLO-1)
- Highlight pathologies related to the kidneys and their distinctive clinical features (PLO-1, PLO-2, PLO-6)
- Interpret investigations used to diagnose abnormal structural and functional presentations (PLO-1, PLO-2, PLO-7)

## THEMES

- Kidney
- Ureter
- Bladder
- Acid/base balance

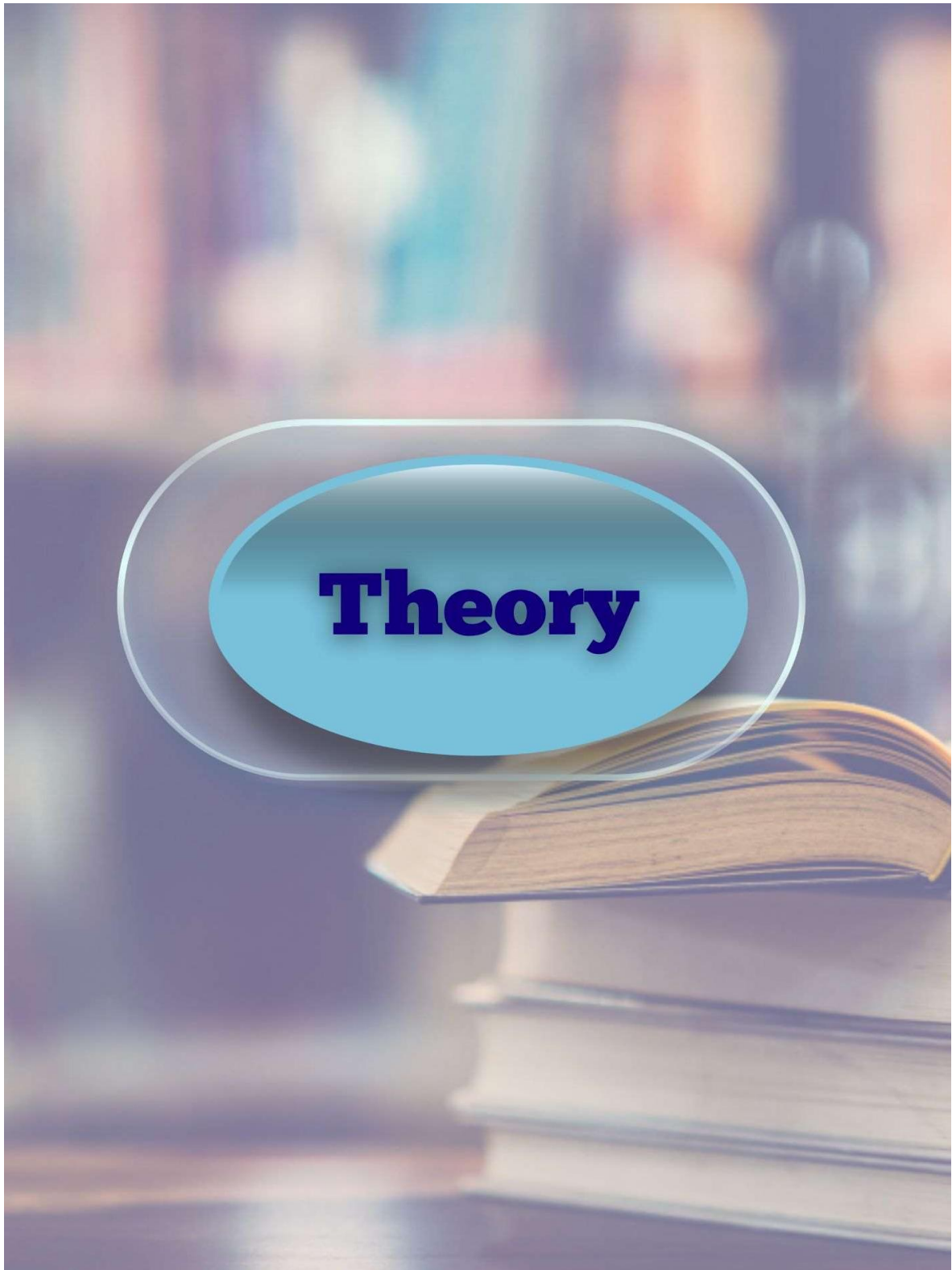
## CLINICAL RELEVANCE

- Protein in urine.
- Kidney stones.
- Kidney pain.
- Blood in urine (hematuria)
- Kidney infection.
- Acute kidney injury (AKI)
- Kidney cancer.
- Dialysis
- Control of blood pressure

## IMPLEMENTATION TORs

- The time calculation for completion of modules and blocks is based on 35 hours per week. Total hours of teaching, learning and formative/summative internal assessment to be completed in a year are 1200.
- The hours mentioned within each module are the mandatory minimum required. The rest of the hours are left to the discretion of the institution that can be used in teaching, learning and assessment as per decision of the institutional academic council.
- The content and the intended learning outcomes written are mandatory, to be taught, at the level required, as the end year assessment will be based on these.
- However, the level of cognition can be kept at a higher level by the institution.
- The Table of Specifications provided will be used for the three papers of the Second professional examination. The same table of specifications should be used for the respective three block exams for internal assessment.





| NORMAL STRUCTURE |                                                                                                                                                                                                                                                          |                  |                        |                       |                     |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------|-----------------------|---------------------|
| GROSS ANATOMY    |                                                                                                                                                                                                                                                          |                  |                        |                       |                     |
| CODE             | SPECIFIC LEARNING OUTCOMES                                                                                                                                                                                                                               | TOTAL HOURS = 14 |                        |                       |                     |
|                  |                                                                                                                                                                                                                                                          | DISCIPLINE       | TOPIC                  | TEACHING/<br>LEARNING | ASSESSMENT<br>TOOLS |
| R-A-001          | Describe the fascia of posterior abdominal wall with its clinical significance-Psoas Fascia & Tuberculosis.<br>Describe the posterior abdominal wall muscles, arteries (abdominal aorta), veins (inferior vena cava), lymphatics, & clinical correlates. | Human Anatomy    | Posterior Abdomen Wall | SGD                   | MCQs                |
| R-A-002          | Describe gross features and facial coverings of kidneys.                                                                                                                                                                                                 |                  | Kidney                 | SGD                   | MCQs                |
|                  | Compare and contrast the relations of right and left kidneys.                                                                                                                                                                                            |                  |                        | SGD                   | MCQs                |
|                  | Describe blood supply, lymphatics and nerve supply of kidney                                                                                                                                                                                             |                  |                        | SGD                   | MCQs                |
|                  | Discuss the clinical aspects of kidneys                                                                                                                                                                                                                  |                  |                        | SGD                   | MCQs                |
|                  | Demonstrate the surface marking and radiographic anatomy of kidney. Identify the side of kidney                                                                                                                                                          |                  |                        | SGD                   | OSPE                |
| R-A-003          | Compare and contrast the relations of right and left ureter                                                                                                                                                                                              |                  | Ureter                 | SGD                   | MCQs                |
|                  | Give the constrictions of ureter                                                                                                                                                                                                                         |                  |                        | SGD                   | MCQs                |
|                  | Describe the blood supply nerve supply and lymphatics of ureter                                                                                                                                                                                          |                  |                        | SGD                   | MCQs                |
|                  | Identify the ureter.                                                                                                                                                                                                                                     |                  |                        | SGD                   | OSPE                |
| R-A-004          | Describe the gross anatomical features, relations, surfaces, blood supply, nerve supply and lymphatics of urinary bladder                                                                                                                                |                  | Urinary bladder        | SGD                   | MCQs                |
|                  | Give the clinical correlates of urinary bladder                                                                                                                                                                                                          |                  |                        | SGD                   | MCQs                |
|                  | Identify the gross features and surfaces of urinary bladder                                                                                                                                                                                              |                  |                        | SGD                   | OSPE                |

|         |                                                                                          |                          |                              |      |             |
|---------|------------------------------------------------------------------------------------------|--------------------------|------------------------------|------|-------------|
| R-A-005 | Interpret basic urological signs/symptoms & investigations.                              | Integrate with urology   | Sign/symptom/ investigations | LGIS | MCQs & OSPE |
| R-A-006 | Describe the etiology, and management of urinary retention.                              |                          | Urinary retention            | LGIS | MCQs & OSPE |
| R-A-007 | Identify and describe the various anatomic landmarks of the renal system on radiographs. | Integrate with Radiology | Radiograph                   | LGIS | MCQs & OSPE |
| R-A-008 | Describe the parts of urethra.                                                           | Human Anatomy            | Urethra                      | SGD  | MCQs        |

| EMBRYOLOGY & POST-NATAL DEVELOPMENT |                                                                                           |                  |                               |                    |                  |
|-------------------------------------|-------------------------------------------------------------------------------------------|------------------|-------------------------------|--------------------|------------------|
| CODE                                | SPECIFIC LEARNING OUTCOMES                                                                | TOTAL HOURS = 05 |                               |                    |                  |
|                                     |                                                                                           | DISCIPLINE       | TOPIC                         | TEACHING/ LEARNING | ASSESSMENT TOOLS |
| R-A-009                             | Describe development of intermediate mesoderm and its derivatives                         | Embryology       | Development of urinary system | LGIS               | MCQs             |
|                                     | Describe the development of pronephros, mesonephros and metanephros                       |                  |                               | LGIS               | MCQs             |
|                                     | Describe positional changes during descent of kidney with correlation to its blood supply |                  |                               | LGIS               | MCQs             |
|                                     | Describe the molecular regulation of kidney development.                                  |                  |                               | LGIS               | MCQs             |
|                                     | Describe the development of urinary bladder and urethra                                   |                  |                               | LGIS               | MCQs             |
|                                     | List and describe the common congenital anomalies of kidney, urinary bladder and urethra. |                  |                               | LGIS               | MCQs & OSPE      |

| MICROSCOPIC STRUCTURE |                                                                                                                                                        |                  |                              |                       |                     |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------------|-----------------------|---------------------|
| CODE                  | SPECIFIC LEARNING OBJECTIVES                                                                                                                           | TOTAL HOURS = 04 |                              |                       |                     |
|                       |                                                                                                                                                        | DISCIPLINE       | TOPIC                        | TEACHING/<br>LEARNING | ASSESSMENT<br>TOOLS |
| R-A-010               | Describe the histological, structural organization and functions of kidney with clinicals.                                                             | Histology        | Structure of kidney          | LGIS                  | MCQs                |
| R-A-011               | Describe the light and ultrastructure of Juxtaglomerular apparatus and glomerular filtration barrier                                                   |                  | Juxtaglomerular apparatus    | LGIS                  | MCQs                |
| R-A-012               | Describe the histological structure of ureter                                                                                                          |                  | Structure of ureter          | LGIS                  | MCQs                |
| R-A-013               | Describe the histological structure of urinary bladder Discuss clinical correlates (Cystitis, Urinary bladder cancer, Urinary Tract Infections (UTIs)) |                  | Structure of urinary bladder | LGIS                  | MCQs                |

| NORMAL FUNCTION    |                                                                                                                                                 |                         |                                  |                       |                     |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------------------|-----------------------|---------------------|
| MEDICAL PHYSIOLOGY |                                                                                                                                                 |                         |                                  |                       |                     |
| CODE               | SPECIFIC LEARNING OBJECTIVES                                                                                                                    | TOTAL HOURS = 36        |                                  |                       |                     |
|                    |                                                                                                                                                 | DISCIPLINE              | TOPIC                            | TEACHING/<br>LEARNING | ASSESSMENT<br>TOOLS |
| R-P-001            | Explain the general organization of the kidney and urinary tract<br>Explain the physiological anatomy of the nephron                            | Physiology              | Physiological anatomy of kidneys | LGIS                  | MCQs                |
| R-P-002            | Explain the renal blood supply                                                                                                                  |                         | Renal Blood Supply               | LGIS                  | MCQs                |
| R-P-003            | Describe major composition of intracellular and extracellular fluids                                                                            |                         | Body fluid compartment           | LGIS                  | MCQs                |
|                    | Define Hypo and hypernatremia                                                                                                                   |                         |                                  | LGIS                  | MCQs                |
|                    | Explain the causes of hypo and hypernatremia and their effects on Composition of body fluid compartments                                        |                         |                                  | LGIS                  | MCQs                |
|                    | Describe difference between iso-osmotic, hyper-osmotic, hypo-osmotic fluids                                                                     |                         |                                  | LGIS                  | MCQs                |
|                    | Enlist the methods to measure body fluids volumes.                                                                                              |                         |                                  | LGIS                  | MCQs                |
| R-P-004            | Enumerate causes of Intracellular and extracellular edema                                                                                       | Integrate with Medicine | Edema                            | LGIS                  | MCQs                |
|                    | Describe safety factors that prevent edema                                                                                                      |                         |                                  | LGIS                  | MCQs                |
| R-P-005            | Explain the functions of the kidney                                                                                                             | Physiology              | Function                         | LGIS                  | MCQs                |
| R-P-006            | Describe the mechanism of micturition and its control                                                                                           |                         | Micturition reflex               | LGIS                  | MCQs                |
|                    | Explain the role of higher center on micturition                                                                                                |                         |                                  | LGIS                  | MCQs                |
|                    | Explain the physiological anatomy and innervation of bladder                                                                                    |                         |                                  | LGIS                  | MCQs                |
|                    | Discuss the voluntary control of micturition                                                                                                    |                         |                                  | LGIS                  | MCQs                |
| R-P-007            | Explain the causes, pathophysiology, and features of atonic bladder.<br>Discuss the causes, pathophysiology, and features of automatic bladder. |                         | Abnormalities of micturition     | LGIS                  | MCQs                |
|                    | Write the causes, pathophysiology, and features of uninhibited neurogenic bladder                                                               |                         |                                  | LGIS                  | MCQs                |

|         |                                                                                      |            |                       |      |      |
|---------|--------------------------------------------------------------------------------------|------------|-----------------------|------|------|
| R-P-008 | Enlist the steps of urine formation                                                  | Physiology | Urine formation       | LGIS | MCQs |
|         | Explain the physiological anatomy and functions of glomerular capillary membrane     |            |                       | LGIS | MCQs |
|         | Discuss the composition of filtrate                                                  |            |                       | LGIS | MCQs |
|         | Explain the minimal change nephropathy and increase permeability to plasma protein   |            |                       | LGIS | MCQs |
| R-P-009 | Define Glomerular Filtration Rate (GFR).                                             |            | Glomerular filtration | LGIS | MCQs |
|         | Describe the determinants of GFR                                                     |            |                       | LGIS | MCQs |
|         | Explain the factors affecting GFR                                                    |            |                       | LGIS | MCQs |
|         | Discuss the hormones and autocoids that affect GFR                                   |            |                       | LGIS | MCQs |
|         | Explain mechanisms of autoregulation of GFR                                          |            |                       | LGIS | MCQs |
|         | Enlist the physiological and pathological factors that decrease GFR                  |            |                       | LGIS | MCQs |
|         | Explain the effects of angiotensin II blocker on GFR during renal hypoperfusion      |            |                       | LGIS | MCQs |
| R-P-010 | Enumerate different types of transport along the kidney tubules for reabsorption     |            | Reabsorption          | LGIS | MCQs |
|         | Explain the reabsorption and secretion along different parts of the Nephron          |            |                       | LGIS | MCQs |
|         | Explain the regulation of tubular reabsorption                                       |            |                       | LGIS | MCQs |
|         | Discuss the forces / pressure and hormones that determine renal tubular reabsorption |            |                       | LGIS | MCQs |
|         | Explain the reabsorption of water along different parts of nephron                   |            |                       | LGIS | MCQs |
|         | Define obligatory and facultative reabsorption                                       |            |                       | LGIS | MCQs |
|         | Discuss the characteristics of late distal tubules and cortical collecting ducts     |            |                       | LGIS | MCQs |
|         | Discuss the characteristics of medullary collecting ducts                            |            |                       | LGIS | MCQs |
| R-P-011 | Explain the use of clearance method to quantify kidney function                      |            | Clearance method      | LGIS | MCQs |

|         |                                                                                                                                                                           |            |                                          |      |      |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------------------------------------|------|------|
| R-P-012 | Describe mechanism of reabsorption of sodium along different parts nephrons                                                                                               | Physiology | Transport maximum                        | LGIS | MCQs |
|         | Define and explain the term Transport maximum for the substances                                                                                                          |            |                                          | LGIS | MCQs |
|         | Define filtered load for the substance                                                                                                                                    |            |                                          | LGIS | MCQs |
|         | Justify the difference of transport maximum and renal threshold of glucose in renal tubules                                                                               |            |                                          | LGIS | MCQs |
| R-P-013 | Explain the renal mechanisms for excreting Dilute urine                                                                                                                   |            | Urine concentration and dilution         | LGIS | MCQs |
|         | Explain the mechanism for forming a concentrated urine                                                                                                                    |            |                                          | LGIS | MCQs |
|         | Discuss the role of urea in the process of countercurrent multiplier mechanism                                                                                            |            |                                          | LGIS | MCQs |
|         | Describe the countercurrent exchange in vasa Recta to preserve hyperosmolarity of renal medulla                                                                           |            |                                          | LGIS | MCQs |
| R-P-014 | Define and explain the term obligatory urine volume. Define and explain free water clearance.<br>Define Urine specific gravity.                                           |            | Obligatory urine volume                  | LGIS | MCQs |
| R-P-015 | Enumerate different abnormalities of urinary concentrating ability                                                                                                        |            | Disorders of urine concentrating ability | LGIS | MCQs |
| R-P-016 | Enumerate the types of Diabetes insipidus                                                                                                                                 |            | Diabetes insipidus                       | LGIS | MCQs |
|         | Enlist the features of diabetes insipidus                                                                                                                                 |            |                                          | LGIS | MCQs |
|         | Explain the pathophysiology and treatment of central diabetes insipidus                                                                                                   |            |                                          | LGIS | MCQs |
|         | Discuss the pathophysiology of nephrogenic diabetes insipidus                                                                                                             |            |                                          | LGIS | MCQs |
| R-P-017 | Make the flow chart to show the Osmoreceptor- antidiuretic hormone (ADH) feedback mechanism for regulating extracellular fluid osmolarity in response to a water deficit. |            | Osmoreceptor-ADH Feedback System         | LGIS | MCQs |
|         | Enlist the factors which increase and decrease the release of ADH                                                                                                         |            | Thirst                                   | LGIS | MCQs |

|         |                                                                                                                                                                             |            |                                                              |      |      |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------------------------------------------|------|------|
| R-P-018 | Explain the mechanism of thirst                                                                                                                                             | Physiology |                                                              | LGIS | MCQs |
| R-P-019 | Enumerate the factors that can alter potassium distribution between intracellular and extracellular fluids                                                                  |            | Renal regulation of potassium                                | LGIS | MCQs |
|         | Discuss the process of secretion of potassium by renal tubules<br>Explain the regulation of internal potassium distribution and potassium secretion                         |            |                                                              | LGIS | MCQs |
| R-P-020 | Explain the control of extracellular fluid osmolarity and sodium concentration                                                                                              |            | Control of ECF osmolarity                                    | LGIS | MCQs |
| R-P-021 | Explain the integration of renal mechanism for control of Extracellular Fluid (ECF)                                                                                         |            | Control of ECF                                               | LGIS | MCQs |
|         | Explain the importance of pressure natriuresis and diuresis in maintaining body sodium and fluid balance                                                                    |            |                                                              | LGIS | MCQs |
| R-P-022 | Explain the renal handling of calcium concentration to regulate plasma calcium concentration                                                                                |            | Renal regulation of calcium<br>Renal regulation of phosphate | LGIS | MCQs |
|         | Enumerate the factors that alter renal calcium                                                                                                                              |            |                                                              | LGIS | MCQs |
|         | Enlist the factors that alter renal phosphate excretion                                                                                                                     |            |                                                              | LGIS | MCQs |
| R-P-023 | Explain the nervous and hormonal factors that increase the effectiveness of renal body fluid feedback control                                                               |            | Renal body fluid feedback control                            | LGIS | MCQs |
| R-P-024 | Explain the conditions that cause large increase in blood volume and ECF volume<br>Explain the conditions that cause large increase ECF volume but with normal blood volume |            | ECF and blood volume                                         | LGIS | MCQs |
| R-P-025 | Explain the renal handling of H <sup>+</sup> ion.                                                                                                                           |            | Acid base balance                                            | LGIS | MCQs |
| R-P-026 | Analyze the acid base disturbances on the basis of pH, HCO <sub>3</sub> and CO <sub>2</sub>                                                                                 |            | Acid base disturbance                                        | LGIS | MCQs |
|         | Explain the causes and compensation of metabolic acidosis                                                                                                                   |            |                                                              | LGIS | MCQs |
|         | Explain the causes and compensation of metabolic alkalosis                                                                                                                  |            |                                                              | LGIS | MCQs |

|         |                                                                 |            |           |      |      |
|---------|-----------------------------------------------------------------|------------|-----------|------|------|
|         | Explain the causes and compensation of respiratory acidosis     |            |           | LGIS | MCQs |
|         | Explain the causes and compensation of respiratory alkalosis    |            |           | LGIS | MCQs |
|         | Explain the causes and compensation of mixed acid base disorder |            |           | LGIS | MCQs |
| R-P-027 | Define and explain anion gap                                    | Physiology | Anion gap | LGIS | MCQs |

| MEDICAL BIOCHEMISTRY |                                                                                                                                                       |                      |                                     |                   |                  |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------|-------------------|------------------|
| CODE                 | SPECIFIC LEARNING OBJECTIVES                                                                                                                          | TOTAL HOURS = 23     |                                     |                   |                  |
|                      |                                                                                                                                                       | DISCIPLINE           | TOPIC                               | TEACHING/LEARNING | ASSESSMENT TOOLS |
| R-B-001              | Discuss the synthesis and degradation of purines (De-Novo and salvage pathway)                                                                        | Medical Biochemistry | Purine metabolism                   | LGIS              | MCQs             |
| R-B-002              | Discuss the synthesis and degradation of pyrimidine (De-Novo and salvage pathway)                                                                     |                      | Pyrimidine metabolism               | LGIS              | MCQs             |
| R-B-003              | Outline the sequence of reactions that convert IMP to AMP and GMP and to their corresponding triphosphates                                            |                      | Nucleotide metabolism               | LGIS              | MCQs             |
| R-B-004              | Discuss the regulation of purine and pyrimidine biosynthesis and degradation                                                                          |                      | Regulation of purine and pyrimidine | LGIS              | MCQs             |
| R-B-005              | Interpret the Lesh-Nhyan syndrome. Gout, SCID/ADA on basis of sign symptoms and data                                                                  |                      | Purine metabolism disorders         | LGIS              | MCQs             |
| R-B-006              | Interpret Orotic aciduria in relevance to nucleotides and urea<br>Differentiate between CPS I and II                                                  |                      | Pyrimidine metabolism disorders     | LGIS              | MCQs             |
| R-B-007              | Interpret the role of synthetic analogues of nucleotides in medicine based on sign/symptoms and data e.g Methotrexate, 5 Flurouracil and Allupurinol. |                      | Analogues of nucleotides            | LGIS              | MCQs             |
|                      | Interpret the role of PABA analogs and mycophenolic acid in purine biosynthesis                                                                       |                      |                                     | LGIS              | MCQs             |

|         |                                                                                                                                                                                                                                                                                                                                            |                                      |                                                              |      |      |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------|------|------|
| R-B-008 | Discuss the role of Ribonucleotide reductase in Nucleotide metabolism (hydroxyurea)                                                                                                                                                                                                                                                        |                                      | Role of Ribonucleotide reductase                             | LGIS | MCQs |
| R-B-009 | Define acidosis and alkalosis. Classify acid base disorders.<br>Enlist causes of metabolic acidosis and give its compensation.<br>Enlist causes of respiratory acidosis and give its compensation.<br>Enlist causes of metabolic alkalosis and give its compensation.<br>Enlist causes of respiratory alkalosis and give its compensation. | Biochemistry integrate with Medicine | Acid Base balance imbalance/<br>Types of acid base disorders | LGIS | MCQs |
| R-B-010 | Interpret disorders metabolic and respiratory disorders of acid base balance on basis of sign, symptoms and arterial blood gas (ABG) findings<br>Give biochemical explanation for tetany associated with alkalosis                                                                                                                         | Biochemistry                         | Acid Base balance imbalance/<br>Tetany in alkalosis          | LGIS | MCQs |

### PATHOPHYSIOLOGY AND PHARMACOTHERAPEUTICS

| CODE     | SPECIFIC LEARNING OBJECTIVES                                                                                    | TOTAL HOURS = 14            |              |                   |                  |
|----------|-----------------------------------------------------------------------------------------------------------------|-----------------------------|--------------|-------------------|------------------|
|          |                                                                                                                 | DISCIPLINE                  | TOPIC        | TEACHING/LEARNING | ASSESSMENT TOOLS |
| R-Ph-001 | Classify diuretics<br>Describe carbonic anhydrase inhibitor. MOA, clinical uses and adverse effects             | Pharmacology & Therapeutics | Diuretics    | LGIS              | MCQs             |
|          | Describe Thiazide & loop diuretics their Mechanism of Action, clinical uses, and adverse effects.               |                             |              | LGIS              | MCQs             |
|          | Describe Potassium sparing and osmotic diuretics their mechanism of action, clinical uses, and adverse effects. |                             |              | LGIS              | MCQs             |
| R-Pa-001 | Discuss the etiology and pathogenesis of different types of stones.                                             | Pathology                   | Renal Stones | LGIS              | MCQs             |

|          |                                                                                                                                                                                                                                                                                |                         |                         |      |      |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------|------|------|
| R-Pa-002 | Identify the causes, morphological aspect & outcome of hydronephrosis.                                                                                                                                                                                                         |                         | Hydronephrosis          | LGIS | MCQs |
| R-Pa-003 | Define pyelonephritis and enumerate its types. Describe the morphological features of acute and chronic pyelonephritis                                                                                                                                                         |                         | Pyelonephritis          | LGIS | MCQs |
| R-Pa-004 | Define acute and chronic cystitis. Describe morphological features of different type of cystitis.                                                                                                                                                                              |                         | Cystitis                | LGIS | MCQs |
| R-Pa-005 | Enlist common causative agents of urinary tract infections and describe pathogenesis and clinical features of common causative agents of UTI.                                                                                                                                  | Microbiology            | UTI causative agents    | LGIS | MCQs |
| R-Pa-006 | Define various presentations of glomerulonephritis e.g asymptomatic proteinuria or hematuria detected during routine testing, nephrotic syndrome, acute nephritic syndrome, and rapidly progressive glomerulonephritis (RPGN).<br><br>Define nephrotic and nephritic syndrome. | Integrate with Medicine | Glomerulonephritis      | LGIS | MCQs |
| R-Pa-007 | Define AKI (acute kidney injury)<br>Identify various risk factors and causes for AKI. Outline management strategies.                                                                                                                                                           |                         | Acute Kidney Injury     | LGIS | MCQs |
| R-Pa-008 | Define UTI (Urinary Tract Infection)                                                                                                                                                                                                                                           |                         | Urinary tract infection | LGIS | MCQs |
|          | Identify various risk factors and causes of UTI.                                                                                                                                                                                                                               |                         |                         | LGIS | MCQs |
|          | Describe signs and symptoms of UTI.                                                                                                                                                                                                                                            |                         |                         | LGIS | MCQs |
|          | Outline management strategies.                                                                                                                                                                                                                                                 |                         |                         | LGIS | MCQs |

| DISEASE PREVENTION AND IMPACT |                                                                                                                                                                                                              |                                      |                                                                               |                     |                  |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------|---------------------|------------------|
| CODE                          | SPECIFIC LEARNING OBJECTIVES                                                                                                                                                                                 | TOTAL HOURS = 04                     |                                                                               |                     |                  |
|                               |                                                                                                                                                                                                              | DISCIPLINE                           | TOPIC                                                                         | TEACHING / LEARNING | ASSESSMENT TOOLS |
| R-CM-001                      | Discuss the significance of quality of life in disease and treatment settings.<br><br>Measures of health status. Disability-Adjusted Life, Year (DALY) and Quality-Adjusted Life Year (QALY) life expectancy | Community Medicine and Public Health | Quality of life                                                               | LGIS                | MCQs             |
| R-BhS-001                     | To identify the behavioral abnormalities caused by renal function.                                                                                                                                           | Behavioral Sciences                  | Dementia, uremic encephalopathy, delusion, muscle paralysis & Societal impact | LGIS                | MCQs             |
|                               | To identify the cognitive abnormality.                                                                                                                                                                       |                                      |                                                                               | LGIS                | MCQs             |
|                               | To identify the dangers for the patient, his family, and society.                                                                                                                                            |                                      |                                                                               | LGIS                | MCQs             |

| AGING    |                                                                                                                              |                  |                      |                     |                  |
|----------|------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------|---------------------|------------------|
| CODE     | SPECIFIC LEARNING OBJECTIVES                                                                                                 | TOTAL HOURS = 02 |                      |                     |                  |
|          |                                                                                                                              | DISCIPLINE       | TOPIC                | TEACHING / LEARNING | ASSESSMENT TOOLS |
| R-Ag-001 | To define preventive care in diseases related to urinary system(adults).<br><br>Primary, secondary, and tertiary prevention. | Community        | Disease prevention   |                     |                  |
| R-Ag-002 | Define urinary incontinence.<br>Outline management strategies.                                                               | Medicine         | Urinary incontinence |                     |                  |



## HISTOLOGY

| CODE    | SPECIFIC LEARNING OBJECTIVES                                                                                                                            | TOTAL HOURS = 06 |                                                 |                   |                  |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------------|-------------------|------------------|
|         |                                                                                                                                                         | DISCIPLINE       | TOPIC                                           | TEACHING/LEARNING | ASSESSMENT TOOLS |
| R-A-014 | Identify and draw and label the histological structure of kidney and enumerate points of identification                                                 | Practical        | Kidney                                          | LGIS & SGD        | VIVA<br>OSPE     |
| R-A-015 | Identify, draw and label the histological structure of ureter and enumerate its points of identification                                                |                  | Ureter                                          | LGIS & SGD        | VIVA<br>OSPE     |
| R-A-016 | Identify, draw and label the histological structure of urinary bladder and enumerate its points of identification                                       |                  | Urinary bladder                                 | LGIS & SGD        | VIVA<br>OSPE     |
| R-A-017 | Diagram showing site of action of diuretics, classification of diuretics, table showing the effect of various diuretics on urinary electrolytes and ph. |                  | Action, Classification and effects of diuretics | LGIS & SGD        | VIVA<br>OSPE     |

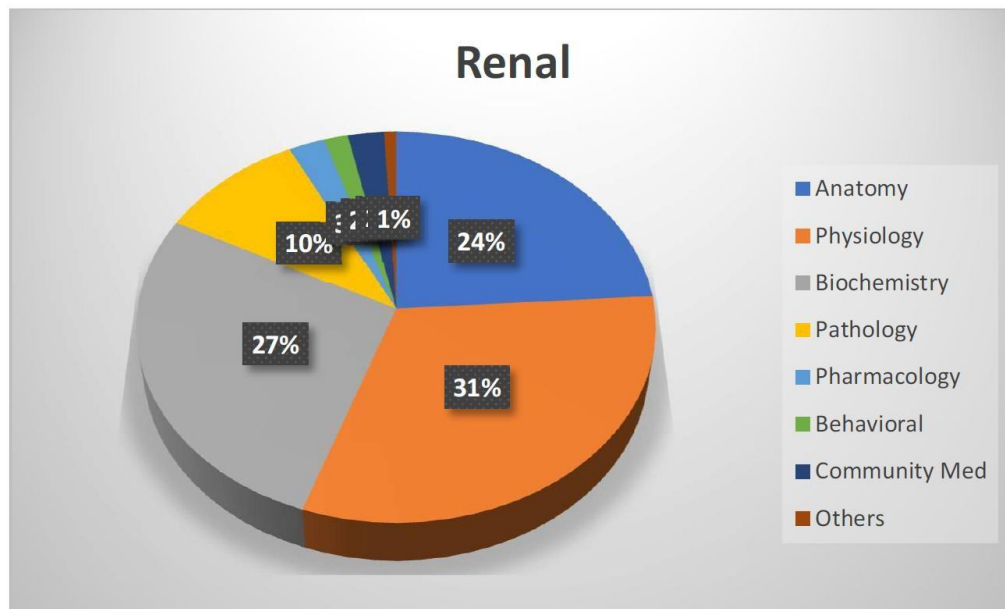
## PHYSIOLOGY

| CODE    | SPECIFIC LEARNING OBJECTIVES                                                                                   | TOTAL HOURS = 02        |                          |                         |                  |
|---------|----------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------|-------------------------|------------------|
|         |                                                                                                                | DISCIPLINE              | TOPIC                    | TEACHING/LEARNING       | ASSESSMENT TOOLS |
| R-P-028 | Perform a complete examination of the urine sample<br>URS-10 (using urine reagent-10) and interpret its report | Physiology<br>Practical | Interpretation of report | LGIS / SGD<br>SKILL LAB | VIVA<br>OSPE     |
|         | Determine the specific gravity of urine                                                                        |                         |                          | LGIS / SGD<br>SKILL LAB | VIVA<br>OSPE     |

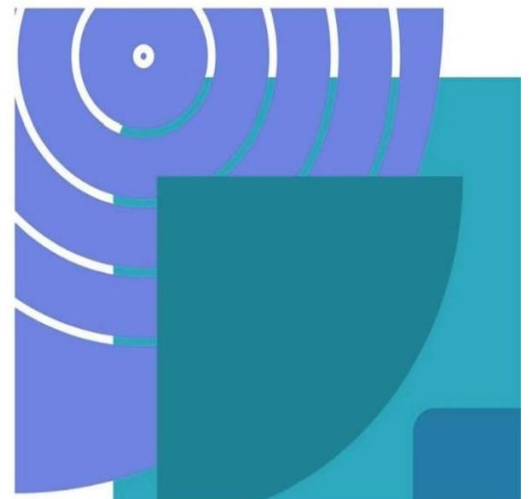
| BIOCHEMISTRY |                                                                                                           |                        |                           |                      |                  |
|--------------|-----------------------------------------------------------------------------------------------------------|------------------------|---------------------------|----------------------|------------------|
| CODE         | SPECIFIC LEARNING OBJECTIVES                                                                              | TOTAL HOURS = 10       |                           |                      |                  |
|              |                                                                                                           | DISCIPLINE             | TOPIC                     | TEACHING/LEARNING    | ASSESSMENT TOOLS |
| R-B-011      | Estimate blood urea, creatinine & creatinine clearance and interpret the results.                         | Biochemistry Practical | Interpretation of results | LGIS / SGD SKILL LAB | VIVA OSPE        |
|              | Determination of proteins in urine by dipstick method and by chemical methods and interpret your results. |                        |                           | LGIS / SGD SKILL LAB | VIVA OSPE        |
|              | Estimate serum uric acid by kit method                                                                    |                        |                           | LGIS / SGD SKILL LAB | VIVA OSPE        |

| PATHOLOGY |                                                                                                                      |                       |                |                      |                  |
|-----------|----------------------------------------------------------------------------------------------------------------------|-----------------------|----------------|----------------------|------------------|
| CODE      | SPECIFIC LEARNING OBJECTIVES                                                                                         | TOTAL HOURS = 01 + 01 |                |                      |                  |
|           |                                                                                                                      | DISCIPLINE            | TOPIC          | TEACHING/LEARNING    | ASSESSMENT TOOLS |
| R-Pa-009  | Identify morphological features of acute pyelonephritis<br>Identify morphological features of Chronic pyelonephritis | Pathology             | Pyelonephritis | LGIS / SGD SKILL LAB | VIVA OSPE        |

| PHARMACOLOGY |                                                                                                                                                           |                       |           |                      |                  |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------|----------------------|------------------|
| CODE         | SPECIFIC LEARNING OBJECTIVES                                                                                                                              | TOTAL HOURS = 01 + 01 |           |                      |                  |
|              |                                                                                                                                                           | DISCIPLINE            | TOPIC     | TEACHING/LEARNING    | ASSESSMENT TOOLS |
| R-Ph-002     | Label the diagram showing the site of action of diuretics along with examples<br>Tabulate the effects of various diuretics on urinary electrolytes and pH | Pharmacology          | Diuretics | LGIS / SGD SKILL LAB | VIVA OSPE        |



| Total Weeks | Total Hours |
|-------------|-------------|
| 04          | 124         |



# TENTATIVE TIMETABLE

| GIT Module Schedule (2 <sup>nd</sup> Year MBBS) |                          |               |                    |               |                               |              |                                     |                  |           |
|-------------------------------------------------|--------------------------|---------------|--------------------|---------------|-------------------------------|--------------|-------------------------------------|------------------|-----------|
|                                                 | WEEK- 01/06              |               |                    |               |                               |              |                                     |                  |           |
| Day                                             | 8:00 - 09:00             | 09:00 - 10:00 | 10:00 - 10:50      | 10:50 - 11:40 | 11:40 - 12:30                 | 12:30- 1:10  | 1:10-1:40                           | 1:40 - 3:00      |           |
| Monday                                          | Quran LGIS               | Beh LGIS      | Embryo LGIS        | Physio LGIS   | Patho LGIS                    | Biochem LGIS | Lunch/<br>Friday<br>prayer<br>Break | SGD (Physio/Bio) |           |
| Tuesday                                         | Anat Dissection Hall SGD |               | Biochem LGIS       | Histo LGIS    | Practical (Anat, Bio, Pharma) |              |                                     | SGD (Physio/Bio) |           |
| Wednesday                                       | Anat Dissection Hall SGD |               | Physio LGIS        | Biochem LGIS  | Practical (Anat, Bio, Pharma) |              |                                     | SGD (Physio/Bio) |           |
| Thursday                                        | Anat Dissection Hall SGD |               | Gross Anatomy LGIS | Biochem LGIS  | Practical (Anat, Bio, Pharma) |              |                                     | 1:40-2:20        | 2:20-3:00 |
| Friday                                          | 8:00-10:00               |               | 10:00-10:40        | 10:40-11:30   | 11:30-12:20                   | 12:20-1:10   |                                     | 1:40 - 3:00      |           |
|                                                 | Anat Dissection Hall SGD |               | Embryo LGIS        | Biochem LGIS  | Physio LGIS                   | Com Med LGIS |                                     | SGD (Physio/Bio) |           |
|                                                 |                          |               |                    |               |                               |              |                                     |                  |           |

|           | WEEK- 02/06              |               |                    |               |                              |              |                                     |                    |
|-----------|--------------------------|---------------|--------------------|---------------|------------------------------|--------------|-------------------------------------|--------------------|
| Day       | 8:00 - 09:20             | 09:20 - 10:00 | 10:00 - 10:50      | 10:50 - 11:40 | 11:40 - 12:30                | 12:30- 1:10  | 1:10-1:40                           | 1:40 - 3:00        |
| Monday    | Weekly Assessment        | Biochem LGIS  | Embryo LGIS        | Physio LGIS   | Patho LGIS                   | Quran LGIS   | Lunch/<br>Friday<br>prayer<br>Break | SGD (Physio/Bio)   |
| Tuesday   | Anat Dissection Hall SGD |               | Biochem LGIS       | Histo LGIS    | Practical (Anat, Bio, Patho) |              |                                     | SGD (Physio/Bio)   |
| Wednesday | Anat Dissection Hall SGD |               | Physio LGIS        | Biochem LGIS  | Practical (Anat, Bio, Patho) |              |                                     | SGD (Physio/Bio)   |
| Thursday  | Anat Dissection Hall SGD |               | Gross Anatomy LGIS | Biochem LGIS  | Practical (Anat, Bio, Patho) |              |                                     | 1:40-2:202:20-3:00 |
| Friday    | 8:00-10:00               |               | 10:00-10:40        | 10:40-11:30   | 11:30-12:20                  | 12:20-1:10   |                                     | 1:40 - 3:00        |
|           | Anat Dissection Hall SGD |               | Embryo LGIS        | Biochem LGIS  | Physio LGIS                  | Com Med LGIS |                                     | SGD (Physio/Bio)   |

|           | WEEK- 03/06              |               |                    |               |                            |              |                                     |                        |
|-----------|--------------------------|---------------|--------------------|---------------|----------------------------|--------------|-------------------------------------|------------------------|
| Day       | 8:00 - 09:00             | 09:00 - 10:00 | 10:00 - 10:50      | 10:50 - 11:40 | 11:40 - 12:30              | 12:30- 1:10  | 1:10-1:40                           | 1:40 - 3:00            |
| Monday    | Weekly Assessment        | Biochem LGIS  | Embryo LGIS        | Physio LGIS   | Patho LGIS                 | Quran LGIS   | Lunch/<br>Friday<br>prayer<br>Break | SGD (Physio/Bio)       |
| Tuesday   | Anat Dissection Hall SGD |               | Biochem LGIS       | Histo LGIS    | Practical (Anat, Bio, SDL) |              |                                     | SGD (Physio/Bio)       |
| Wednesday | Anat Dissection Hall SGD |               | Physio LGIS        | Biochem LGIS  | Practical (Anat, Bio, SDL) |              |                                     | SGD (Physio/Bio)       |
| Thursday  | Anat Dissection Hall SGD |               | Gross Anatomy LGIS | Biochem LGIS  | Practical (Anat, Bio, SDL) |              |                                     | 1:40-2:20    2:20-3:00 |
| Friday    | 8:00-10:00               |               | 10:00-10:40        | 10:40-11:30   | 11:30-12:20                | 12:20-1:10   |                                     | 1:40 - 3:00            |
|           | Anat Dissection Hall SGD |               | Embryo LGIS        | Biochem LGIS  | Physio LGIS                | Com Med LGIS |                                     | SGD (Physio/Bio)       |

|           | WEEK- 04/06              |               |                    |               |                            |                  |                                     |                    |
|-----------|--------------------------|---------------|--------------------|---------------|----------------------------|------------------|-------------------------------------|--------------------|
| Day       | 8:00 - 09:20             | 09:20 - 10:00 | 10:00 - 10:50      | 10:50 - 11:40 | 11:40 - 12:30              | 12:30- 1:10      | 1:10-1:40                           | 1:40 - 3:00        |
| Monday    | Weekly Assessment        | Biochem LGIS  | Embryo LGIS        | Physio LGIS   | Pharma LGIS                | Pak Studies LGIS | Lunch/<br>Friday<br>prayer<br>Break | SGD (Physio/Bio)   |
| Tuesday   | Anat Dissection Hall SGD |               | Biochem LGIS       | Histo LGIS    | Practical (Anat, Bio, SDL) |                  |                                     | SGD (Physio/Bio)   |
| Wednesday | Anat Dissection Hall SGD |               | Physio LGIS        | Biochem LGIS  | Practical (Anat, Bio, SDL) |                  |                                     | SGD (Physio/Bio)   |
| Thursday  | Anat Dissection Hall SGD |               | Gross Anatomy LGIS | PERLs LGIS    | Practical (Anat, Bio, SDL) |                  |                                     | 1:40-2:202:20-3:00 |
| Friday    | 8:00-10:00               |               | 10:00-10:40        | 10:40-11:30   | 11:30-12:20                | 12:20-1:10       |                                     | 1:40 - 3:00        |
|           | CBL<br>GIT Module        |               | Embryo LGIS        | Biochem LGIS  | Physio LGIS                | Com Med LGIS     |                                     | SGD (Physio/Bio)   |
|           |                          |               |                    |               |                            |                  |                                     |                    |

|           | WEEK- 05/06              |               |                    |                           |                               |                           |                                     |                         |                         |
|-----------|--------------------------|---------------|--------------------|---------------------------|-------------------------------|---------------------------|-------------------------------------|-------------------------|-------------------------|
| Day       | 8:00 - 09:10             | 09:10 - 10:00 | 10:00 - 10:50      | 10:50 - 11:40             | 11:40 - 12:30                 | 12:30- 1:10               | 1:10-1:40                           | 1:40 - 3:00             |                         |
| Monday    | Weekly Assessment        | Biochem LGIS  | Embryo LGIS        | Physio LGIS               | Beh Science LGIS              | Quran LGIS                | Lunch/<br>Friday<br>prayer<br>Break | SGD (Physio/Bio)        |                         |
| Tuesday   | Anat Dissection Hall SGD |               | Biochem LGIS       | Histo LGIS                | Practical (Anat, Bio, Physio) |                           |                                     | SGD (Physio/Bio)        |                         |
| Wednesday | Anat Dissection Hall SGD |               | Physio LGIS        | Biochem LGIS              | Practical (Anat, Bio, Physio) |                           |                                     | SGD (Physio/Bio)        |                         |
| Thursday  | Anat Dissection Hall SGD |               | Gross Anatomy LGIS | Medicine C-FRC/ Skill Lab | Practical (Anat, Bio, Physio) |                           |                                     | 1:40-2:20<br>Physio DSL | 2:20-3:00<br>PERLs LGIS |
| Friday    | 8:00-10:00               |               | 10:00-10:40        | 10:40-11:30               | 11:30-12:20                   | 12:20-1:10                |                                     | 1:40 - 3:00             |                         |
|           | Anat Dissection Hall SGD |               | Anatomy DSL        | Biochem LGIS              | Expository Writing            | Surgery C-FRC / Skill Lab |                                     | SGD (Physio/Bio)        |                         |

|           | WEEK- 06/06              |               |                    |                           |                               |              |                                     |                           |                         |
|-----------|--------------------------|---------------|--------------------|---------------------------|-------------------------------|--------------|-------------------------------------|---------------------------|-------------------------|
| Day       | 8:00 - 09:00             | 09:00 - 10:00 | 10:00 - 10:50      | 10:50 - 11:40             | 11:40 - 12:30                 | 12:30- 1:10  | 1:10-1:40                           | 1:40 - 3:00               |                         |
| Monday    | Weekly Assessment        | Biochem LGIS  | Embryo LGIS        | Physio LGIS               | Medicine C-FRC/ Skill Lab     | Quran LGIS   | Lunch/<br>Friday<br>prayer<br>Break | SGD (Physio/Bio)          |                         |
| Tuesday   | Anat Dissection Hall SGD |               | Biochem LGIS       | Histo LGIS                | Practical (Anat, Bio, SDL)    |              |                                     | SGD (Physio/Bio)          |                         |
| Wednesday | Anat Dissection Hall SGD |               | Physio LGIS        | Biochem LGIS              | Practical (Anat, Bio, SDL)    |              |                                     | SGD (Physio/Bio)          |                         |
| Thursday  | Anat Dissection Hall SGD |               | Gross Anatomy LGIS | Medicine C-FRC/ Skill Lab | Practical (Anat, Bio, SDL)    |              |                                     | 1:40-2:20<br>Biochem LGIS | 2:20-3:00<br>PERLs LGIS |
| Friday    | 8:00-10:00               |               | 10:00-10:40        | 10:40-11:30               | 11:30-12:20                   | 12:20-1:10   |                                     | 1:40 - 3:00               |                         |
|           | Anat Dissection Hall SGD |               | Expository Writing | Biochem LGIS              | Anatomy Peer to Peer Learning | Com Med LGIS |                                     | SGD (Physio/Bio)          |                         |

| Renal Module Schedule (2 <sup>nd</sup> Year MBBS) |                          |             |                |               |                               |                         |                                     |                  |               |
|---------------------------------------------------|--------------------------|-------------|----------------|---------------|-------------------------------|-------------------------|-------------------------------------|------------------|---------------|
| WEEK- 01/04                                       |                          |             |                |               |                               |                         |                                     |                  |               |
| Day/Date                                          | 8:00 - 10:00             |             | 10:00 - 10:50  | 10:50 - 11:40 | 11:40-12:30                   | 12:30-1:10              | 1:10-1:40                           | 1:40 - 3:00      |               |
| Monday                                            | End-Module Assessment    |             | Embryo LGIS    | Physio LGIS   | Biochem LGIS                  | Com Med LGIS            | Lunch/<br>Friday<br>prayer<br>Break | SGD (Physio/Bio) |               |
| Tuesday                                           | Anat Dissection Hall SGD |             | Histology LGIS | Physio LGIS   | 11:40-1:10                    |                         |                                     | SGD (Physio/Bio) |               |
|                                                   |                          |             |                |               | Practical (Anat, Bio, Pharma) |                         |                                     |                  |               |
| Wednesday                                         | Anat Dissection Hall SGD |             | Physio LGIS    | Biochem LGIS  | Practical (Anat, Bio, Pharma) |                         |                                     | SGD (Physio/Bio) |               |
| Thursday                                          | Anat Dissection Hall SGD |             | Physio LGIS    | Biochem LGIS  | Practical (Anat, Bio, Pharma) |                         |                                     | 1:40-2:20        | 2:20-3:00     |
|                                                   |                          |             |                |               |                               |                         |                                     | Patho LGIS       | DSL (Biochem) |
| Friday                                            | 8:00-9:00                | 9:00-9:50   | 9:50-10:40     | 10:40-11:30   | 11:30-12:20                   | 12:10-1:10              |                                     | 1:40 - 3:00      |               |
|                                                   | Beh LGIS                 | Physio LGIS | Embryo LGIS    | Physio LGIS   | Biochem LGIS                  | Expository Writing LGIS |                                     | SGD (Physio/Bio) |               |

|           | WEEK- 02/04              |            |               |                       |                              |              |                                     |                  |              |  |
|-----------|--------------------------|------------|---------------|-----------------------|------------------------------|--------------|-------------------------------------|------------------|--------------|--|
| Day/Date  | 8:00 - 10:00             |            | 10:00 - 10:50 | 10:50 - 11:40         | 11:40-12:30                  | 12:30-1:10   | 1:10-1:40                           | 1:40 - 3:00      |              |  |
| Monday    | Weekly Assessment        |            | Physio LGIS   | Embryo LGIS           | Biochem LGIS                 | Com Med LGIS | Lunch/<br>Friday<br>prayer<br>Break | SGD (Physio/Bio) |              |  |
| Tuesday   | Anat Dissection Hall SGD |            | Physio LGIS   | Histo LGIS            | 11:40-1:10                   |              |                                     | SGD (Physio/Bio) |              |  |
|           |                          |            |               |                       | Practical (Anat, Bio, Patho) |              |                                     |                  |              |  |
| Wednesday | Anat Dissection Hall SGD |            | Physio LGIS   | Biochem LGIS          | Practical (Anat, Bio, Patho) |              |                                     | SGD (Physio/Bio) |              |  |
| Thursday  | Anat Dissection Hall SGD |            | Physio LGIS   | C-FRC Med / Skill Lab | Practical (Anat, Bio, Patho) |              |                                     | 1:40-2:20        | 2:20-3:00    |  |
|           |                          |            |               |                       |                              |              |                                     | Patho LGIS       | Biochem LGIS |  |
| Friday    | 8:00-9:00                | 9:00-9:50  | 9:50-10:40    | 10:40-11:30           | 11:30-12:20                  | 12:10-1:10   |                                     | 1:40 - 3:00      |              |  |
|           | Pharma LGIS              | PERLs LGIS | Physio LGIS   | Pak Studies LGIS      | Biochem LGIS                 | Physio LGIS  |                                     | SGD (Physio/Bio) |              |  |

|           | WEEK- 03/04                   |            |               |                    |                               |             |                                     |                         |                          |
|-----------|-------------------------------|------------|---------------|--------------------|-------------------------------|-------------|-------------------------------------|-------------------------|--------------------------|
| Day/Date  | 8:00 - 10:00                  |            | 10:00 – 10:50 | 10:50 – 11:40      | 11:40-12:30                   | 12:30-1:10  | 1:10-1:40                           | 1:40 - 3:00             |                          |
| Monday    | Weekly Assessment             |            | Physio LGIS   | Patho LGIS         | Biochem LGIS                  | DSL Physio  | Lunch/<br>Friday<br>prayer<br>Break | SGD (Physio/Bio)        |                          |
| Tuesday   | Anat Dissection Hall SGD      |            | Physio LGIS   | Histo LGIS         | Practical (Anat, Bio, Physio) |             |                                     | SGD (Physio/Bio)        |                          |
| Wednesday | Anat Dissection Hall SGD      |            | Physio LGIS   | Biochem LGIS       | Practical (Anat, Bio, Physio) |             |                                     | SGD (Physio/Bio)        |                          |
| Thursday  | Anat Dissection Hall SGD      |            | Physio LGIS   | Gross Anatomy LGIS | Practical (Anat, Bio, Physio) |             |                                     | 1:40-2:20<br>Patho LGIS | 2:20-3:00<br>DSL Anatomy |
| Friday    | 8:00-9:00                     | 9:00-9:50  | 9:50-10:40    | 10:40-11:30        | 11:30-12:20                   | 12:10-1:10  |                                     | 1:40 - 3:00             |                          |
|           | Anatomy Peer to Peer Learning | PERLs LGIS | Physio LGIS   | Pharma LGIS        | Biochem LGIS                  | Physio LGIS |                                     | SGD (Physio/Bio)        |                          |

| BLS WORKSHOP |              |  |               |               |             |            |                                     |
|--------------|--------------|--|---------------|---------------|-------------|------------|-------------------------------------|
| Day/Date     | 8:00 - 10:00 |  | 10:00 – 10:50 | 10:50 – 11:40 | 11:40-12:30 | 12:30-1:10 | 1:10-1:40                           |
| Monday       | BLS WORKSHOP |  |               |               |             |            | Lunch/<br>Friday<br>prayer<br>Break |
| Tuesday      |              |  |               |               |             |            |                                     |
| Wednesday    |              |  |               |               |             |            |                                     |
| Thursday     |              |  |               |               |             |            |                                     |
|              |              |  |               |               |             |            | BLS WORKSHOP                        |

| WEEK- 04/04 |                          |               |                    |               |                                 |             |                                     |
|-------------|--------------------------|---------------|--------------------|---------------|---------------------------------|-------------|-------------------------------------|
| Day/Date    | 8:00- 10:00              |               | 10:00 - 10:50      | 10:50 - 11:40 | 11:40-12:30                     | 12:30-1:10  | 1:10-1:40                           |
| Monday      | Weekly Assessment        |               | Physio LGIS        | Biochem LGIS  | PERLs LGIS                      | Physio DSL  | Lunch/<br>Friday<br>prayer<br>Break |
| Tuesday     | 8:00 – 9:00              | 9:00-10:00    | Physio LGIS        | Biochem LGIS  | Practical (Anat, Bio, Physio)   |             | SGD (Physio/Bio)                    |
|             | Pathology LGIS           | Comm Med LGIS |                    |               |                                 |             | SGD (Physio/Bio)                    |
| Wednesday   | 8:00-9:00                | 9:00-10:00    | Physio LGIS        | Biochem LGIS  | Practical (Anat, Bio, Physio)   |             | SGD (Physio/Bio)                    |
|             | Patho LGIS               | Physio DSL    |                    |               |                                 |             | SGD (Physio/Bio)                    |
| Thursday    | 8:00-10:00               |               | 10:00 - 10:50      | 10:50 - 11:40 | Practical (Anat, Bio, Clinical) |             | 1:40-2:20                           |
|             | Anatomy CBL Renal Module |               | Gross Anatomy LGIS | Physio LGIS   |                                 |             | 2:20-3:00                           |
|             |                          |               |                    |               |                                 |             | Patho LGIS                          |
|             |                          |               |                    |               |                                 |             | DSL Biochem                         |
| Friday      | 8:00-9:00                | 9:00-9:50     | 9:50-10:40         | 10:40-11:30   | 11:30-12:20                     | 12:10-1:10  | 1:40 - 3:00                         |
|             | Physio LGIS              | Physio LGIS   | Anatomy DSL        | Biochem LGIS  | C-FRC Medicine                  | Biochem DSL | SGD (Physio/Bio)                    |

# ASSESSMENT TOOLS

Students will be assessed by the following methods

## **1. Weekly Assessments**

Assessments will be conducted every Monday covering all the lectures conducted in the previous week consisting of MCQs only.

## **2. Assignments/CBLs:**

Assignments/CBLs will be given monthly.

## **3. End of Module Exam:**

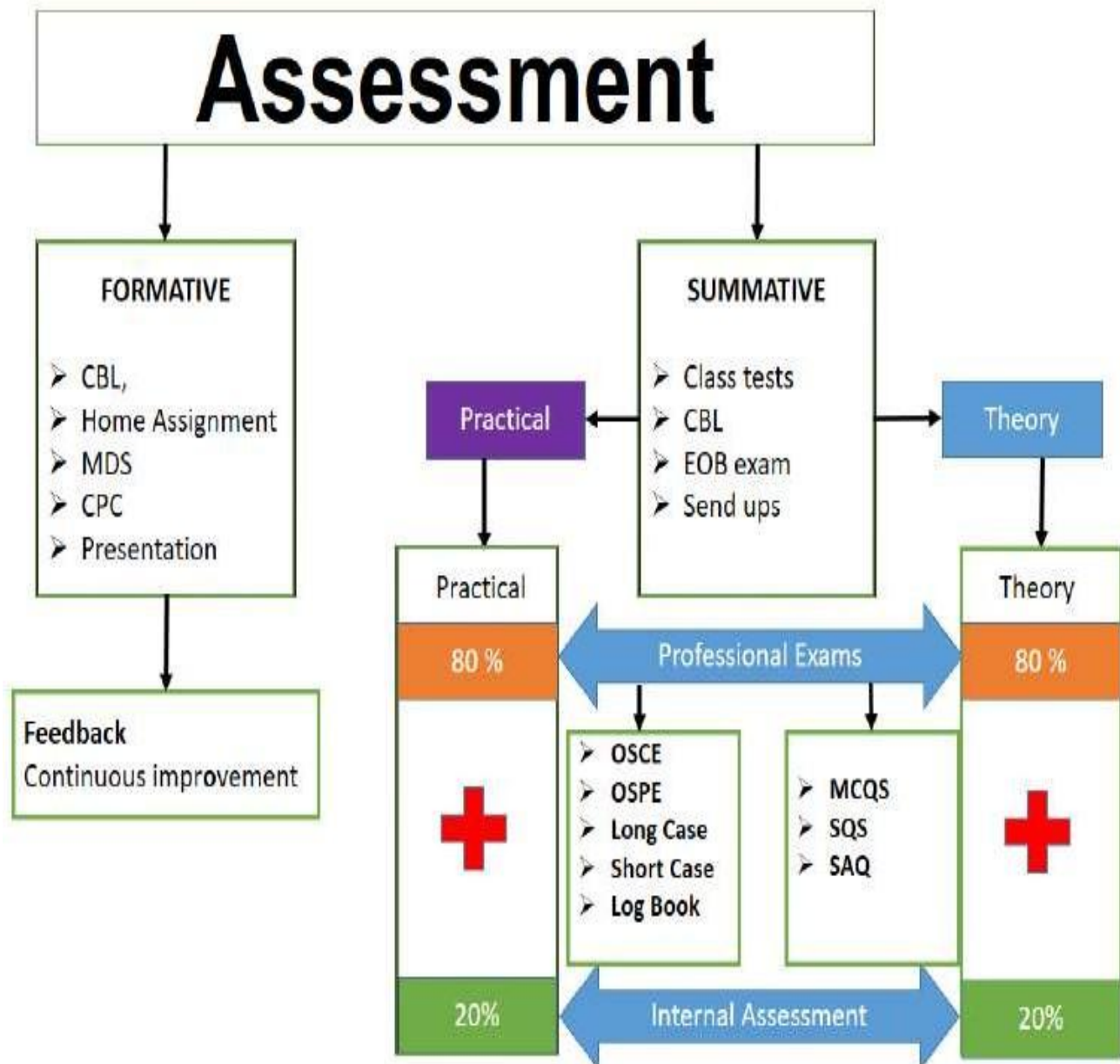
At the end of Foundation and H & L module, end of module exam covering all the LOs of the module consisting of MCQs would be conducted.

## **4. Block Exam:**

At the end of block, an exam will be conducted comprising of theory(MCQs) and practical/OSPE content.

## **5. Departmental quizzes, presentations & group projects:**

Above mentioned can be the assessment tools for different departments on their will.

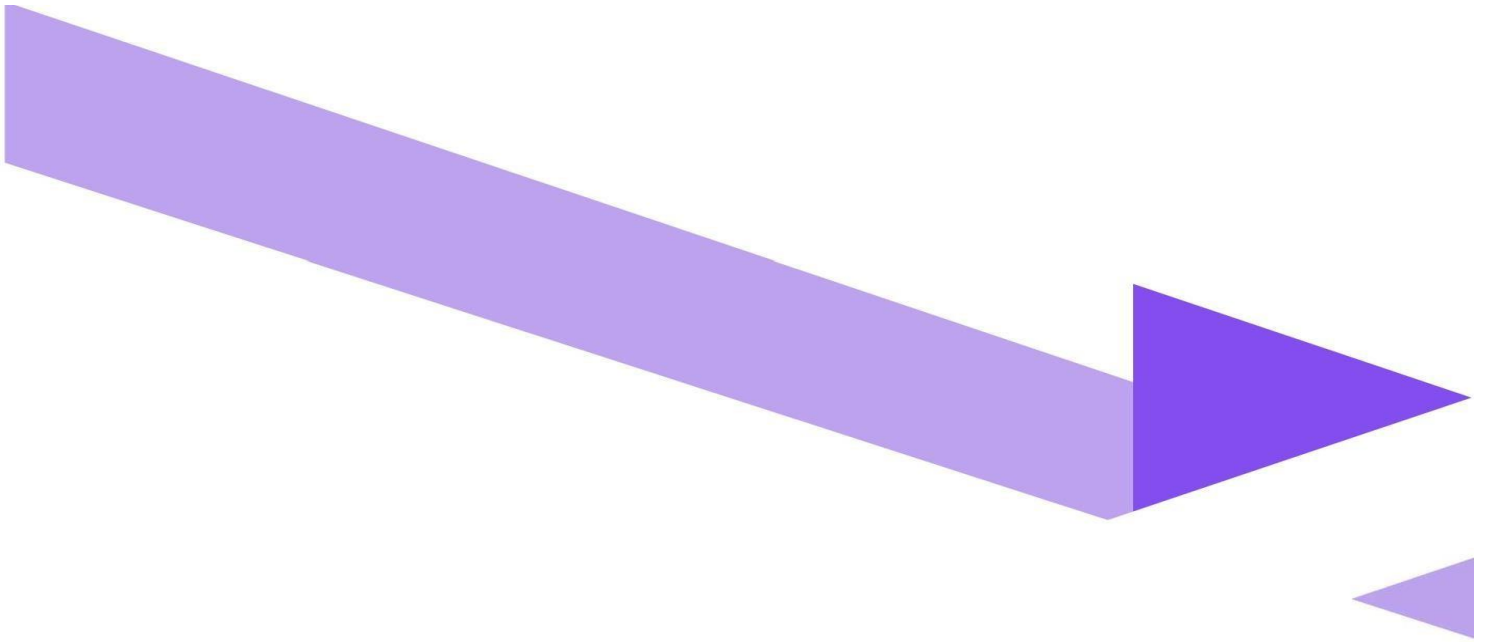


# Table of Specification (TOS)

## MBBS 2<sup>nd</sup> Professional

### Block-4

| Theme                                     | Subject                                  | Written Exam    |            | Oral/Practical/Clinical Exam          |                                       |                                        |            |
|-------------------------------------------|------------------------------------------|-----------------|------------|---------------------------------------|---------------------------------------|----------------------------------------|------------|
|                                           |                                          | MCQ<br>(1 mark) | Marks      | OSPE<br>(8 marks<br>each<br>observed) | OSCE<br>(5 marks<br>each<br>observed) | OSVE<br>(14 marks<br>each<br>observed) | Marks      |
| Normal Structure                          | Anatomy<br>applied/clinical              | 38              | 38         | 04                                    | -                                     | 01                                     | 46         |
| Normal Function                           | Physiology<br>applied/clinical           | 28              | 28         | 03                                    | -                                     | 01                                     | 38         |
|                                           | Biochemistry<br>applied/clinical         | 37              | 37         | 02                                    | -                                     | 01                                     | 30         |
| Disease Burden &<br>Prevention            | Community<br>Medicine & Public<br>Health | 06              | 06         | -                                     | -                                     | -                                      | -          |
|                                           | Behavioral<br>Sciences                   | 05              | 05         | -                                     | -                                     | -                                      | -          |
| Pathophysiology &<br>pharmacotherapeutics | Pathology                                | 16              | 16         | 01                                    | -                                     | -                                      | 08         |
|                                           | Pharmacology                             | 10              | 10         | 01                                    | -                                     | -                                      | 08         |
| CFRC                                      | CF-2                                     | -               | -          | -                                     | 01                                    | -                                      | 05         |
| PERLs                                     | PERLs-2                                  | -               | -          | -                                     | 01                                    | -                                      | 05         |
| <b>Total</b>                              |                                          | <b>140</b>      | <b>140</b> | <b>11 stations x<br/>08 = 88</b>      | <b>02 stations x<br/>05 = 10</b>      | <b>03 stations x<br/>14=42</b>         | <b>140</b> |



## **LIST OF RESOURCES**





### **Anatomy**

- Snell's Clinical Anatomy 10<sup>th</sup> ed.
- Langman's Medical Embryology 12<sup>th</sup> ed
- Medical Histology by Laiq Hussain Siddiqui 8th edition.
- General Anatomy by Laiq Hussain Siddiqui 6th edition.

### **Biochemistry**

- Harpers illustrated Biochemistry (latest edition). Rodwell.V.W MCGrawHill publishers.
- Lippincott illustrated Review (latest edition). Kluwer.W.
- Essentials of Medical Biochemistry vol 1&2 by Mushtaq Ahmed.

### **Pathology**

- Vinary Kumar, Abul K. Abbas and Nelson Fausto Robbins and Cotran, Pathologic basis of disease. WB Saunders.
- Robbins and Cotran Pathological Basis of Disease. Kumar, V., Abbas, A. and Aster, J. Latest Edition
- Richard Mitchall, Vinary Kumar, Abul K. Abbas and Nelson Fausto Robbins and Cotran, Pocket Companion to Pathologic basis of diseases, Saunder Harcourt.
- Walter and Israel. General Pathology. Churchill Livingstone.
- Robbins & Kumar, Medical Microbiology and Immunology Levinson.

### **General Medicine**

- Principles and Practice of Medicine by Davidson (latest edition)
- Clinical Medicine by Parveen J Kumar & Michael Clark
- Oxford Handbook of Medicine
- Macleod's Clinical Examination book
- Medicine and Toxicology by C.K. Parikh
- Hutchison's Clinical Methods by Michael Swash. 21st edition

### **Pharmacology And Therapeutics**

- Katzung and Trevor's Pharmacology: Examination and Board Review- 15th Edition
- Basic and Clinical Pharmacology by Bertram G Katzung (case scenarios only) - 16th Edition-
- Current Medical Diagnosis and Treatment- reference book –Edition-2024
- Basic and Clinical Pharmacology by Bertram G Katzung (case scenarios only) - 15th Edition
- Basic and Clinical Pharmacology by Katzung, McGraw-Hill. 16th Edition.

- Pharmacology by Champe and Harvey, Lippincott Williams & Wilkins 8th Ed
- Katzung Basic and Clinical pharmacology, Lippincott Illustrated reviews.
- Clinical Pathology Interpretations by A. H. Nagi

### **Behavioural Sciences**

- Handbook of Behavioural Sciences by Prof. Mowadat H.Rana, 3rd Edition
- Medical and Psychosocial aspects of chronic illness and disability 6th edition by Donna R.Falvo and Beverly E.Holland,
- Integrating behavioral sciences in healthcare, Asma Humayun, 2003, 1st edition

### **Community medicine**

- Parks Textbook of Preventive and Social Medicine. K. Park
- Public Health and Community Medicine by Ilyas Ansari
- MSDS manual of Government of Punjab
- Text book of Community Medicine by Park J E. Latest Edition

### **Surgery**

- Bailey & Love's Short Practice of Surgery (latest edition)
- Browse's Introduction to the Symptoms & Signs of Surgical Disease 4th Edition
- Bailey & Love Short Practice of Surgery, Clinical Surgery pearls by Dayananda Babu RACS for Surgical Audits.

### **Patient Safety**

- Patient Safety Curriculum Guide: Multi Professional Guide

### **Microbiology**

- Levinson's review of Microbiology
- Medical Microbiology and Immunology by Levinson and Jawetz,

### **Pediatrics Medicine**

- Nelson Textbook of Pediatrics
- Basis of Pediatrics by Pervez Akbar Khan

### **Gynecology**

- Gynecology by Ten Teachers

### **Infection Control**

- National Guidelines Infection Prevention and control, National Institute of Health Pakistan

### **Biosafety**

- Biosafety in Microbiological and Biomedical Laboratories, 6th Edition (CDC, USA)
- WHO Laboratory Biosafety Manual, Fourth Edition, And Associated Monographs
- WHO safe management of wastes from healthcare facilities chapter 7 -8 page 77-99, 105-125)

## **Family medicine**

- Oxford Handbook of General Practice, 5th Edition

## **Orthopedics**

- Apley and Solomon's System of Orthopaedics and Trauma by Ashley Blom (Editor)

## **Rheumatology**

- Davidson's Principles and Practice of Medicine
- Clinical Medicine by Parveen J Kumar & Michael Clark
- Hutchison's Clinical Methods by Michael Swash

## **Radiology**

- Aids to Radiological Differential Diagnosis by Chapman S. and Nakielny R. 4th edition. Elsevier Science Limited; 2003.

## **Forensic Medicine**

- Knight's Forensic Pathology by Barnard Knight 3rd edition
- G. Principles and Practice of Forensic Medicine by Prof. Nasib R. Awan, 2nd edition
- Forensic DNA Typing – 2nd Edition, Author: John M. Butler
- Parikh's Text book of Medical Jurisprudence, Forensic Medicine and Toxicology by C.K. Parikh 6th Ed., CBS Publisher.
- Gun Shot Wounds 2nd edition by V.J. De Maio
- Knight B. Simpson's Forensic Medicine.
- Knight and Pekka. Principles of Forensic Medicine

## **Forensic Pathology**

- Forensic pathology 2nd edition by V.J. De Maio CRC press Boca Raton London New York Washington DC

## **Toxicology**

- Principles of clinical toxicology 3rd edition Thomas . Gossel CRC press Taylor and Francis group

## **Forensic Sciences**

- Fundamentals of Forensic Science- 3rd Edition: Author: Max M Houck, Jay A. Siegel
- Text Book of forensic medicine and toxicology Principles and Practice 5th edition by Krishan Vig

## **Biomedical ethics**

- Principles of Biomedical ethics, 8th edition by Tom. L. Beauchamp, James F. Childress.

### **Evidence Based Medicine**

- Databases for the latest articles/manuscripts
- Clinical Practice Guidelines- local and international - (within last 3 years)
- Books (Latest edition-within last 5 years)

### **Pediatrics**

- Nelson's Book of Pediatric 22 edition Illustrated book of Pediatrics, Pervaiz Akbar textbook pediatrics medicine

### **Islamiyat**

- Standard Islamiyat (compulsory) for B.A, BSc, MA, MSc, MBBS by Prof M Sharif Islahi.
- Ilmi Islamiyat(compulsory) for BA, BSc & equivalent

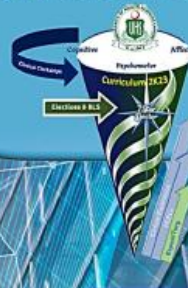
**VOLUME:02**

# **C-FRC**

**CLINICAL-FOUNDATION  
ROTATION CLERKSHIPS**



**Modular Integrated  
Curriculum 2K23**



**YEAR-02**



# BLOCK-04

---

## GIT AND NUTRITION-1 MODULE

| Objectives                                                                                    | Skill                 | Miller's Pyramid Level Reflected |
|-----------------------------------------------------------------------------------------------|-----------------------|----------------------------------|
| Demonstrate steps of abdominal examination (PLO 2,5,6,8)                                      | Abdominal Examination | Shows                            |
| Demonstrate the procedure of shifting dullness (PLO 2,5,6,8)                                  | shifting dullness     | Shows                            |
| Identify organs on X-ray abdomen (PLO 2,5,6,8)                                                | X-ray Abdomen         | Shows                            |
| Assess dehydration in infant/young child and explain procedure of making homemade ORS (PLO 6) | Dehydration           | Does                             |

Place a “✓” in case box if step/task is performed satisfactorily, an “X” if it is not performed satisfactorily, or **N/O** if not observed.

Satisfactory: Performs the step or task according to the standard procedure or guidelines

Unsatisfactory: Unable to perform the step or task according to the standard procedure or guidelines

**Date Observed:** \_\_\_\_\_

| <b>CHECKLIST FOR ABDOMINAL EXAMINATION</b><br>(Some of the following steps/tasks should be performed simultaneously.)                                                                                                                                                   | <b>CASES</b><br>(Minimum 3 Entries) |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--|--|
| <b>STEP/TASK</b>                                                                                                                                                                                                                                                        |                                     |  |  |
| <b>GETTING READY:</b><br><br>1. Has performed hand washing<br><br>2. Introduces himself/herself to patient<br><br>3. Explains Procedure and Asks for consent                                                                                                            |                                     |  |  |
|                                                                                                                                                                                                                                                                         |                                     |  |  |
|                                                                                                                                                                                                                                                                         |                                     |  |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                                                                                                                                          |                                     |  |  |
| <b>THE PROCEDURE:</b><br><br><b>GENERAL EXAMINATION:</b><br><br><u>Examine the following features to check for any pathology related to the GIT:</u><br><br>i. Facies<br>ii. Body build<br>iii. Posture<br>iv. Color of skin<br>v. Vital signs<br>vi. Head<br>vii. Neck |                                     |  |  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| <ul style="list-style-type: none"> <li>viii. Upper limbs</li> <li>ix. Lower limbs</li> <li>x. Chest and heart</li> <li>xi. Spine</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |  |  |
| <p><b>INSPECTION OF THE ABDOMEN:</b></p> <ol style="list-style-type: none"> <li>1. Position the patient in the supine position and drape the patient, exposing only the areas needed for assessment.</li> <li>2. Inspect the abdomen for shape/contour, symmetry, pigmentation/colour, lesions/scars, pulsation, and visible peristalsis</li> <li>3. Examination was carried out in good light, looking from either end of the bed from the side, and finally tangentially</li> <li>4. Looked for: <ul style="list-style-type: none"> <li>i. shape (contour)</li> <li>ii. sub costal angle</li> <li>iii. epigastric pulsation</li> <li>iv. divarication of recti</li> <li>v. position of the umbilicus</li> <li>vi. hair distribution</li> <li>vii. skin(pigmentation, scars)</li> <li>viii. dilated veins</li> <li>ix. hernia orifices (ask pt to cough)</li> <li>x. visible movements</li> <li>xi. genitalia</li> <li>xii. back (all back exam at the end)</li> </ul> </li> <li>5. Type of breathing (ask the patient to take deep breath)</li> </ol> |  |  |  |
| <p><b>PALPATION:</b></p> <ol style="list-style-type: none"> <li>1. Stand by the right side of the patient</li> <li>2. Relax the abdominal wall by asking the patient to flex his hip and knees, and ask him to open the mouth and breathe quietly in and out.</li> <li>3. Make sure that his/her hand is warm</li> <li>4. If a painful area or mass is present, palpate that area at the end.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| <p>5. Started by light palpation (superficial palpation):</p> <ul style="list-style-type: none"> <li>i. Tenderness: Ask the patient to locate the site of tenderness. If he/she is not able to; ask them to take a deep breath or to cough.</li> </ul> <p>Elicit Rebound tenderness</p> <ul style="list-style-type: none"> <li>ii. Differentiate rigidity from guarding: rigidity is generally a sign of peritoneal irritation, it is present throughout the abdominal wall, the wall feels stiff and board like to touch.</li> </ul> <p>Guarding is a protective mechanism usually triggered by touch or patient's anticipation to pain.</p> <ul style="list-style-type: none"> <li>iii. (Swelling: If there is a swelling; - Ask the patient to contract his/her abdominal wall muscles by raising his/her head ( to determine if it is intra or extra abdominal swelling)</li> </ul> <p>Notice the swelling mobility with respiration</p> <ul style="list-style-type: none"> <li>iv. Hernia orifices: Examine the anatomical sites of hernia for swelling and any expansile impulse with cough.</li> </ul> <p>Elicit deep palpation:</p> <ul style="list-style-type: none"> <li>i. Start Palpation of normal solid viscera (the liver, the spleen and the kidneys):</li> </ul> <p><b>A. <u>Palpation of the liver:</u></b></p> <ul style="list-style-type: none"> <li>i. Place hand in the right iliac fossa, (hand may either rest transversely and flat at right angle to the linea semilunaris and parallel to the costal margin, or placed with fingers pointing towards the head of the patient). The other hand is placed in the loin.</li> <li>ii. Ask the patient to take a deep breath.</li> <li>iii. Keep hand still during inspiration and during expiration slide the hand a little nearer to the right costal margin.</li> </ul> <p><u>When examining a hepatic swelling record:</u></p> <ul style="list-style-type: none"> <li>i. The degree of enlargement in a fingerbreadth below the costal margin.</li> <li>ii. The character of the edge (sharp or rounded).</li> <li>iii. The surface (smooth or nodular)</li> <li>iv. The consistency (soft, firm, hard or heterogeneous)</li> </ul> |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| <p>v. The presence of tenderness<br/>vi. The degree of movement on respiration.</p> <p><b><u>B. Palpation of the spleen</u></b></p> <p>There are several clinical methods for the detection of an enlarged spleen:</p> <p>a) <u>The standard method or bimanual examination:</u></p> <p>Start palpation from the right iliac fossa with the tips of the examining hand directed towards the left axilla. The left hand is placed over the lateral aspect of the left costal margin, exerting a certain amount of compression. Followed the rules of palpation moving toward the left hypochondrium until feeling the spleen.( If the spleen is not felt, lift the rib cage forwards as the patient inspired).</p> <p>b) <u>The hooking method:</u></p> <p>If the spleen is not felt by the bimanual method, ask the patient to place the fist of the left hand under the lower ribs in order to push the spleen forward. Then stand on the left side of the patients head and place the fingers of both hands over the costal margin. The patient is instructed to take deep breath.</p> <p>c)<u>The right lateral position:</u></p> <p>If the spleen is not felt by the ordinary method ask the patient to turn to his right side and palpate the spleen by insinuating hand below the costal margin and ask the patient to take deep breath till feeling the lower edge of the spleen .</p> <p>d)<u>Dipping method:</u></p> <p>In the presence of tense ascites. Place hand in the left hypochondrium and push the abdominal wall downwards and wait for the return impulse to hand</p> <p><b><u>C). The kidneys:</u></b></p> <p>a) The right kidney is examined by the left hand behind the patient's right loin (between the last rib and the iliac crest) lift the loin and the kidney forward. Put the right hand on the right lumbar region just above the anterior superior iliac spine and as the patient to take deep breath. During expiration push the right hand deeply but gently</p> |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| <p>and keep it still during inspiration and repeat as patient takes his breath.</p> <p>b) The left kidney is examined by the same procedure on the left side by either standing on the patient's left side or by leaning across the patient, putting the right hand in the left loin and feeling the kidney with the left hand.</p> <p><b>D). <u>Palpation for other abdominal swellings:</u></b></p> <p>Parietal swellings: Swellings of the anterior abdominal wall are differentiated from the intra-abdominal swellings by three signs:</p> <ol style="list-style-type: none"> <li>Relation to the costal margin.</li> <li>Behavior on contraction of the abdomen.</li> <li>Movement with respiration.</li> </ol> <p>❖ If abdomen was tense, started percussion before palpation</p>                                                                                                                                                                                                                                                                                                                                                            |  |  |  |
| <p><b>PERCUSSION:</b></p> <ol style="list-style-type: none"> <li>Percuss over the whole abdomen and particularly over any masses.</li> <li>light percussion is necessary.</li> <li>Start from resonant to dull in the midline</li> </ol> <p><b>A) <u>Percussion of the liver (span of the liver):</u></b></p> <ol style="list-style-type: none"> <li>Determine the upper border of the liver by heavy percussion. (started from the 2<sup>nd</sup> intercostal space, opposite the sternocostal junction)</li> <li>Percuss down along each interspace and when reaching the liver dullness of the upper border ask the patient to take a deep breath and hold it. Percuss again, and then asked him/her to exhale and re-percuss (tidal percussion). Percuss onto the abdomen until the liver dullness disappeared.</li> <li>Mark the lower border of the liver.</li> <li>Measure the distance between the upper and lower border in the right mid- clavicular line.</li> </ol> <p><b>B) <u>Percussion of the spleen:</u></b></p> <p>The three methods for percussion of the spleen</p> <p>(a) <u>Percussion in the right lateral position.</u></p> |  |  |  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| <p>Start at the lower border of pulmonary resonance in the posterior axillary line and carry down obliquely towards the lowest mid-anterior costal margin.</p> <p>(b) <u>Percussion in the supine position</u>: start from the right iliac fossa towards the left costal margin then continue to the mid axillary line.</p> <p>(c) <u>Percussion of the Traube`s space</u>:</p> <p>Area defined by the left sixth rib superiorly, the left midaxillary line laterally, and the left costal margin inferiorly.</p> <p><b><u>C)Percussion of the kidney:</u></b></p> <p>Percuss the renal angle.</p> |  |  |  |
| <p><b>AUSCULTATION:</b></p> <ul style="list-style-type: none"> <li>i. Intestinal sounds</li> <li>ii. Bruits</li> <li>iii. Venous hum</li> <li>iv. Succussion splash</li> </ul> <p><b><u>Examination of the back:</u></b></p> <ul style="list-style-type: none"> <li>i. Ask the patient to sit</li> <li>ii. Inspect for any swellings, deformities or scars</li> <li>iii. Palpate for edema over the sacrum</li> <li>iv. Palpate for the tenderness in the renal angles, palpate for tenderness over vertebrae</li> <li>v. Auscultate the renal angles for bruit</li> </ul>                         |  |  |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |
| <b>Signatures of Supervisor</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |  |

Place a “✓” in case box if step/task is performed satisfactorily, an “X” if it is not performed satisfactorily, or **N/O** if not observed.

Satisfactory: Performs the step or task according to the standard procedure or guidelines

Unsatisfactory: Unable to perform the step or task according to the standard procedure or guidelines

Date Observed: \_\_\_\_\_

| CHECKLIST FOR FLUID THRILL/SHIFTING DULLNESS<br>(Some of the following steps/tasks should be performed simultaneously.)                                                                                                                                                                                                                                                                                                                                         | CASES<br>(Minimum 3 Entries) |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--|--|
| <b>STEP/TASK</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                |                              |  |  |
| <b>GETTING READY:</b><br><br>1. Washed hands/sanitized hands<br><br>2. Explained procedure to the patient and take consent                                                                                                                                                                                                                                                                                                                                      |                              |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                              |  |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                                                                                                                                                                                                                                                                                                                                  |                              |  |  |
| <b>The Procedure:</b><br><br>1. Percuss from the umbilical region to the patient's left flank. If dullness is noted, this may suggest the presence of ascitic fluid in the flank.<br>2. Whilst keeping your fingers over the area at which the percussion note became dull, ask the patient to roll onto their right side (towards you for stability).<br>3. Keep the patient on their right side for 30 seconds and then repeat percussion over the same area. |                              |  |  |

|                                                                                                                     |  |  |  |
|---------------------------------------------------------------------------------------------------------------------|--|--|--|
| 4. If ascites is present, the area that was previously dull should now be resonant (i.e. the dullness has shifted). |  |  |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                      |  |  |  |
| <b>Signatures of Supervisor</b>                                                                                     |  |  |  |

Place a “✓” in case box if step/task is performed satisfactorily, an “X” if it is not performed satisfactorily, or **N/O** if not observed.

Satisfactory: Performs the step or task according to the standard procedure or guidelines

Unsatisfactory: Unable to perform the step or task according to the standard procedure or guidelines

**Date Observed:** \_\_\_\_\_

| <b>CHECKLIST FOR X-RAY ABDOMEN</b><br>(Some of the following steps/tasks should be performed simultaneously.)                                                                                                                                                     | <b>CASES</b><br>(Minimum 2 Entries) |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--|
| <b>STEP/TASK</b>                                                                                                                                                                                                                                                  |                                     |  |
| <b>Patient Information</b><br>1. Verify patient identification (name, date of birth).<br><br>2. Confirm the date and time of the X-ray.                                                                                                                           |                                     |  |
|                                                                                                                                                                                                                                                                   |                                     |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                                                                                                                                    |                                     |  |
| <b>Technical Factors</b><br>1. Check the X-ray for proper exposure, focus, and positioning.<br><br>2. Assess the image for any artifacts or technical errors.<br><br>3. Ensure the correct orientation of the X-ray (anterior-posterior or posteroanterior view). |                                     |  |
|                                                                                                                                                                                                                                                                   |                                     |  |
|                                                                                                                                                                                                                                                                   |                                     |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                                                                                                                                    |                                     |  |
| <b>Procedure:</b><br>1. Identify and evaluate the integrity of the bony structures, including the spine, ribs, and pelvic bones.<br><br>2. Assess the soft tissues, looking for any masses, swellings, or abnormalities.                                          |                                     |  |
|                                                                                                                                                                                                                                                                   |                                     |  |

|                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| 3. Identify the presence and distribution of gas throughout the abdomen and bowel loops.                                                                                                                                                                                                                                                                                                                |  |  |
| 4. Examine the diaphragm for any abnormalities, such as elevation or flattening.                                                                                                                                                                                                                                                                                                                        |  |  |
| 5. Evaluate the cardiac silhouette for size and shape.                                                                                                                                                                                                                                                                                                                                                  |  |  |
| 6. Identify abdominal organs:<br>i. Liver: assess the size, shape, and density of the liver<br>ii. Spleen: Evaluate the size and contours of the spleen<br>iii. Stomach: identify the gastric air bubble and its location<br>iv. Pancreas: look for pancreatic shadow<br>v. Kidneys: identify both kidneys, assess their size, shape and density<br>vi. Bladder: check for presence of urine in bladder |  |  |
| 7. Small Bowel: Evaluate for normal loops and check for any signs of obstruction.                                                                                                                                                                                                                                                                                                                       |  |  |
| 8. <i>Colon</i> : Assess the size and contour of the colon.                                                                                                                                                                                                                                                                                                                                             |  |  |
| 9. Vascular structures:<br>Aorta: evaluate the size and course of the abdominal aorta<br>Inferior Vena cava: check the patency and size                                                                                                                                                                                                                                                                 |  |  |
| 10. Muscles: examine abdominal wall muscles for symmetry and abnormalities.<br>Fat: assess the distribution and amount of intraabdominal fat.                                                                                                                                                                                                                                                           |  |  |
| 11. Abnormalities: identify any abnormalities such as calcification, masses, abnormal densities.                                                                                                                                                                                                                                                                                                        |  |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                                                                                                                                                                                                                                                                          |  |  |
| <b>Signatures of Supervisor</b>                                                                                                                                                                                                                                                                                                                                                                         |  |  |

Place a “✓” in case box if step/task is performed satisfactorily, an “X” if it is not performed satisfactorily, or **N/O** if not observed.

Satisfactory: Performs the step or task according to the standard procedure or guidelines

Unsatisfactory: Unable to perform the step or task according to the standard procedure or guidelines

**Date Observed:** \_\_\_\_\_

| <b>CHECKLIST FOR ORS FORMULATION AND DEHYDRATION ASSESSMENT</b><br><b>(Some of the following steps/tasks should be performed simultaneously.)</b>                                                                                                                                                                                                           | <b>CASES</b><br><b>(Minimum 2 Entries)</b> |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--|
| <b>STEP/TASK</b>                                                                                                                                                                                                                                                                                                                                            |                                            |  |
| <b>Introduction</b><br>1. Gain consent from parent / child for examination after explaining procedure<br><br>2. Make sure hands are washed and warm                                                                                                                                                                                                         |                                            |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                                                                                                                                                                                                                              |                                            |  |
| <b>Procedure:</b><br>3. Ask about diarrhea/vomiting and any reduction in urine output<br><br>4. Inquire about color of urine (darker indicates dehydration)<br><br>5. Look for dry cracked lips, dry mouth<br><br>6. Inspect eyes if they appear sunken (sign of dehydration)<br><br>7. Notice if child is generally irritable/has an altered mental status |                                            |  |
|                                                                                                                                                                                                                                                                                                                                                             |                                            |  |
|                                                                                                                                                                                                                                                                                                                                                             |                                            |  |
|                                                                                                                                                                                                                                                                                                                                                             |                                            |  |
|                                                                                                                                                                                                                                                                                                                                                             |                                            |  |

|                                                                                                                                                                                                                      |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| 8. Examine for absence of tears                                                                                                                                                                                      |  |  |
| 9. Check pulse (dehydration results in tachycardia)                                                                                                                                                                  |  |  |
| 10. Skin pinch is assessed by pinching the skin of the abdomen between the thumb and forefinger without twisting. If the skin goes back in <1 second it is normal, if it takes more than that, dehydration is likely |  |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                                                                                       |  |  |
| <b>Formulation of ORS at home</b>                                                                                                                                                                                    |  |  |
| 1. Counsel patient regarding rehydration                                                                                                                                                                             |  |  |
| 2. Explain the procedure of adding 6 teaspoons levelled of sugar, ½ teaspoon of salt and exact 1 liter of water (Approx. 5 cups of 200 ml)                                                                           |  |  |
| 3. Mix the ingredients well and make sure the salt and sugar amount are exact                                                                                                                                        |  |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                                                                                       |  |  |
| <b>Signatures of Supervisor</b>                                                                                                                                                                                      |  |  |

| RENAL MODULE                                           |                  |                                  |
|--------------------------------------------------------|------------------|----------------------------------|
| Objectives                                             | Skill            | Miller's Pyramid Level Reflected |
| Detail the steps of urinary catheterization in females | *Catheterization | Knows how                        |
| Detail the steps of urinary catheterization in males   | *Catheterization | Knows how                        |

- ❖ These skills are at the 'Knows how' level of the miller's pyramid, meaning thereby that students need not perform them themselves but may develop a perception regarding them by observing performance/working on simulated patients/facilitation with video.

# FEMALE CATHETERIZATION

Place a “✓” in case box if step/task is performed satisfactorily, an “X” if it is not performed satisfactorily, or N/O if not observed.

Satisfactory: Performs the step or task according to the standard procedure or guidelines

Unsatisfactory: Unable to perform the step or task according to the standard procedure or guidelines

Date Observed: \_\_\_\_\_

| CHECKLIST FOR FEMALE CATHETERIZATION (Some of the following steps/tasks should be performed simultaneously.)                                                                                                                                                                                                                                                | (Minimum 1 Entry) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 1. Identification of patient                                                                                                                                                                                                                                                                                                                                |                   |
| 2. Washed hands/ sanitized hands                                                                                                                                                                                                                                                                                                                            |                   |
| 3. Preparation: gloves, in place, Foley catheter kit, extra pair of sterile gloves, Velcro™ catheter securement device to secure Foley catheter to leg, wastebasket, and light source                                                                                                                                                                       |                   |
| <b>SKILL/ACTIVITY DESCRIBED SATISFACTORILY</b>                                                                                                                                                                                                                                                                                                              |                   |
| 4. Explain procedure to the patient and obtain consent, and explain the need of a chaperone ( for male students)                                                                                                                                                                                                                                            |                   |
| 5. Assess for latex/iodine allergies, GYN surgeries, joint limitations for positioning, and any history of previous difficulties with catheterization.                                                                                                                                                                                                      |                   |
| 6. Position the female patient in a dorsal recumbent position. Uncover the patient, exposing the patient's groin, legs, and feet for positioning and sterile field (female = dorsal recumbent; may need assistance to position patient and help support legs). Drape the patient with a bath blanket, exposing only the necessary area for patient privacy. |                   |
| 7. Create a sterile field on the over-the-bed table.                                                                                                                                                                                                                                                                                                        |                   |

|                                                                                                                                                                                                                                                                                                                                                                       |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 8. Open the outer package wrapping. Remove the sterile wrapped box with the paper label facing upward to avoid spilling contents and place it on the bedside table or, if possible, between the patient's legs. Place the plastic package wrapping at the end of the bed or on the side of the bed near you, with the opening facing you or facing upwards for waste. |  |
| 9. Open the kit to create and position a sterile field: <ul style="list-style-type: none"> <li>a. Open the first flap away from you.</li> <li>b. Open the second flap toward you.</li> <li>c. Open side flaps.</li> <li>d. Only touch within the outer 1" edge to position the sterile field on the table.</li> </ul>                                                 |  |
| 10. Carefully remove the sterile drape from the kit. Touching only the outermost edges of the drape, unfold and place the touched side of drape closest to linen, under the patient. Vertically position the drape between the patient's legs to allow space for the sterile box and sterile tray.                                                                    |  |
| 11. Wash your hands and apply sterile gloves.                                                                                                                                                                                                                                                                                                                         |  |
| 12. Empty the lubricant syringe or package into the plastic tray. Place the empty syringe/package on the sterile outer package.                                                                                                                                                                                                                                       |  |
| Simulate application of iodine/antimicrobial cleanser to cotton balls.                                                                                                                                                                                                                                                                                                |  |
| 13. Carefully remove the plastic catheter covering, while keeping the catheter in the sterile box. Attach the syringe filled with sterile water to the balloon port of the catheter; keep the catheter sterile.                                                                                                                                                       |  |
| 14. Lubricate the tip of the catheter by dipping it in lubricant and place it in the box while maintaining sterility.                                                                                                                                                                                                                                                 |  |
| 15. Tell the patient that you are going to clean the catheterization area and they will feel a cold sensation.                                                                                                                                                                                                                                                        |  |
| 16. With your nondominant hand, gently spread the labia minora and visualize the urinary meatus. Your nondominant hand will now be nonsterile. This hand must remain in place throughout the procedure.                                                                                                                                                               |  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 17. With your dominant hand, use an antiseptic swab or pick up a sterile antiseptic soaked cotton ball with plastic forceps to clean the labia minora farthest from you using a downward stroke, then discard the swab or cotton ball. Repeat for the labia minora closest to you. Use another antiseptic swab or antiseptic soaked cotton ball to clean the area between the labia minora. Discard the cotton ball after use into the plastic bag, not crossing the sterile field. Repeat for a total of three times using a new cotton ball each time. Discard the forceps in the plastic bag without touching the sterile gloved hand to the bag |  |
| 18. Pick up the catheter with your sterile dominant hand. Instruct the patient to take a deep breath and exhale or "bear down" as if to void, as you steadily insert the catheter maintaining sterility of the catheter until urine is noted.                                                                                                                                                                                                                                                                                                                                                                                                       |  |
| 19. Once urine is noted, continue inserting the catheter 2-3" farther." Do not force the catheter.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
| 20. With your dominant hand, inflate the retention balloon with the water-filled syringe to the level indicated on the balloon port of the catheter. With the plunger still pressed, remove the syringe and set it aside. Pull back on the catheter until resistance is met, confirming the balloon is in place.                                                                                                                                                                                                                                                                                                                                    |  |
| 21. Remove your gloves and perform hand hygiene.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
| 22. Apply new gloves. Secure the catheter with securement device, allowing room as to not pull on the catheter.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| 23. Place the drainage bag below the level of the bladder, attaching it to the bed frame.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 24. Remove your gloves and perform hand hygiene. Assist patient to a comfortable position.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
| <b>SKILL/ACTIVITY DESCRIBED SATISFACTORILY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
| <b>Signatures of Supervisor</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |

Place a “✓” in case box if step/task is performed satisfactorily, an “X” if it is not performed satisfactorily, or **N/O** if not observed.

Satisfactory: Performs the step or task according to the standard procedure or guidelines

Unsatisfactory: Unable to perform the step or task according to the standard procedure or guidelines

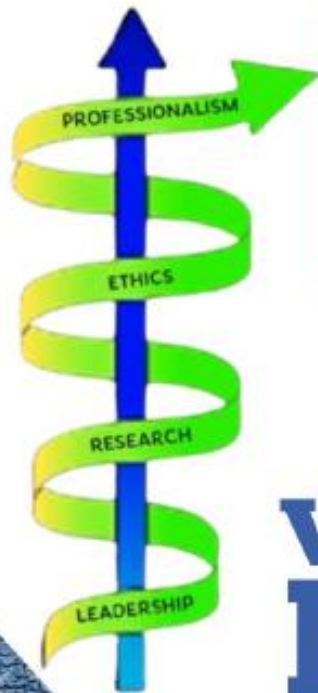
**Date Observed:** \_\_\_\_\_

| <b>CHECKLIST FOR MALE CATHETERIZATION</b><br><b>(Some of the following steps/tasks should be performed simultaneously.)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>(Minimum 1 Entry)</b> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1. Identification of patient<br><br>2. Collect the equipment required for the procedure and place it within reach on the clean trolley. Check the expiry date on the catheter, sterile water, normal saline and lidocaine gel. Ensure a clinical waste bin is placed nearby                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                          |
| <b>SKILL/ACTIVITY OBSERVED AND DESCRIBED SATISFACTORILY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                          |
| 1. Wash hands<br><br>2. Introduce yourself to the patient, explain the procedure and take consent<br><br>3. Explain the need for a chaperone (for female students)<br><br>4. Setup up the sterile field by first removing the outer packaging from the catheter pack and then opening the catheter pack from the corners without touching the inner surface of the field.<br>5. Using aseptic non-touch technique (ANTT) empty the catheter, lidocaine gel syringe, sterile water syringe and sterile gloves onto the field.<br>6. Pour the 0.9% sodium chloride solution over the cotton balls which should already be located within the gallipot of the catheter pack<br><br>7. With the patient lying supine, ensure the bed is at an appropriate height for you to comfortably carry out the procedure<br>8. Wash your hands again and don a pair of sterile gloves<br>9. Ask your chaperone to remove the sheet covering the patient's genitals to allow you to maintain sterility<br>10. Place a sterile absorbent pad underneath the patient's genital region, |                          |

ensuring you maintain sterility

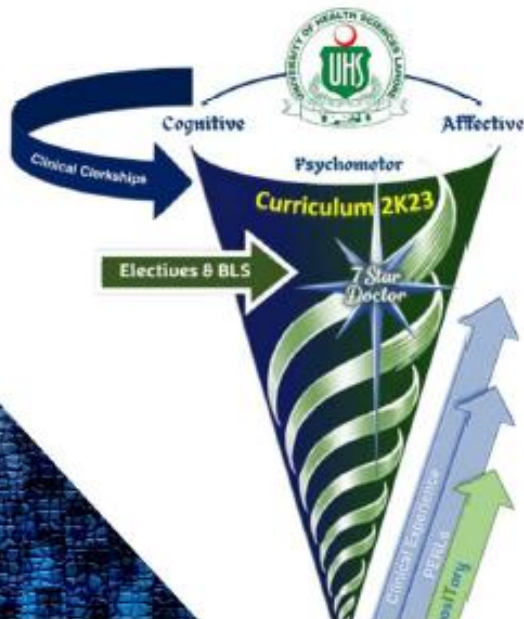
11. With your dominant hand pick up a cotton ball and use a single stroke moving away from the urethral meatus to clean an area of the glans. Dispose of the first cotton ball into the clinical waste bin and continue to repeat this process with a new cotton ball each time until all areas of the glans have been cleaned
12. Discard your used gloves, wash your hands again and don a new pair of sterile gloves
13. Place the sterile drape over the patient's penis, positioned such that the penis remains visible through the central aperture of the drape. Some drapes come with a hole already present for this purpose, whereas others will require you to create one
14. Place the sterile urine collection bowl below the penis but on top of the sterile drape
15. Warn the patient that the anesthetic gel might initially sting, but then should quickly cause things to become numb with your dominant hand place the nozzle of the syringe of anaesthetic gel into the urethral meatus. Empty the entire 10mls of anaesthetic gel into the urethra at a slow but steady pace . Continue to hold to the penis in the vertical position to ensure the gel remains within the urethra and allow 3 to 5 minutes for the lidocaine gel to reach its maximum effect
16. Pick up the catheter which should be on your sterile field in its wrapper. Remove the tear-away portion of the wrapper near the catheter tip, making sure not to touch the catheter. Clean away any urine spillage or excess lubricating gel and cover the patient with the sheet. Dispose of your equipment into a clinical waste bin 46 Provide the patient with privacy to get dressed
17. Hold the penis again using sterile gauze with your non-dominant hand
18. Warn the patient you are about to insert the catheter. Insert the exposed catheter tip into the urethral meatus using your dominant 'clean hand'
19. Advance the catheter slowly whilst gradually removing more of the wrapper to expose more of the catheter. You should continue to advance the catheter until it is fully inserted into the penis
20. Once the catheter is fully inserted, inflate the catheter balloon with the 10ml syringe of sterile water to secure it within the bladder
21. Once the balloon is fully inflated, remove the syringe and gently withdraw the catheter until resistance is noted, confirming the catheter is held securely within the bladder
22. Attach the catheter bag tubing to the end of the catheter securely. Position the catheter bag below the level of the patient to facilitate effective drainage of urine
23. Clean away any urine spillage or excess lubricating gel and cover the patient with the sheet Dispose of your equipment into a clinical waste bin. Provide the patient with privacy to get dressed

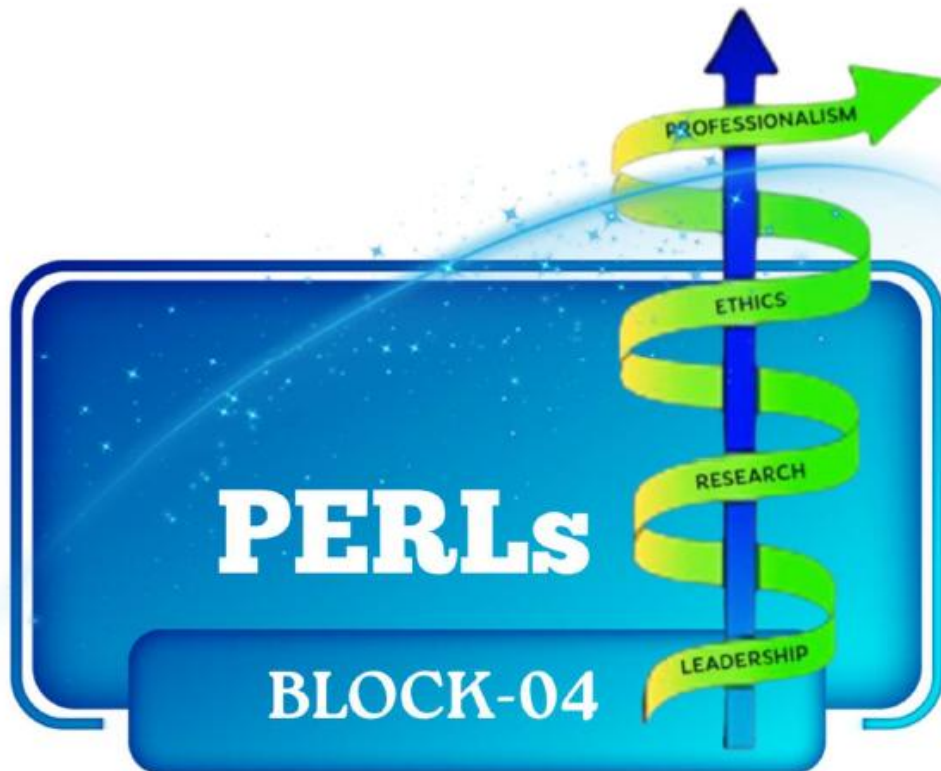
|                                                          |  |
|----------------------------------------------------------|--|
| 24. Dispose of your equipment into a clinical waste bin. |  |
| 25. Provide the patient with privacy to get dressed      |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>           |  |
| <b>Signatures of Supervisor</b>                          |  |



**Modular Integrated  
Curriculum 2K23**  
*MBBS Year-2*

**Volume-2**  
**PERLs-2**





## MODULE RATIONALE

The UHS PERL module is designed to equip medical students with essential competencies in Professionalism, Ethics, Research, and Leadership, aligning with the PMDC 7-Star Doctor (Professional, Ethical, Scholar, Leader, Communicator, Health Advocate, and Collaborator) framework. This framework emphasizes the multifaceted role of a physician, highlighting the need for a holistic approach to medical education. In an era where healthcare systems are constantly evolving, integrating these core areas is vital for developing well-rounded, responsible, and effective healthcare professionals.

### 1. **Importance of Professionalism:**

Professionalism is the cornerstone of medical practice, influencing patient trust and the overall quality of care. This module emphasizes the significance of professional behavior, including accountability, integrity, and respect for diversity, ensuring that students cultivate a strong ethical foundation as they progress through their medical education.

### 2. **Ethical Decision-Making:**

As future healthcare providers, students will face complex ethical dilemmas that require sound judgment and moral reasoning. This module focuses on key ethical principles, such as patient autonomy, equity, and justice in resource allocation, particularly in challenging areas like neoplasia and inflammation. Understanding these principles prepares students to advocate for their patients while navigating the intricate landscape of modern healthcare.

### 3. **Research Competence:**

Research plays a critical role in advancing medical knowledge and improving patient outcomes. By emphasizing evidence-based practice, this module encourages students to engage with scientific literature, develop robust literature search strategies, conduct research projects and apply research findings to clinical decision-making. This skill set is essential for fostering a culture of inquiry and continuous improvement within the healthcare profession.

### 4. **Leadership Development:**

Leadership is an integral part of effective healthcare delivery. This module prepares students to take on leadership roles, emphasizing teamwork, conflict resolution, and effective communication. By fostering leadership skills, we aim to empower students to influence positive changes in their future workplaces and advocate for patient-centered care.

In summary, the UHS PERL module is designed to create a comprehensive learning experience that prepares medical students for the challenges and responsibilities they will face in their careers. By integrating Professionalism, Ethics, Research, and Leadership, we aim to cultivate competent, compassionate, and ethical healthcare professionals who are equipped to make informed decisions and lead with integrity in an ever-changing medical landscape.

- Exhibit accountability, integrity, and respect for diversity in all aspects of medical practice, embodying the principles of professionalism in clinical and academic settings. (PLO 3)
- Analyze and apply ethical principles related to patient care, including autonomy, beneficence, non-maleficence, and justice, particularly in challenging situations such as end-of-life decisions and resource allocation. (PLO 2,3,7)
- Develop and implement effective literature search strategies, critically evaluate scientific literature, and synthesize findings to inform clinical decision-making and practice. (PLO 4)
- Participate in a comprehensive research project, from formulating a research question to data collection and analysis, culminating in the production of a publishable manuscript that meets academic and ethical standards. (PLO 4)
- Demonstrate leadership skills through effective communication, conflict resolution, and teamwork, fostering a collaborative environment that enhances patient care and academic performance. (PLO 7)
- Recognize and address the social determinants of health, advocating for equity in healthcare access and outcomes for diverse patient populations. (PLO 4,5)
- Engage in self-assessment and reflective practices to identify strengths and areas for improvement, creating actionable plans for personal and professional growth throughout their medical education. (PLO 8)
- Utilize effective verbal and non-verbal communication skills to engage with patients, families, and colleagues, ensuring clear and compassionate exchanges that enhance understanding and trust. (PLO 7)

## SUBJECTS INTEGRATED IN THE MODULE

1. Professionalism
2. Ethics
3. Research
4. Leadership

## LEARNING RESOURCES

### 1. **Professionalism:**

- Azam, M. (2021). Mind maps for medicine. Scion Publishing. <https://scionpublishing.com/product/mind-maps-for-medicine/>
- Bin Abdulrahman, K. A., Khalaf, A. M., Bin Abbas, F. B., & Alanazi, O. T. (2021). Study habits of highly effective medical students. *Advances in Medical Education and Practice*, 12, 627–633. <https://doi.org/10.2147/AMEP.S309535>
- Bandaranayake, R. C. (2013). Study skills. In K. Walsh (Ed.), *Oxford textbook of medical education* (pp. 244–254). Oxford University Press. <https://doi.org/10.1093/med/9780199652679.003.0021>
- American Board of Internal Medicine Foundation, American College of Physicians Foundation, & European Federation of Internal Medicine. (2005). Medical professionalism in the new millennium: A physician charter. Retrieved from [https://www.abimfoundation.org/what-we-do/physician-charter&#8203;;contentReference\[oaicite:0\]{index=0}](https://www.abimfoundation.org/what-we-do/physician-charter&#8203;;contentReference[oaicite:0]{index=0})
- Barnhoorn, P. C., Houtlosser, M., Ottenhoff-de Jonge, M. W., Essers, G. T. J. M., Numans, M. E., & Kramer, A. W. M. (2019). A practical framework for remediating unprofessional behavior and for developing professionalism competencies and a professional identity. *Medical Teacher*, 41(3), 303–308. [https://doi.org/10.1080/0142159X.2018.1464133&#8203;;contentReference\[oaicite:1\]{index=1}](https://doi.org/10.1080/0142159X.2018.1464133&#8203;;contentReference[oaicite:1]{index=1})
- Guraya, S. S., Guraya, S. Y., Harkin, D. W., Ryan, Á., Mat Nor, M. Z. B., & Yusoff, M. S. B. (2021). Medical Education e-Professionalism (MEeP) framework; From conception to development. *Medical Education Online*, 26(1), 1983926. [https://doi.org/10.1080/10872981.2021.1983926&#8203;;contentReference\[oaicite:2\]{index=2}](https://doi.org/10.1080/10872981.2021.1983926&#8203;;contentReference[oaicite:2]{index=2})
- Kirk, L. M. (2007). Professionalism in medicine: Definitions and considerations for teaching. *Baylor University Medical Center Proceedings*, 20(1), 13–16. [https://doi.org/10.1080/08998280.2007.11928225&#8203;;contentReference\[oaicite:3\]{index=3}](https://doi.org/10.1080/08998280.2007.11928225&#8203;;contentReference[oaicite:3]{index=3})

- Al-Eraky, M. M. (2015). Faculty development for medical professionalism in an Arabian context. [Doctoral Thesis, Maastricht University]. Maastricht University. [https://doi.org/10.26481/dis.20150521ma&#8203;;contentReference\[oaicite:0\]{index=0}](https://doi.org/10.26481/dis.20150521ma&#8203;;contentReference[oaicite:0]{index=0})
- Online Journals and Reading Materials through HEC Digital Library Facility

## 2. **Ethics:**

- World Health Organization. (2015). Global health ethics: Key issues. World Health Organization. <https://apps.who.int/iris/handle/10665/164576>
- World Health Organization. (2011). Standards and operational guidance for ethics review of health-related research with human participants. World Health Organization. <https://www.who.int/publications/i/item/9789241502948>
- World Health Organization. (2023). WHO Code of Ethics. World Health Organization.
- Harvey, J. C. (n.d.). Clinical ethics: The art of medicine. In *Military Medical Ethics*, Volume 1, Chapter 3.
- National Bioethics Committee. (2017). Guidelines and teachers handbook for introducing bioethics to medical and dental students. Healthcare Ethics Committee (HCEC).
- Varkey, B. (2021). Principles of clinical ethics and their application to practice. *Medical Principles and Practice*, 30(1), 17-28. <https://doi.org/10.1159/000509119>
- Pakistan Medical and Dental Council. (2018). Professional ethics and code of conduct.
- Online Journals and Reading Materials through HEC Digital Library Facility

## 3. **Research**

- Medical Statistics. 2nd Ed. by R. Turkwood.
- Biddle, K., Blundell, A., & Sofat, N. (2023). *Understanding clinical research: An introduction*. Scion Publishing. <https://scionpublishing.com/product/understanding-clinical-research/>
- Harris, M., & Taylor, G. (2020). *Medical Statistics Made Easy* (4th ed.). Scion Publishing. <https://scionpublishing.com/product/medical-statistics-made-easy-fourth-edition/>
- Allen, A. K. (2012). *Research skills for medical students*. SAGE Publications, Inc. <https://doi.org/10.4135/9781526436016>
- Online Journals and Reading Materials through HEC Digital Library Facility

## 4. **Leadership**

- Wamboldt, R., & Loughran, N. (2017). *Communication skills for OSCEs*. Scion Publishing. <https://scionpublishing.com/product/communication-skills-for-osces/>
- Edmonstone, J. (2018). Leadership development in health care in low and middle-income countries: Is there another way? *International Journal of Health Planning and Management*, 33(4), e1193–e1199.

[https://doi.org/10.1002/hpm.2606&#8203;;contentReference\[oaicite:0\]{index=0}](https://doi.org/10.1002/hpm.2606&#8203;;contentReference[oaicite:0]{index=0})

- National Center for Healthcare Leadership. (2018). Health Leadership Competency Model 3.0. Chicago, IL: National Center for Healthcare Leadership. [https://nchl.org/#8203;:contentReference\[oaicite:0\]{index=0}](https://nchl.org/#8203;:contentReference[oaicite:0]{index=0})
- Chen T. Y. (2018). Medical leadership: An important and required competency for medical students. *Ci ji yi xue za zhi = Tzu-chi medical journal*, 30(2), 66–70. [https://doi.org/10.4103/tcmj.tcmj\\_26\\_18](https://doi.org/10.4103/tcmj.tcmj_26_18)

**Note:**

*\*Research (R) in the PERL curriculum will be delivered by the Department of Community Medicine as a longitudinal component from the first to the fourth year of the MBBS program. At the end of the fourth year, students' research projects will be assessed through a dedicated PERL station.*

| GIT & NUTRITION-I                                                                                                                                                                                                                                                                                       |                 |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| *Proposed Sequence of Topics Mentioned below. Medical Colleges are at liberty to manage according to their resources. Topics can switch within each Block                                                                                                                                               |                 |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Total Hours = 7.5                                                                                                                                                                                        |
| * <b>Research (R)</b> in the PERL curriculum will be delivered by the Department of Community Medicine as a longitudinal component from the first to the fourth year of the MBBS program. At the end of the fourth year, students' research projects will be assessed through a dedicated PERL station. |                 |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                          |
| Code                                                                                                                                                                                                                                                                                                    | Domain          | Topic                                    | Specific Learning Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                       | Proposed Portfolio Entry                                                                                                                                                                                 |
| PERLS-2-001                                                                                                                                                                                                                                                                                             | Professionalism | Self-awareness & Improvement Planning    | <ul style="list-style-type: none"> <li>Appreciate the need to develop self-awareness by reflecting on personal strengths and areas for improvement, and create actionable improvement plans to enhance academic performance and professional development.</li> <li>Conduct a self-assessment to identify their strengths and weaknesses in academic and clinical tasks, and create a detailed improvement plan to address areas where growth is needed.</li> </ul> | Submit a self-assessment report outlining your strengths and weaknesses, along with a personalized improvement plan that includes specific strategies and goals for enhancing your skills and knowledge. |
| PERLS-2-002                                                                                                                                                                                                                                                                                             | Leadership      | Role Modelling via Mentoring Session III | <ul style="list-style-type: none"> <li>Participate in a mentoring session where to discuss their strengths and weaknesses with their mentor, receive feedback, and collaboratively create an action plan for personal and professional development.</li> </ul>                                                                                                                                                                                                     | Submit a summary of your mentoring session, including feedback, areas identified for improvement, and the action plan you developed with your mentor to enhance your professional growth.                |

|             |                   |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                       |
|-------------|-------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             |                   |                         | <ul style="list-style-type: none"> <li>• Share self-Assessment report with mentors for further guidance.</li> </ul>                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                       |
| PERLS-2-003 | <b>Ethics</b>     | Patient Confidentiality | <ul style="list-style-type: none"> <li>• Discuss the ethical principles of patient confidentiality, including the importance of protecting patient information and the legal and professional consequences of breaching confidentiality.</li> <li>• Review a clinical scenario involving patient confidentiality and identify how the principles of confidentiality were maintained or breached, proposing strategies for improvement where necessary.</li> </ul>              | <p>Submit a reflection on a case study involving patient confidentiality.</p> <p>Discuss the actions taken to protect patient information and reflect on the ethical responsibilities of healthcare professionals in maintaining confidentiality.</p> |
| PERLS-2-004 | <b>Leadership</b> | Basics of Teamwork      | <ul style="list-style-type: none"> <li>• Describe the roles and responsibilities of a team member in healthcare, including the importance of collegiality &amp; effective information sharing</li> <li>• Describe the stages of team dynamics</li> <li>• Appraise how team dynamics influence performance and outcomes.</li> <li>• Self-assessment as a team member/leader using e.g. The Blake and Mouton Managerial Grid Leadership Self-Assessment Questionnaire</li> </ul> | <p>Submit results of leadership self-assessment.</p>                                                                                                                                                                                                  |
| PERLS-2-005 | <b>Research</b>   | Research Question       | <ul style="list-style-type: none"> <li>• Discuss how to select a suitable research topic.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                       |

|  |  |  |                                                                                                                                                                                 |  |
|--|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |  |  | <ul style="list-style-type: none"> <li>• Select a research title (based on public health relevance, innovation, feasibility, acceptability, and cost-effectiveness).</li> </ul> |  |
|--|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

| RENAL-I                                                                                                                                                                                                                                                                                                 |                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| *Proposed Sequence of Topics Mentioned below. Medical Colleges are at liberty to manage according to their resources. Topics can switch within each Block                                                                                                                                               |                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                      | Total Hours = 4.5                                                                                                                                                                                                  |
| * <b>Research (R)</b> in the PERL curriculum will be delivered by the Department of Community Medicine as a longitudinal component from the first to the fourth year of the MBBS program. At the end of the fourth year, students' research projects will be assessed through a dedicated PERL station. |                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                    |
| Code                                                                                                                                                                                                                                                                                                    | Domain          | Topic            | Specific Learning Objectives                                                                                                                                                                                                                                                                                                                                                                                                         | Proposed Portfolio Entry                                                                                                                                                                                           |
| PERLS-2-006                                                                                                                                                                                                                                                                                             | Professionalism | Time Management  | <ul style="list-style-type: none"> <li>Discuss the importance of effective time management in medical education and practice, and develop strategies to prioritize tasks, manage academic responsibilities, and maintain a healthy work-life balance.</li> <li>Create a weekly schedule that prioritizes academic tasks, clinical work, and personal activities, demonstrating their ability to manage time effectively</li> </ul>   | Submit a time management plan outlining your weekly schedule, including study hours, clinical tasks, and personal time. Reflect on how this plan helps you balance your responsibilities and improve productivity. |
| PERLS-2-007                                                                                                                                                                                                                                                                                             | Ethics          | Informed Consent | <ul style="list-style-type: none"> <li>Discuss the ethical and legal principles of informed consent, including the patient's right to make autonomous decisions based on clear, accurate, and comprehensive information about their treatment options, risks, and benefits.</li> <li>Review a case scenario and practice obtaining informed consent, ensuring they provide clear explanations of the risks, benefits, and</li> </ul> | Submit a reflection on a case where you practiced or observed the informed consent process. Discuss how the information was communicated to the patient and how patient autonomy was respected.                    |

|             |                   |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                          |
|-------------|-------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             |                   |                                   | alternatives, and confirming patient understanding.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                          |
| PERLS-2-008 | <b>Leadership</b> | Patient Counselling about disease | <ul style="list-style-type: none"> <li>Discuss the principles of effective patient counseling, focusing on clear and empathetic communication to explain disease conditions, treatment options, and lifestyle modifications, ensuring patient understanding and engagement in their care.</li> </ul> <p>Practice counseling a simulated patient about a disease, using clear, empathetic communication to explain the diagnosis, treatment options, and necessary lifestyle changes, while ensuring the patient's understanding.</p> | Create and submit a poster illustrating the key steps involved in patient counseling for a specific disease, including how to explain the diagnosis, treatment options, and lifestyle modifications. Highlight strategies to ensure patient comprehension and engagement in the decision-making process. |
| PERLS-2-009 | <b>Research</b>   | Research questions                | <p>Discuss the principles of constructing an evidence-based argument, including developing a clear research question.</p> <p>Formulate research questions using PICO/PEO format.</p>                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                          |



**Volume-02**



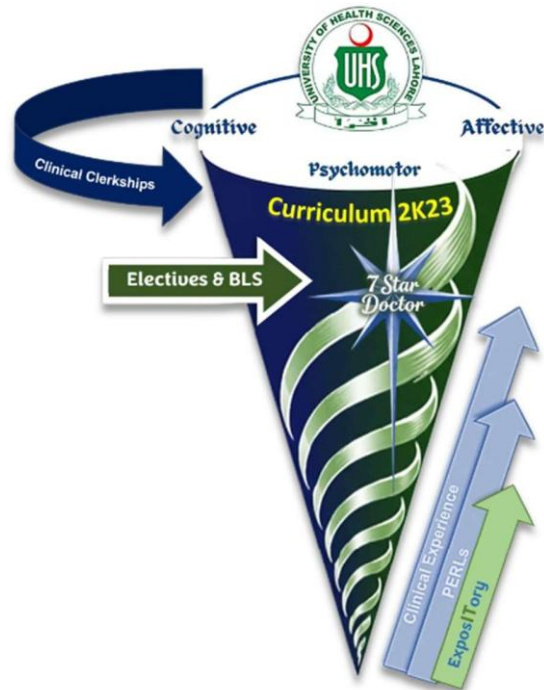
# **STUDENT PORTFOLIO**

**YEAR-02**





## Curriculum 2K23 (MBBS Year-2)



### GASTROINTESTINAL AND NUTRITION I

DATE FROM: \_\_\_\_\_

DATE TO: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_

|                                                                                                                                                                                                                 |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Roll No:</b>                                                                                                                                                                                                 |  |
| <b>Assignment Topic:</b>                                                                                                                                                                                        |  |
| <b>Date:</b>                                                                                                                                                                                                    |  |
| <p>Submit a self-assessment report outlining your strengths and weaknesses, along with a personalized improvement plan that includes specific strategies and goals for enhancing your skills and knowledge.</p> |  |
|                                                                                                                                                                                                                 |  |
| <b>Facilitator Remarks:</b>                                                                                                                                                                                     |  |

|                                                                                                                                                                                           |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Roll No:</b>                                                                                                                                                                           |  |
| <b>Assignment Topic:</b>                                                                                                                                                                  |  |
| <b>Date:</b>                                                                                                                                                                              |  |
| Submit a summary of your mentoring session, including feedback, areas identified for improvement, and the action plan you developed with your mentor to enhance your professional growth. |  |
|                                                                                                                                                                                           |  |
| <b>Facilitator Remarks:</b>                                                                                                                                                               |  |

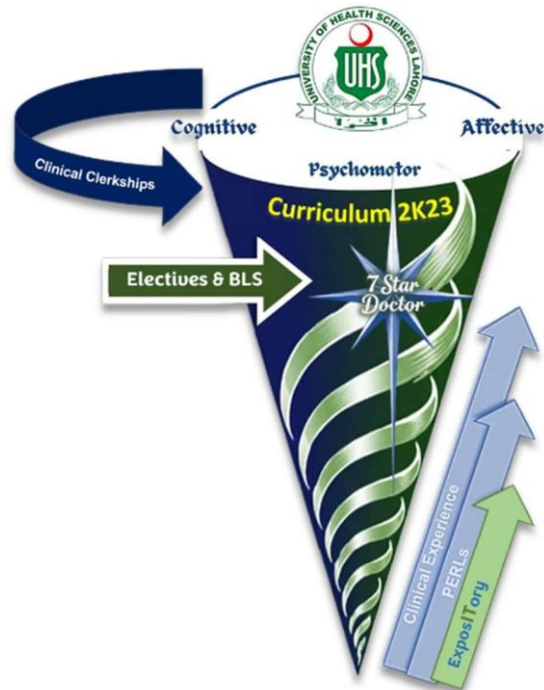
|                                                                                                                                                                                                                                                |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Roll No:</b>                                                                                                                                                                                                                                |  |
| <b>Assignment Topic:</b>                                                                                                                                                                                                                       |  |
| <b>Date:</b>                                                                                                                                                                                                                                   |  |
| <p>Submit a reflection on a case study involving patient confidentiality. Discuss the actions taken to protect patient information and reflect on the ethical responsibilities of healthcare professionals in maintaining confidentiality.</p> |  |
|                                                                                                                                                                                                                                                |  |
| <b>Facilitator Remarks:</b>                                                                                                                                                                                                                    |  |

|                                               |  |
|-----------------------------------------------|--|
| <b>Roll No:</b>                               |  |
| <b>Assignment Topic:</b>                      |  |
| <b>Date:</b>                                  |  |
| Submit results of leadership self-assessment. |  |
|                                               |  |
| <b>Facilitator Remarks:</b>                   |  |

|                                                                                                                                                                           |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Roll No:</b>                                                                                                                                                           |  |
| <b>Assignment Topic:</b>                                                                                                                                                  |  |
| <b>Date:</b>                                                                                                                                                              |  |
| Submit a written argument on a medical topic, demonstrating how you structured your argument and incorporated evidence from scientific literature to support your claims. |  |
|                                                                                                                                                                           |  |
| <b>Facilitator Remarks:</b>                                                                                                                                               |  |



## Curriculum 2K23 (MBBS Year-2)



### MODULE: RENAL-I

DATE FROM: \_\_\_\_\_

DATE TO: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_

|                                                                                                                                                                                                                           |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Roll No:</b>                                                                                                                                                                                                           |  |
| <b>Assignment Topic:</b>                                                                                                                                                                                                  |  |
| <b>Date:</b>                                                                                                                                                                                                              |  |
| <p>Submit a time management plan outlining your weekly schedule, including study hours, clinical tasks, and personal time. Reflect on how this plan helps you balance your responsibilities and improve productivity.</p> |  |
|                                                                                                                                                                                                                           |  |
| <b>Facilitator Remarks:</b>                                                                                                                                                                                               |  |

|                                                                                                                                                                                                        |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Roll No:</b>                                                                                                                                                                                        |  |
| <b>Assignment Topic:</b>                                                                                                                                                                               |  |
| <b>Date:</b>                                                                                                                                                                                           |  |
| <p>Submit a reflection on a case where you practiced or observed the informed consent process. Discuss how the information was communicated to the patient and how patient autonomy was respected.</p> |  |
|                                                                                                                                                                                                        |  |
| <b>Facilitator Remarks:</b>                                                                                                                                                                            |  |

|                                                                                                                                                                                                                                                                                                                 |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Roll No:</b>                                                                                                                                                                                                                                                                                                 |  |
| <b>Assignment Topic:</b>                                                                                                                                                                                                                                                                                        |  |
| <b>Date:</b>                                                                                                                                                                                                                                                                                                    |  |
| <p>Create and submit a poster illustrating the key steps involved in patient counseling for a specific disease, including how to explain the diagnosis, treatment options, and lifestyle modifications. Highlight strategies to ensure patient comprehension and engagement in the decision-making process.</p> |  |
|                                                                                                                                                                                                                                                                                                                 |  |
| <b>Facilitator Remarks:</b>                                                                                                                                                                                                                                                                                     |  |

# Block-4 Coordinators

## BIOCHEMISTRY

### **Dr. Adnan Riaz**

Associate Professor of Biochemistry

Office: HOD Office Biochemistry Academic block 1, First Floor

Office Hours: Monday to Friday from 0800 Hours till 1530 Hours

## PHYSIOLOGY

### **Dr. Nayab Khalid**

Assistant Professor of Physiology

Office: Physiology Department, Academic block 1, Ground Floor

Office Hours: Monday to Friday from 0800 Hours till 1500Hours

## PATHOLOGY

### **Prof. Dr. Qamar Aziz**

HOD/Professor of Pathology

Office: HOD Office Pathology, Academic block 2, Ground Floor

Office Hours: Monday to Friday from 0800 Hours till 1500Hours

## COMMUNITY MEDICINE

### **Dr. Sehar**

Lecturer Community Medicine

Office: Community Medicine, Academic block1, First Floor

Office Hours: Monday to Friday from 0800 Hours till 1500 Hours

## BEHAVIOUR SCIENCES

### **Dr. Fatima**

Lecturer Behavioural Sciences

Office Hours: Monday to Friday from 0800 Hours till 1500Hours

## PHARMACOLOGY

### **Dr. Azan**

Assistant Professor, Pharmacology

Office: Department of Pharmacology, Academic block2, First Floor

Office Hours: Monday to Friday from 0800 Hours till 1500Hours

## **CFRC**

### **Dr. Mobeen**

Office: Department of Medicine,

Office Hours: Monday to Friday from 0800 Hours till 1500Hours

## **PERLs**

### **Dr. Sara**

Lecturer Medical Education

Office: Department of Medical Education,

Office Hours: Monday to Friday from 0800 Hours till 1500Hours

# IMPORTANT NOTE

**To be able to sit in Annual Exam  
85% attendance and at least 50% in internal  
assessment is mandatory**

# DISCLAIMER

This module guide may be subject to changes and students should stay updated through official communication change