

# AYUB MEDICAL COLLEGE ABBOTTABAD

DEPARTMENT OF MEDICAL EDUCATION



## STUDY GUIDE RENAL-II MODULE

4<sup>TH</sup> YEAR MBBS

BLOCK: "L"  
DURATION: 4 WEEKS  
FROM: 2023

STUDENT NAME

**DISCLAIMER**

- Developing a study guide is a dynamic process and undergoes iteration according to the needs and priorities.
- This study guide is subjected to the change and modification over the whole academic year.
  - However, students are advised to use it as a guide for respective modules.
- It is to declare that the learning objectives (general and specific) and the distribution of assessment tools (both theory and practical) are obtained from Khyber Medical University, Peshawar. These can be obtained from:  
<https://kmu.edu.pk/examination/guidelines>
- The time tables are for guiding purpose. It is to advise that final timetables are always displayed over the notice boards of each lecture hall.
- Students are encouraged to provide feedback via coordinator.

## Contents

1	Module Committee:	1
2	What Is A Study Guide?	2
2.1	The study guide:	2
2.2	Module objectives.	2
2.3	Achievement of objectives.	2
2.4	CURRICULUM FRAMEWORK:	2
3	Recommended List Of Icons	3
4	Table Of Specification	4
5	Organization of Module	5
5.1	Introduction:	5
5.2	Rational:	5
6	Learning Objectives	6
6.1	General Learning Outcomes	6
6.1.1	KNOWLEDGE	6
6.1.2	SKILLS	6
6.1.3	ATTITUDE	6
6.2	SPECIFIC LEARNING OBJECTIVES	7
7	Examination and Methods of Assessment:	20
7.1	Table-5: MCQs	21
8	Learning Opportunities and Resources	23
a.	Books:	23
b.	Website:	24
9	Timetables	24
10	For inquiry and troubleshooting	26
11	Course Feedback Form	27

## 1 Module Committee:

s.no	Name	Department	Role
1.	Prof. Dr. Umar Farooq	CEO & Dean	
2.	Prof. Dr. Irfan U. Khattak	Director DME	
<b>Module Team</b>			
3.	Dr. Zeeshan Haroon	Community Medicine	Block Coordinator
4.	Dr. Ashfaq Ahmed	Community Medicine	Module Coordinator
5.	Dr. Zainab Naznnen	Community Medicine	Member
6.	Dr. M.Umair	Community Medicine	Member
7.	Dr. Afsheen Siddiqi	Pharmacology	Member
8.	Dr. Tauqeer Ahmed	Medicine	Member
9.	DR. Saadia Irum	Gynaecology	Member
10.	Dr Ghazala	Surgery	Member
11.	Dr. Saima Blbi	Paediatrics	Member
12.	Dr. Salma Shazia	Forensic Medicine	Member

## 2 What Is A Study Guide?

It is an aid to Inform students how student learning program of the module has been organized, to help students organize and manage their studies throughout the module and guide students on assessment methods, rules and regulations.

### 2.1 The study guide:

- Communicates information on organization and management of the module.
- This will help the student to contact the right person in case of any difficulty.
- Defines the objectives which are expected to be achieved at the end of the module.
- Identifies the learning strategies such as lectures, small group teachings.

### 2.2 Module objectives.

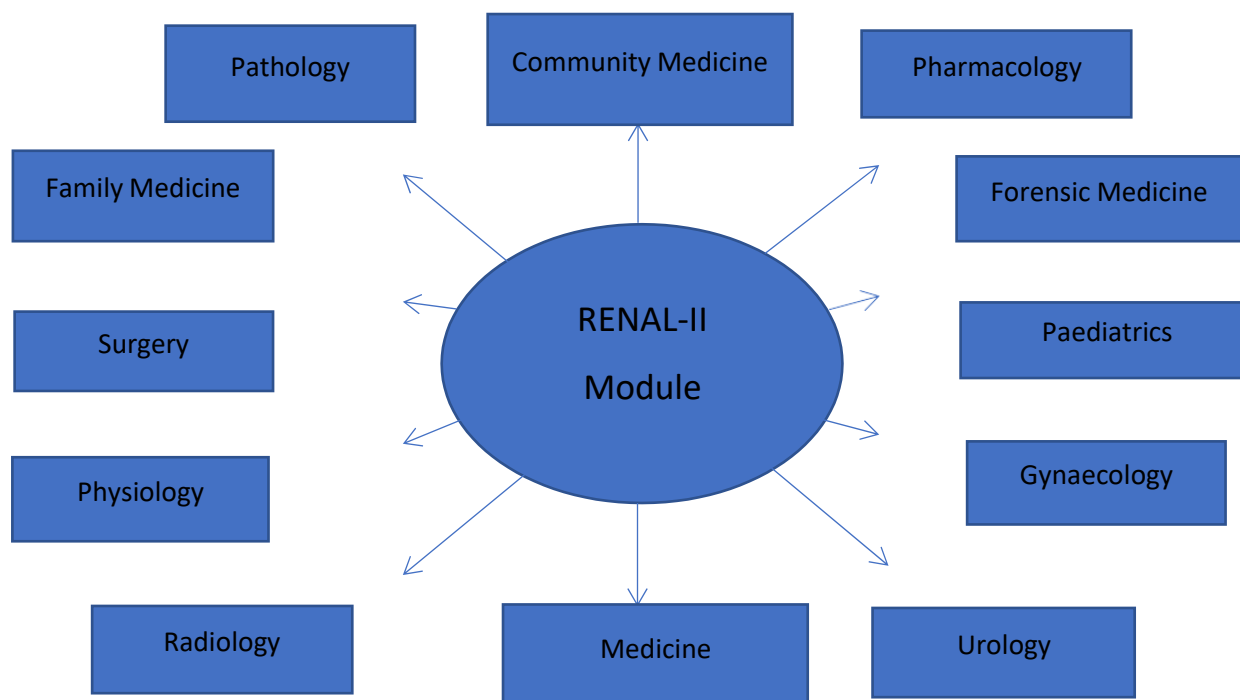
- Provides a list of learning resources such as books, computer-assisted learning programs, weblinks, and journals, for students to consult in order to maximize their learning.
- Highlights information on the contribution of continuous on the student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's performance.

### 2.3 Achievement of objectives.

- 🌐 Focuses on information pertaining to examination policy, rules and regulations.

### 2.4 CURRICULUM FRAMEWORK:

#### STUDENTS WILL EXPERIENCE INTEGRATED CURRICULUM.





### 3 Recommended List Of Icons



**Introduction To Case**



**For Objectives**



**Critical Questions**



**Assessment**



**Resource Material**

#### 4 Table Of Specification

S. No	Theme	Topics / region covered	Weightage
1	Facial swelling	Renal system and common renal system pathologies	20%
2	Scanty Urine	Evaluation of acute renal presentation and management Water quality management	25%
3	Loin pain and dysuria	Infections related to urinary system	23%
4	Urinary retention	Urinary tract obstruction Waste management	23%
5	Practical	Pathology and Pharmacology	9%
Total			100%

## 5 Organization of Module

### 5.1 Introduction:

Renal system is the organ system that includes the kidneys, where urine is produced, and the ureters, bladder, and urethra for the passage, storage, and voiding of urine.

In many respects the human excretory, or urinary, system resembles those of other mammalian species, but it has its own unique structural and functional characteristics. The terms *excretory* and *urinary* emphasize the elimination function of the system. The kidneys, however, both secrete and actively retain within the body certain substances that are as critical to survival as those that are eliminated.

### 5.2 Rationale:

Renal system is one of the most important organ system of the body which plays an integral role in homeostasis. As it directly affects heart, lungs and blood it makes it even more important for students to understand its basic functioning and pathophysiology to deal with different types of presentations. Students should have the basic knowledge how to evaluate and diagnose these patient and identify the red flags so that they should be able to timely refer a patient to a specialized care.





## 6 Learning Objectives

### 6.1 General Learning Outcomes

By the end of this module the students would be able to;

#### 6.1.1 KNOWLEDGE

1. Describe applied anatomy of Urinary System with video demonstration
2. Discuss briefly physiology of the renal system
3. Revisit/Describe briefly the different Acid-base Disorders and the Mechanism for maintaining Acid-base Balance (Biochemistry)
4. Classify the diseases involving glomeruli, tubules, interstitium, renal blood vessels, Chronic nephron loss, Cystic, urine out flow obstruction, congenital-developmental and neoplastic diseases of renal system
5. Describe the etiology, pathogenesis, clinical manifestations, diagnosis and prognosis of the renal system diseases.
6. Perform various practicals used in laboratory diagnosis of renal diseases.
7. Describe the Pharmacology of drugs used in the treatment of Renal System Diseases
8. Describe ethics of Organ Transplantation
9. Describe prevalence of renal diseases
10. Describe the clinical features of renal diseases.
11. Diagnose & manage Acute & Chronic Kidney Disease, Nephrotic, Nephritic Syndromes, Urinary Tract Infections
12. Management of Urinary Tract Infections, Chronic Kidney Diseases & Renal Transplant patients during Pregnancy
13. Enumerate/Describe various renal diseases primarily effecting pediatrics age group
14. Describe pathogenesis and management of renal stones
15. Describe pathogenesis and management of bladder outlet obstruction (BOO)

#### 6.1.2 SKILLS

- 1) Students should be able to take complete history related to renal system
- 2) Students should be able to identify and evaluate patients with common renal pathologies and its associated symptoms
- 3) Students should be able to perform renal system examination
- 4) Students should be able to identify the red flags associated with acute renal symptoms

#### 6.1.3 ATTITUDE

- 1) Students should be able to know how to counsel a chronic renal patient with end stage disease
- 2) Students should be able to fill a consent form for renal transplant patient

## 6.2 SPECIFIC LEARNING OBJECTIVES

### THEME-I: FACIAL SWELLING

		SUBJECT: ANATOMY	
SNO	Topics	Learning Outcomes	MIT (Hours)
1	Describe applied anatomy of renal system	Discuss the gross anatomical features (internal and external) of kidney	Lecture (1)
		Describe the structures entering and leaving the hilum of kidney along with their relations	
		Discuss the lympho-vascular supply of kidney	
		SUBJECT: PHYSIOLOGY	
1	GFR Absorption of water and Solutes	Describe glomerular filtration rate (GFR), determinants of GFR and estimation of GFR	Lecture (1)
		Describe briefly the absorption of water and solutes along different parts of nephron	
		SUBJECT: BIOCHEMISTRY	
1	Acid-base Balance	Describe briefly the mechanisms for maintaining the Acid-base Balance	Lecture (1)
	Acid-base Disorders	Describe different Acid-base Disorders	
		SUBJECT: PATHOLOGY	
1	Basic terms	Define the terms: Azotemia, uremia, Nephrotic syndrome, Nephritic syndrome, asymptomatic hematuria, rapidly progressive glomerulonephritis	Lecture (1)
		Acute kidney injury, chronic kidney disease, end-stage renal disease (ESRD),	
		Renal tubular defects, Nephrosclerosis, UTI,	
		urolithiasis, Hydronephrosis, Oncocytoma and carcinoma	
		Describe the pathogenesis of Nephrotic and Nephritic syndrome	
2	Glomerular Disease	Describe the pathological responses, pathogenesis and mediators of glomerular injury	Lecture (2)
		Classify Glomerular diseases.	
		Differentiate between major Primary Glomerular diseases in terms of clinicopathological features and different microscopic findings	
		Discuss the etiologies, clinicopathological features and morphology of the diseases presenting as Nephritic syndrome and Nephrotic syndrome	
		Explain the pathogenesis and morphology of	

		minimal change disease	
		Describe the etiology, pathogenesis, morphology and clinical presentation of focal segmental glomerulosclerosis	
		Describe the etiology, pathogenesis, morphology and clinical presentation of membranoproliferative glomerulonephritis	
		Describe the etiology, pathogenesis, morphology and clinical presentation of IgA nephropathy	
		Describe the pathogenesis, morphology of diabetic and other types of secondary nephropathies	
3	Acute Tubular Injury (ATI)	Define Acute Tubular Injury (ATI).	Lecture (1)
		Describe the etiology, clinico-pathological features and morphology of ischemic and toxic ATI.	
		Compare the pattern of tubular damage in ischemic and toxic injury	
4	Vascular events	Discuss the etiology, pathogenesis, and morphology of Nephrosclerosis, malignant hypertension and Renal	Lecture (1)
		<b>SUBJECT: MEDICINE</b>	
1	Interpretation of urinalysis	explain various abnormalities and their interpretation and importance regarding specific diagnoses	Lecture (1)
		Highlight the importance of urine abnormalities in other systemic diseases apart from kidney and urogenital tract abnormalities	
2	Nephrotic syndrome	Define Nephrotic Syndrome	Lecture (1)
		Interpret the criteria for diagnosing Nephrotic Syndrome	
		Recognize symptoms and signs of Nephrotic Syndrome	
		Identify the complication of nephrotic syndrome	
		Interpret the important investigations	
		Discuss the management plan for Nephrotic syndrome	
3	Nephritic syndrome	Interpret the criteria for diagnosing Nephritic Syndrome	Lecture (1)
		Identify symptoms and signs of Nephritic Syndrome	
		Identify important causes	
		Enumerate important investigations	
		Discuss the treatment plan	
4	Electrolytes abnormalities • Hyponatrem	Define Hyponatremia	Lecture (1)
		Discuss Types of Hyponatremias	
		Describe clinical features	

	ia	Enlist/ interpret the diagnostic lab investigations	
	• Hybernatre mia	Calculate the sodium deficit and free water deficit	
		Calculate rate of sodium replacement	
	• Hypokalemi a	Discuss complications	
		Define Hybernatre mia	
	• Hyperkalemi a	Describe clinical features	
		Enlist diagnostic lab investigations	
		Calculate the sodium deficit and free water deficit	
		Calculate rate of fluid replacement	
		Describe management plan.	
		Define Hypokalaemia	
		Describe clinical features	
		Interpret diagnostic lab investigations	
		Discuss complications	
		Describe/JUSTIFY management plan	
		Define Hyperkalemia	
		Describe clinical features	
		Enlist diagnostic lab investigations	
		Discuss complications	
		Describe management plan	
		<b>SUBJECT: PEDIATRICS</b>	
1	Acute post streptococcal glomerulonephritis (ApGN) Basic terms	Define AGN and APGN	Lecture (1)
		Describe the pathogenesis of Nephritic syndrome	
		Know clinical features and differential diagnosis of ApGN	
		Describe investigations required to reach a diagnosis of ApGN	
		Effectively describe the treatment requires for patients with ApGN	
2	Nephrotic syndrome (NS)	Define nephrotic syndrome	Lecture (1)
		Describe pathophysiology of nephrotic syndrome	
		Classify NS in to its subtypes	
		Describe clinical features of NS	
		Enumerate and describe tests required to reach diagnosis of NS	
		Outline treatment steps in the management of NS	
		Know the complications of NS and describe its prognosis.	
THEME-II: SCANTY URINE			
		<b>SUBJECT: PATHOLOGY</b>	
1	Renal function test	Describe the normal ranges of Blood urea, creatinine and electrolytes	Lecture (1)
		Explain creatinine clearance and other radiological and biochemical renal function tests and their clinical	

		significance	
2	Acute kidney injury	Explain the etiology, pathogenesis, morphology and clinical presentation and complications of acute kidney injury	Lecture (1)
3	Chronic Renal Failure	Explain the etiology, pathogenesis, morphology and clinical presentation and complications of chronic renal failure	Lecture (1)
4	Interstitial and Glomerulonephritis	Explain the etiology and pathogenesis of interstitial nephritis Explain the etiology, pathogenesis and morphology of glomerulonephritis	Lecture (1)
<b>SUBJECT: MEDICINE</b>			
1	Acute Kidney Injury (AKI)	<ul style="list-style-type: none"> <li>Define AKI</li> <li>Enlist/Interpret the criteria for diagnosing AKI</li> <li>Discuss/ Differentiate prerenal &amp; post renal causes</li> <li>Identify symptoms and signs of AKI</li> <li>Identify /Interpret the important complications</li> <li>Enumerate/DISCUSS important investigations</li> <li>Construct a management plan for a patient with AKI</li> </ul>	Lecture (1)
2	Chronic Kidney Disease (CKD)	Define CKD Enlist criteria for diagnosing CKD Identify important causes Identify symptoms and signs of CKD Identify the important complications Enumerate important investigations Discuss the treatment plan	Lecture (1)
3	Renal Replacement Therapy (RRT)	Define RRT Enlist the different types of RRT Identify/Enumerate important indications of dialysis Identify/Enlist the important complications of dialysis Discuss the Renal transplant Enlist and discuss the types of transplant rejection	Lecture (1)
<b>SUBJECT: FORENSIC MEDICINE</b>			
1	Ethics of Organ Transplantation	Describe Ethics of Organ Transplantation Describe current legislation of HOTA (Human Organ Transplant Act) Identify loop holes in existing system of human organ transplant.	Lecture (1)
<b>SUBJECT: SURGERY/UROLOGY</b>			
1	Renal transplant surgery	Enlist diagnostic indicators of renal transplant Describe pre-requisite for successful renal transplant Discuss post renal transplant care of patient Describe common complications of renal transplant surgery	Lecture (1)

		Enlist immunosuppressive drugs used in Renal transplant	
		<b>SUBJECT: FAMILY MEDICINE</b>	
1	Acute renal presentations- primary care management and Red flags	Explain the etiology, clinical features and presentation of acute renal failure	Lecture (1)
		Describe the steps of management of a patient with anuria and oliguria	
		Identify patients that need urgent and proper referral for specialist care in primary health with anuria and acute and chronic renal disease	
		<b>SUBJECT: COMMUNITY MEDICINE</b>	
1	Environmental health: Introduction	Explain the importance of environmental health	Lecture (1)
		Define and classify environmental degradation	
2	Water pollution	Define water pollution and describe its importance for health	Lecture (1)
		Describe the different types of water pollution as simple biodegradable, complex biodegradable and complex non-degradable	
		Define water pollution and describe its importance for health	
3	Water quality management	Explain the importance and daily requirements of water	Lecture (4)
		Describe the qualities and criteria of different sources of water including surface water, ground well, shallow well, deep well.	
		Classify different methods of purification of water	
		Describe natural methods of purification of water	
		Describe physical methods	
		Describe chemical methods	
		Describe filtration methods both small scale and large scale	
		Describe purification of water in special circumstances	
		Enumerate different water quality parameters	
		Describe physical parameters	
		Describe different chemical parameters and its interpretation	
		Explain the permissible limits of chemical parameters	

MIT:mode of information transfer. E.g. lecture, SGD, DSL, Practical, skill lab etc etc

**THEME–III: LOIN PAIN AND DYSURIA**

		<b>SUBJECT: PATHOLOGY</b>	
1	Pyelonephritis	Discuss the etiology, clinico-pathological presentation, morphology and complications of Acute Pyelonephritis,	Lecture (1)
		Discuss the etiology, clinico-pathological presentation, morphology and complications of, chronic pyelonephritis	
		Discuss the etiology, clinico-pathological presentation, morphology and complications of drug induced nephritis	
2	Cystic Diseases of the Kidney	Classify the cystic diseases of Kidney	Lecture (1)
		Describe the inheritance, Pathological features, Complications and prognosis of polycystic diseases of Kidneys.	
		Differentiate between the inheritance, pathological features, typical outcomes and clinical features of Adult and Childhood Polycystic Kidney Diseases	
		Differentiate between the inheritance, pathological features, typical outcomes and clinical features of Childhood Polycystic Kidney Diseases	
3	Urolithiasis	Enlist the types of Renal stones	Lecture (1)
		Discuss the etiology and pathogenesis of Renal stones	Lecture (1)
		Co-relate the occurrence of renal stones with different metabolic diseases	
		Differentiate between the different renal stones on the basis of frequency, predisposing factors, urine PH and morphology.	
4	Neoplasms of the Kidneys Renal cell carcinoma	Classify the benign and malignant tumors of the Kidney.	Lecture (1)
		Discuss the etiology, morphology and prognosis of Renal cell carcinoma	
5	Wilm's Tumor	Discuss the genetics, clinico-pathological features, morphology and prognosis of Wilm's tumor	
6	Diagnosis and management of renal tumors	Describe the various investigations to diagnose renal tumors (albumin/creatinine ratio, urine for micro albumin)	
		Discuss management of renal tumors	
7	Congenital anomalies of bladder	Describe the congenital anomalies of bladder and urethra	Lecture (1)
8	Acute Cystitis	Discuss the etiology, morphology clinico-pathological features and complications of Acute	

9	Chronic Cystitis	Discuss the etiology, morphology clinico-pathological features and complications of Chronic Cystitis.	
<b>SUBJECT: PHARMACOLOGY</b>			
1	Urinary Tract Infection (UTI)	Describe the clinical pharmacology of drugs used in the management of acute and chronic UTI (Co-trimoxazole, Nitrofurantoin, Cephalosporins, Amoxicillin-clavulanic acid, etc)	Lecture (1)
<b>SUBJECT: COMMUNITY MEDICINE</b>			
1	HIV/AIDS, Syphilis	Describe HIV/AIDS in light of Risk groups, pathology, Diagnosis, treatment and Prevention	Lecture (1)
		Describe Syphilis in terms of causative agent, incubation period, transmission, manifestation, diagnosis treatment and prevention.	
2	Chlamydia, Genital warts, Gonorrhea	Describe Chlamydia in terms of etiology, transmission, symptoms, treatment and prevention.	
		Describe Genital warts in terms of causes, transmission, symptoms, treatment and prevention.	
		Describe Gonorrhea in terms of causes, transmission, symptoms, treatment and prevention.	
3	Human Papiloma virus	Describe Human Papiloma Virus (HPV) in terms of causes, types, transmission, symptoms, screening and prevention.	
<b>SUBJECT: MEDICINE</b>			
1	Autosomal Dominant Polycystic Kidney Disease (ADPKD)	Define ADPKD	Lecture (1)
		Enlist/Interpret the criteria for diagnosing ADPKD	
		Identify/interpret the genetic causes	
		Identify/ symptoms and signs of ADPKD	
		Identify/Interpret the important complications	
		Enumerate& interpret important investigations	
		Construct a management plan	
2	Urinary Tract Infections (UTIs)	Define UTIs	Lecture (1)
		Enlist the criteria for diagnosing UTIs	
		Identify/Differentiate the complicated and uncomplicated UTIs	
		Identify symptoms and signs of UTIs	
		Identify the important complications	
		Enumerate/discuss/ interpret/ important investigations	
		Construct a management plan for a patient with UTI	
<b>SUBJECT: RADiOLOGY</b>			
1	Urological Investigation	Uses of plain X-ray KUB (Kidney, ureter, bladder)	Lecture (1)
		Role of CT in Urology	
		NUCLEAR SCANS	
		DTPA Scan, DMSA Scan, MAG 3 Scan	
		Investigation of renal system during pregnancy	



		SUBJECT: SURGERY/UROLOGY	
1	Kidney Stones	Enlist factors predisposing to specific stone types	Lecture (1)
		Discuss evaluation of stone formers	
		Discuss clinical features and Diagnosis of renal stone	
		Describe renal stone treatment options	
2	Renal trauma	Describe Initial resuscitation of renal trauma patient	Lecture (1)
		Classify mechanism and grading of renal trauma	
		Discuss clinical and radiological assessment of renal trauma.	
3	Pelvic Ureteric junction obstruction in adult (PUJO)	Discuss management plan of renal trauma	
		Define PUJ obstruction	
		ENLIST etiology (congenital and acquired causes)	
		Describe clinical presentation of PUJO	
		Interpret Investigations (renal ultrasound, IVU (Intravenous urography), MAG-3 renography, retrograde pyelography)	
		JUSTIFY Management PLAN options (Endopyelotomy, Pyeloplasty)	
4	Anomalies of renal fusion and ascent	Describe various anomalies of renal tracts like Horseshoe kidney, Ectopic kidney, Renal agenesis, Malrotated kidney, Urinary tract duplication	Lecture (1)
5	Renal Cell Carcinoma (RCC)	Describe clinical presentation and investigation of RCC	
		Enlist Treatment of localized RCC	
		construct Management of metastatic RCC	
		SUBJECT: OBS AND GYNAE	
1	Asymptomatic bacteriuria	Define asymptomatic bacteriuria	Lecture (1)
		Describe the effects of asymptomatic bacteriuria on pregnancy	
		Management plan of asymptomatic bacteriuria	
2	Acute symptomatic urinary tract infections	Define Acute Cystitis	
		Describe effects of asymptomatic bacteriuria	
		Plan management of Acute Cystitis in pregnancy	
		Describe the effects of acute Pyelonephritis on pregnancy.	
		Plan Management of acute Pyelonephritis	
		SUBJECT: PEDIATRICS	
1 2	Urinary tract infection (UTI)	Describe the types of UTI	Lecture (1)
		Discuss prevention and management of UTI in children	

MIT:mode of information transfer. E.g. lecture, SGD, DSL, Practical, skill lab etc etc

#### THEME-IV: URINARY RETENTION

		<b>SUBJECT: ANATOMY</b>	
1	Describe applied	Describe gross structure of kidney, ureter, bladder and urethra	Lecture (1)

	anatomy of ureters, urinary bladder, prostate and urethra	Describe the microscopic structure of prostate Discuss the microscopic structure of urethra	
<b>SUBJECT: PATHOLOGY</b>			
1	Obstructive Uropathy	Discuss the obstruction in urogenital tract at different levels. Discuss the effects of obstruction on function and morphology of kidney. Describe clinico-pathological features and morphology of Hydronephrosis	Lecture (1)
2	Tumors of urinary bladder	Classify tumors of urinary bladder.	Lecture (1)
3	BPH	Discuss the etiology, pathogenesis, morphology, staging and prognosis of urothelial (Transitional Cell) Tumors Describe pathophysiology of Benign prostatic hypertrophy and risk factors	
4	Carcinoma prostate	Describe pathogenesis, risk factors and staging	
<b>SUBJECT: PHARMACOLOGY</b>			
1	Drugs for benign prostatic hyperplasia	Classify the drugs used in the management of BPH Enlist the alpha-adrenergic blocking drugs with special reference to those having specific affinity for prostate muscle Describe the role of alpha blockers, 5-alpha reductase inhibitors (Finasteride) and combination therapy in BPH Enlist the adverse effects of the drugs used to treat BPH	Lecture (1)
2	Carcinoma of prostate	Enlist the hormonal agents used in the management of Prostatic carcinoma. Describe the mechanism of action of Gonadotropin-releasing hormone (Goserelin) and anti-androgens (Cyproterone acetate and Flutamide) in the management of Prostatic carcinoma Enlist the anticancer chemotherapeutic agents used in the management of Prostatic carcinoma	
<b>SUBJECT: COMMUNITY MEDICINE</b>			
1	Air Pollution & air quality management	Define air pollution Enumerate criteria pollutants Describe the sources and limits of air pollutants Describe the adverse effects of air pollutants on health Explain the measures for control of air pollution	Lecture (2)

		Describe the global adverse effects of air pollution- ozone depletion, greenhouse effect, smog, acid rain	
2	Noise pollution, radiation pollution and its control	Define noise pollution Explain adverse effects of noise pollution on health Describe factors effecting hearing loss Enumerate acceptable noise standards Discuss the measures for prevention of adverse effects of noise Classify different types of radiations to which humans are exposed Describe the adverse effects and preventive measure of different type of nonionizing radiations	Lecture (1)
3	Waste management	Explain the importance of waste management in health Describe management of waste [organic of human and animal origin] as per water carriage system Describe the management of waste [organic of human and animal origin] as per conservancy system Describe management of solid waste [refuse]	Lecture (2)
4	Hospital waste management	Define hospital waste management Explain the importance of hospital waste management in health Classify hospital waste Know the impacts of improper hospital waste management on health Describe the methods to minimize hospital waste Describe the methods of treatment of hospital waste Explain the waste management trends in developing countries	Lecture (1)
5	Disasters and health	Define disaster management Describe classification of disasters Describe the mortality & morbidity due to disaster itself & mismanagement of disaster relief activities Describe pre-disaster management Describe post disaster management in immediate, intermediate and long term stages Discuss management and preventive measures from previous disasters Describe the history of disasters in Pakistan	Lecture (1)
<b>SUBJECT: SURGERY/UROLOGY</b>			
1	carcinoma of urinary bladder	Discuss clinical Presentation of bladder cancer Describe diagnosis and clinical staging of bladder cancer Construct management Plan of bladder cancer	Lecture (1)
2	Enlarged Prostate	Define IPSS (International prostate symptoms scoring) for enlarged prostate	Lecture (1)

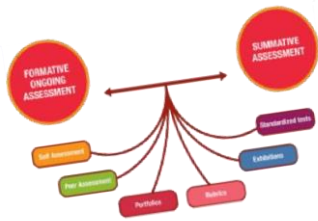
		Describe watchful waiting for enlarged prostate	
		Enlist medical management of BPH	
		Minimal invasive management of BPH	
		Invasive surgical surgeries	
		TURP (transurethral resection of prostate)	
		Open prostatectomy	
3	Carcinoma prostate	Describe clinical presentation and management	Lecture (1)
4	Urinary Incontinence	Define urinary incontinence	
		Classify& discuss	
		Urinary incontinence	
		Nocturnal enuresis	
		Enlist causes and pathophysiology	
		Describe evaluation of incontinence	
		Enumerate Investigation of incontinence	
		Describe conservative treatment options surgical options	
5	Urethral strictures	Describe etiology, Presentation, investigation and management of urethral stricture	Lecture (1)
6	Posterior urethral valve	Discuss clinical presentation and management of Posterior urethral valves (PUV)	

#### PRACTICAL WORK

		SUBJECT: PATHOLOGY	
SNO	Topics	Learning Outcomes	MIT (Hours)
1	Urine collection methods, physical examination of urine specimen	Demonstrate the procedure of urine collection, physical examination volume, color, appearance, pH of specimen.	Lab work (2)
2	Microscopic examination of centrifuge specimen	Perform the physical examination of urine and prepare report of an abnormal urine with pyuria and hematuria Interpret the results.	
3	Chemical examination of non-centrifuged urine specimen	Demonstrate substances for chemical examination and the different procedures of detection of protein in urine.	Lab work (2)
		Demonstrate the Principle of protein detection by heat method in urine	
		Perform the heat and acetic acid test and the test for Bence Jones protein. Interpret the results	
		Demonstrate the tests for detection of reducing	

		substances in urine and the principle of Benedict's test	
		Perform the Benedict's test. Interpret the results	
		Demonstrate the substances seen in urine under microscope i.e. cells (Pus cells, RBCs, Epithelial cells and other different cells), Crystals, castes etc	
		Prepare the sediment for urine examination	
		Detect various substances in a slide prepared from sediment under the microscope Interpret the results	
4	Urine staining, and culture	Demonstrate the Staining methods and their principles for urine specimens of acute and chronic UTI	Lab work (2)
		Identify the uropathogens shown in the slide	
		Demonstrate sterilized methods for collections of specimens for culture and sensitivity.	
		Perform a practical for culture and sensitivity by disc diffusion method for any uropathogen.	
		<b>SUBJECT: PHARMACOLOGY</b>	
<b>SNO</b>	<b>Topics</b>	<b>Learning Outcomes</b>	<b>MIT</b>
1	Prescriptions for acute and chronic UTI	Formulate prescriptions for acute and chronic UTI	Lab work (2)

Hours Distribution	
Theory	
Discipline	No. of hours
Anatomy	02
Physiology	02
Biochemistry	01
Pathology	20
Pharmacology	02
Forensic Medicine	02
Community Medicine	17
General Medicine	10
Paediatrics	03
Surgery /Urology	11
Gynae & Obstetrics	01
Family Medicine	01
Radiology	02
<b>Total</b>	<b>74</b>
Practical/ SGDs	
Pathology	06
Pharmacology	02
<b>Total</b>	<b>08</b>



## 7 Examination and Methods of Assessment:

The year-4 will be assessed in 5 blocks.

- 1) Block-1 (Neurosciences-2 module) will be assessed in **paper-J**.
- 2) Block-2 (GIT and hepatobiliary module-2 will be assessed in **paper-K**.
- 3) Block-3 (Renal-2, Endocrine and Reproduction-2 module) will be assessed in **paper-L**.
- 4) Block-4 (ENT module) will be assessed in **paper M-1**.
- 5) Block-5 (Eye module) will be assessed in **paper M-2**.
- 6) Each written paper consists of 120 MCQs except for ENT & Eye papers which includes 90 MCQs each.
- 7) Internal assessment will be added to final marks in KMU.
- 8) For ENT (M-1 module) and Eye (M-2 module), the marks allocated for each OSCE station will be 5, while the rest of the modules are allotted 6 marks per OSCE station.
- 9) Practical assessment will be in the form of OSPE/OSCE which will also include embedded viva stations.
- 10) The details of each section are given in the tables below.

## Assessment Plan for 4<sup>th</sup> Year MBBS

Theory paper	Modules	Theory marks	Internal assessment theory (10%)	OSPE/OSPE	Internal assessment OSPE/OSPE (10%)	TOTAL MARKS
Paper J	Neurosciences-2	120	13	120	13	266
Paper K	GIT-2	120	13	120	13	266
Paper L	Renal-2 and Endocrine and Reproduction	120	14	120	13	267
Paper M-1	ENT	90	10	75*	8	183
Paper M-2	EYE	90	10	75*	8	183
Research**						35
<b>Total Marks</b>		<b>480</b>	<b>53</b>	<b>500</b>	<b>67</b>	<b>1200</b>

\*For ENT (M-1 module) and Eye (M-2 module), the marks allocated for each OSCE station will be 5, while the rest of the modules are allotted 6 marks per OSPE/OSCE station.

\*\*Research viva of 20 marks will be conducted in paper-L. However, the rest of the 15 marks will be decided by the concerned department internally for the contribution of the students in research project/thesis.



## Paper-L (Renal-2, and Endocrine and Reproduction-2)

### MCQs

Subject	Renal-2	Endocrine and Reproduction-2	Total MCQs
Community medicine	11	6	17
Pharmacology	02	07	09
Pathology	11	12	23
Forensic medicine	01	06	07
Surgery	06	03	09
Gynaecology	01	39	40
Medicine	05	05	10
Pediatrics	02	01	03
Family medicine	01	01	02
<b>Total</b>	<b>40</b>	<b>80</b>	<b>120</b>

### OSPE/OSCE

Subject	Viva stations	OSPE/OSCE stations	Total
Pharmacology	2	1	3
Pathology	2	2	4
Forensic medicine	2	1	3
Community medicine	2	4	8
Research viva	2**	x	
Gynecology	1	2	3
Medicine (Endocrinology/DM)	0	1	1
<b>Total</b>	<b>11</b>	<b>11</b>	<b>22</b>

\* A minimum of 22 stations will be used in final exams. The total marks will be 120 (6 marks for each station).

\*\*there will be 2 allocated stations for research viva (one internal and one external) at one time for which the number of marks for each station will be 10 (with a total of 20 marks) allocated for research viva plus 15 marks for conducting research). A total of 35 marks have been allocated for the thesis (research project).

Exam. Roll No. \_\_\_\_\_

**DEPARTMENT OF COMMUNITY MEDICINE  
AYUB MEDICAL COLLEGE  
ABBOTTABAD**

Photograph

Class Roll No: \_\_\_\_\_

Mr/Miss: \_\_\_\_\_

Father's Name: \_\_\_\_\_ Domicile: \_\_\_\_\_

Present Address: \_\_\_\_\_

**RECORD OF ATTENDANCE**

MONTHS	SESSION STARTED	TOTAL HOURS TAKEN	TOTAL ATTENDANCE	PERCENTAGE
March	2021			
June	2021			
July	2021			
August	2021			
September	2021			
October	2021			
November	2021			
December	2021			
R/Project	2021			
TOTAL	2021			

**VISIT TEST/ R. PROJECT**

Visit Test (=20)			
Research project (=25)			

**RECORD OF PERFORMANCE**

TEST	MARKS	REMARKS
Test No. 1		
Test No. 2		
Test No. 3		
Test No. 4		
Total (=10)		

**PAST ACADEMIC RECORD**

2 <sup>nd</sup> Professional Exam	Session	Result
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3 <sup>rd</sup> Professional Exam	Session	Result
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Remarks by the Tutor \_\_\_\_\_



## 8 Learning Opportunities and Resources

### a. Books:

#### **Recommended books: (Anatomy)**

- Gray's Anatomy by Henry Gray.
- Last's Anatomy: Regional and Applied by R J Last
- Snell's clinical anatomy by regions
- Atlas of human anatomy by Netter
- Gray's anatomy for students
- Clinically oriented anatomy by KL.Moore
- Junqueira's basic histology
- DiFiore's Atlas of histology

#### **Recommended books: (Physiology)**

#### **Recommended books: (Biochemistry)**

#### **Recommended books: (Pathology)**

- Robbins basic Pathology first south Asia edition
- Chemical Pathology for the beginner by Ammir Ejaz

#### **Recommended books: (Pharmacology)**

- Basic & Clinical Pharmacology, 14<sup>th</sup> edition
- Goodman Gilman's The Pharmacological Basis of Therapeutics, 13<sup>th</sup> edition
- Lippincott Illustrated Reviews Pharmacology, 7<sup>th</sup> edition

#### **Recommended books: (Forensic Medicine)**

#### **Recommended books: (Community Medicine)**

- Park K. Park's textbook for preventive and social medicine. 23<sup>rd</sup> ed. Bhanot publishers: Jabalpur;2015
- Ansari I. Textbook of Community Medicine

#### **Recommended books: (Pediatrics)**

#### **Recommended books: (Medicine)**

#### **Recommended books: (Family Medicine)**

**Recommended books: (Surgery/Urology)**

**Recommended books: (Obs and Gynae)**

**Recommended books: (Radiology)**

**b. Website:**

**Recommended books: (Community Medicine)**

**Link for free download PDF Park's textbook for preventive and social medicine:**

[https://medicalstudyzone.com/download-parks-textbook-of-preventive-and-social-medicine-25th-edition-pdf-free/#Download\\_Park8217s\\_Textbook\\_of\\_Preventive\\_and\\_Social\\_Medicine\\_PDF\\_free](https://medicalstudyzone.com/download-parks-textbook-of-preventive-and-social-medicine-25th-edition-pdf-free/#Download_Park8217s_Textbook_of_Preventive_and_Social_Medicine_PDF_free)

[free/#Download\\_Park8217s\\_Textbook\\_of\\_Preventive\\_and\\_Social\\_Medicine\\_PDF\\_free](https://medicalstudyzone.com/download-parks-textbook-of-preventive-and-social-medicine-25th-edition-pdf-free/#Download_Park8217s_Textbook_of_Preventive_and_Social_Medicine_PDF_free)

## 9 Timetables

### AYUB MEDICAL COLLEGE, ABBOTTABAD

Department of Medical Education Renal II Module, Block L, 4<sup>th</sup> Year MBBS

Class Session 2023

Day/Date	8 – 9 AM	9 – 10 AM	10 AM – 12 PM	12 – 12.45 PM		1.15 – 2 PM	2 – 3 PM
Monday	<b>Anatomy L1</b> Applied anatomy of Renal System <b>Dr. Sara Jadoon</b>	<b>Physiology L1</b> GFR <b>Dr. Mansoor</b>	<b>Clinical Ward Rotation</b>	<b>Sports week inauguration ceremony</b>	<b>12.45 to 1.15 Prayer Break</b>	<b>Sports week inauguration ceremony</b>	<b>Sports week inauguration ceremony</b>
Tuesday	<b>Biochemistry L1</b> Acid – Base balance & disorders <b>Dr. Fizza Gul</b>	<b>Physiology L2</b> Absorption of water and solutes <b>Dr. Mansoor</b>		<b>Pathology L1</b> Basic terms related with renal pathology <b>Dr. Fiaz Ahmad</b>		<b>Research Project</b> <b>Research objectives &amp; Methodology</b> <b>All groups to report to respective supervisors</b>	
Wednesday	<b>Pathology L2</b> Glomerular diseases <b>Dr. Fiaz Ahmad</b>	<b>Paediatrics L1</b> Acute Post-streptococcal GN Dr. Madeeha Rehman		<b>Medicine L1**</b> Interpretation of urinalysis <b>Dr. Tauqir Ahmad</b>		<b>Community Med. L1</b> Introduction to Environmental Health <b>Dr. Awais</b>	<b>Community Med. L2</b> Research Project Writing DSL
Thursday	<b>Paediatrics L2</b> Nephrotic syndrome Dr. Madeeha Rehman	<b>Pathology L3</b> Glomerular diseases <b>Dr. Fiaz Ahmad</b>		<b>Medicine L2</b> Nephrotic syndrome <b>Dr. Adnan</b>		<b>Research Project</b> <b>Research objectives &amp; Methodology</b> <b>All groups to report to respective supervisors</b>	
Friday	<b>Medicine L3</b> Nephritic syndrome <b>Dr. Ayesha Aziz</b>	<b>Pathology L4</b> Acute Tubular Injury <b>Dr. Fiaz Ahmad</b>		<b>Medicine L4</b> Electrolyte abnormalities (Sodium) <b>Dr. Haider Zaman</b>		<b>12.45 to 2 PM</b> Namaz e Jumma and Lunch Break	<b>Community Med. L4</b> Research Project Writing DSL

Day/Date	8 – 9 AM	9 – 10 AM	10 AM – 12 PM	12 – 12.45 PM	12.45 to 1.15 Prayer Break	1.15 – 2 PM	2 – 3 PM
Monday	<b>Pathology L5</b> Vascular events <b>Dr. Fiaz Ahmad</b>	<b>Medicine L5</b> Electrolyte abnormalities (Potassium) <b>Dr. Yasir Gilani</b>	Clinical Ward Rotation	<b>Community Med. L2</b> Water Pollution <b>Dr. Awais</b>		Research Project Questionnaire Development Groups to report to respective supervisors	
Tuesday	<b>Medicine L6</b> Acute Kidney Injury <b>Dr. Nighat Jamal</b>	<b>Community Med. L3</b> Water Quality Management <b>Dr. Awais</b>		<b>Pathology L7</b> Renal Function Test <b>Dr. Rubina Faisal Paul</b>		Research Project Questionnaire Development Groups to report to respective supervisors	
Wednesday	<b>Forensic Med. L1</b> Ethics of organ transplant <b>Dr. Nighat Seema</b>	<b>Pathology L8</b> AKI/CRF & Interstitial glomerulonephritis <b>Dr. Fiaz Ahmad</b>		<b>Surgery L1</b> Renal Transplant surgery <b>Dr. Muhammad Shahzad</b>		<b>Community Med. L4</b> Water Quality Management <b>Dr. Awais</b>	SDL
Thursday	<b>Medicine L8</b> Renal Replacement Therapy <b>Dr. Ayesha Aziz</b>	<b>Community Med. L5</b> Water Quality Management <b>Dr. Awais</b>		<b>Medicine L9</b> Acute Renal presentations – Primary care management & Red Flags <b>Dr. Tauqir Ahmad</b>		Research Project Data collection & entry (Each student shall submit the filled questionnaire to the respective supervisor)	
Friday 1-9-2023	<b>Pathology L9</b> Pyelonephritis & Cystic diseases of the kidney <b>Dr. Fiaz Ahmad</b>	<b>Community Med. L6</b> Water Quality Management <b>Dr. Awais</b>		<b>Pharmacology L1</b> Urinary Tract Infection <b>Dr. Azfar Kamal</b>		12.45 to 2 PM	
			Namaz e Jumma and Lunch Break				

Day/Date	8 – 9 AM	9 – 10 AM	10 AM – 12 PM	12 – 12.45 PM		1.15 – 2 PM	2 – 3 PM
Monday	<b>Pathology L10</b> Urolithiasis <b>Dr. Fiaz Ahmad</b>	<b>Medicine L9</b> Urinary Tract Infections <b>Dr. Fakhar Zaman</b>	<b>Clinical Ward Rotation</b>	<b>Paediatrics L3</b> Urinary Tract Infections <b>Dr. Madeeha Rehman</b>	<b>12.45 to 1.15 Prayer Break</b>	<b>Research Project Data collection &amp; entry</b> (Each student shall submit the filled questionnaire to the respective supervisor)	
Tuesday	<b>Surgery/Urology L2</b> Kidney Stone <b>Dr. Nasir Jameel</b>	<b>Com. Medicine L7</b> HIV/AIDS/Syphilis <b>Dr. Awais</b>		<b>Radiology L1</b> Urological investigations <b>Dr. Waheed Khan</b>		<b>Research Project Data collection &amp; entry</b> (Each student shall submit the filled questionnaire to the respective supervisor)	
Wednesday	<b>Pathology L11</b> Neoplasms of kidneys, Renal cell carcinoma, Wilm's Tumour, Tumour diagnosis <b>Dr. Fiaz Ahmad</b>	<b>Surgery/Urology L3</b> Renal Trauma <b>Dr. Nasir Jameel</b>		<b>Radiology L2</b> Urological investigations <b>Dr. Waheed Khan</b>		<b>Medicine L10</b> Autosomal Dominant Polycystic Kidney Disease <b>Dr. Farhat</b>	<b>Com. Medicine L8</b> Chlamydia, Congenital warts, Gonorrhoea, HPV <b>Dr. Awais</b>
Thursday	<b>Surgery/Urology L4</b> PUJ obstruction in adults <b>Dr. Nasir Jameel</b>	<b>Gynae/Obs L1</b> Asymptomatic bacteriuria & acute symptomatic UTI <b>Dr. Ansa Islam</b>		<b>Com. Medicine L9</b> Air pollution air quality management <b>Dr. Awais</b>		<b>Research Project Data collection &amp; entry</b> (Each student shall submit the filled questionnaire to the respective supervisor)	
Friday	<b>Com. Medicine L10</b> Air pollution air quality management <b>Dr. Awais</b>	<b>Pathology L12</b> Congenital anomalies of bladder & Acute/Chronic Cystitis <b>Dr. Fiaz Ahmad</b>		<b>Surgery/Urology L5</b> Anomalies of renal fusion & ascent, RCC <b>Dr. Fahim</b>		<b>12.45 to 2 PM</b> Namaz e Jumma and Lunch Break	<b>SDL</b>

Day/Date	8 – 9 AM	9 – 10 AM	10 AM – 12 PM	12 – 12.45 PM	12.45 to 1.15 Prayer Break	1.15 – 2 PM	2 – 3 PM
Monday	<b>PRACTICAL</b> <b>Batch – A:</b> Pathology <b>Batch – B:</b> Community Medicine <b>Batch – C:</b> Pharmacology <b>Batch – D:</b> Research (Com. Medicine)		Clinical Ward Rotation	<b>Pathology L13</b> Obstructive uropathy & tumours of urinary bladder <b>Dr. Fiaz Ahmad</b>		<b>Com. Medicine L11</b> Noise & Radiation Pollution and Control <b>Dr. Awais</b>	<b>Research Project</b> Data Entry <b>DSL</b>
Tuesday	<b>PRACTICAL</b> <b>Batch – A:</b> Research (Com. Medicine) <b>Batch – B:</b> Pathology <b>Batch – C:</b> Community Medicine <b>Batch – D:</b> Pharmacology			<b>Com. Medicine L12</b> Waste Management <b>Dr. Awais</b>		<b>Pathology L14</b> BPH & Carcinom a Prostate <b>Dr. Fiaz Ahmad</b>	<b>Research Project</b> Data Entry <b>DSL</b>
Wednesday	<b>Pharmacology L2</b> Drugs for BPH & carcinoma prostate <b>Dr. Azfar Kamal</b>	<b>Com. Medicine L13</b> Waste Management <b>Dr. Awais</b>		<b>Surgery/Urology L6</b> Enlarged prostate & Carcinoma Prostate <b>Dr. Muhammad Shahzad</b>		<b>PRACTICAL</b> <b>Batch – A:</b> Pharmacology <b>Batch – B:</b> Research (Com. Medicine) <b>Batch – C:</b> Pathology <b>Batch – D:</b> Community Medicine	
Thursday	<b>Surgery/Urology L7</b> Urinary incontinence <b>Dr. Aminullah Afridi</b>	<b>Com. Medicine L14</b> Hospital Waste Management <b>Dr. Awais</b>		<b>SDL</b>		<b>PRACTICAL</b> <b>Batch – A:</b> Community Medicine <b>Batch – B:</b> Pharmacology <b>Batch – C:</b> Research (Com. Medicine) <b>Batch – D:</b> Pathology	
Friday	<b>Com. Medicine L15</b> Disaster & Health <b>Dr. Hina</b>	<b>Surgery/Urology L8</b> Urethral stricture & Posterior urethral valve <b>Dr. Aminullah Afridi</b>		<b>Com. Medicine L16</b> Disaster & Health <b>Dr. Hina</b>		<b>12.45 to 2 PM</b> <b>SDL/Research project writing</b>	

**Practical**

**Pathology:** Urine collection methods, Physical examination of urine & microscopic examination of centrifuged specimen

**Pharmacology:** Prescription for Acute and Chronic UTI,

**Community Medicine:** Water sources and sand filters



Day/Date	8 – 9 AM	9 – 10 AM	10 AM – 12 PM	12 – 12.45 PM	12.45 to 1.15 Prayer Break	1.15 – 2 PM	2 – 3 PM
Monday	<b>PRACTICAL</b> <b>Batch – A:</b> Pathology – 1 <b>Batch – B:</b> Pathology – 2 <b>Batch – C:</b> Community Medicine <b>Batch – D:</b> SDL (Block exam preparation)		Clinical Ward Rotation	<b>SDL Preparation</b>		<b>Research Project</b> <b>Data entry, analysis and Result writing</b> <b>(Each group to report to respective supervisor)</b>	
Tuesday	<b>PRACTICAL</b> <b>Batch – A:</b> SDL (Block exam preparation) <b>Batch – B:</b> Pathology – 1 <b>Batch – C:</b> Pathology – 2 <b>Batch – D:</b> Community Medicine			<b>SDL Preparation</b>		<b>Research Project</b> <b>Data entry, analysis and Result writing</b> <b>(Each student shall submit the filled questionnaire to the respective supervisor)</b>	
Wednesday						<b>PRACTICAL</b> <b>Batch – A:</b> Community Medicine <b>Batch – B:</b> SDL (Block exam preparation) <b>Batch – C:</b> Pathology – 1 <b>Batch – D:</b> Pathology – 2	
Thursday						<b>PRACTICAL</b> <b>Batch – A:</b> Pathology – 2 <b>Batch – B:</b> Community Medicine <b>Batch – C:</b> SDL (Block exam preparation) <b>Batch – D:</b> Pathology – 1	
Friday							<b>12.45 to 2 PM</b>

**Practical****Pathology – 1:** Chemical examination of non-centrifuged urine specimen,**Pathology – 2:** Urine staining and culture**Community Medicine:** Incinerators/ waste disposal methods

## 10 For inquiry and troubleshooting



**Please contact**

*Dr. Adnan Rasheed(0333-9974207)*

*Module Coordinator*

*[dr\\_adnanrashid@gmail.com](mailto:dr_adnanrashid@gmail.com)*

## 11 Course Feedback Form

Course Title: \_\_\_\_\_

Semester/Module \_\_\_\_\_ Dates: \_\_\_\_\_

Please fill the short questionnaire to make the course better.

Please respond below with 1, 2, 3, 4 or 5, where 1 and 5 are explained.

### THE DESIGN OF THE MODLUE

- |  |                            |                            |                          |
|--|----------------------------|----------------------------|--------------------------|
| A. Were objectives of the course clear to you?           | Y <input type="checkbox"/> | N <input type="checkbox"/> |                          |
| B. The course contents met with your expectations        |                            |                            | <input type="checkbox"/> |
| I. Strongly disagree                                     |                            | 5. Strongly agree          |                          |
| C. The lecture sequence was well-planned                 |                            |                            | <input type="checkbox"/> |
| I. Strongly disagree                                     |                            | 5. Strongly agree          |                          |
| D. The contents were illustrated with                    |                            |                            | <input type="checkbox"/> |
| I. Too few examples                                      |                            | 5. Adequate examples       |                          |
| E. The level of the course was                           |                            |                            | <input type="checkbox"/> |
| I. Too low   |                            | 5. Too high                |                          |
| F. The course contents compared with your expectations   |                            |                            | <input type="checkbox"/> |
| I. Too theoretical                                       |                            | 5. Too empirical           |                          |
| G. The course exposed you to new knowledge and practices |                            |                            | <input type="checkbox"/> |
| I. Strongly disagree                                     |                            | 5. Strongly agree          |                          |
| H. Will you recommend this course to your colleagues?    |                            |                            | <input type="checkbox"/> |
| I. Not at all  |                            | 5. Very strongly           |                          |

### THE CONDUCT OF THE MODLUE

- |  |                            |                            |                          |
|--|----------------------------|----------------------------|--------------------------|
| A. The lectures were clear and easy to understand          |                            |                            | <input type="checkbox"/> |
| I. Strongly disagree                                       |                            | 5. Strongly agree          |                          |
| B. The teaching aids were effectively used                 |                            |                            | <input type="checkbox"/> |
| I. Strongly disagree                                       |                            | 5. Strongly agree          |                          |
| C. The course material handed out was adequate             |                            |                            | <input type="checkbox"/> |
| I. Strongly disagree                                       |                            | 5. Strongly agree          |                          |
| D. The instructors encouraged interaction and were helpful |                            |                            | <input type="checkbox"/> |
| I. Strongly disagree                                       |                            | 5. Strongly agree          |                          |
| E. Were objectives of the course realized?                 | Y <input type="checkbox"/> | N <input type="checkbox"/> |                          |

F. Please give overall rating of the course

90% - 100% (      )

80% - 90% (      )

70% - 80% (      )

60% - 70% (      )

50% - 60% (      )

below 50% (      )

Please comment on the strengths of the course and the way it was conducted.

---

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Please comment on the weaknesses of the course and the way it was conducted.

---

Please give suggestions for the improvement of the course.

Optional – Your name and contact address:

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Thank you!!

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