



# STUDY GUIDE

**3<sup>RD</sup> YEAR MBBS**

**DEPARTMENT OF PATHOLOGY**

**Services Institute of Medical Sciences, Lahore**

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Year-3 Modules

**Block-7**

- xii. **Foundation-II & EBM**
- xiii. **General & Clinical Pharmacology**
- xiv. **Hematopoetic, Immunity & Transplant**
- xv. **Forensic Medicine &**

**Toxicology-I Block-8**

- xvi. **Neoplasia**
- xvii. **Infectious Diseases**
- xviii. **Musculoskeletal & Locomotion-II**
- xix. **Forensic Medicine &**

**Toxicology-II Block-9**

- i. **Cardiovascular-II**
- ii. **Respiratory-II**
- iii. **Community Medicine & Family Health-I**
- iv. **Forensic Medicine & Toxicology-III**

**BLOCK 7**

**MODULE 12**

**FOUNDATION – II & EBM**

## MODULE RATIONALE

The Foundation 2 module is designed to build upon and consolidate the foundational knowledge acquired in the earlier years of medical education, particularly from the Foundation-I module. As students transition into their clinical years, it is crucial to reinforce and deepen their understanding of basic medical sciences to support the integration of new, clinically relevant concepts.

This module serves as a bridge, revisiting core topics in general Pharmacology, Pathology, and Forensic medicine with an emphasis on their clinical applications. By doing so, it ensures that students develop a more comprehensive understanding, which is vital for the advanced study of organ systems in subsequent modules (e.g., CVS 2, Respiratory-2, GIT-2, Neurosciences-2, and Reproduction 2). Mastery of these topics is essential before students can effectively approach the complexities of clinical scenarios.

The revisiting of these concepts throughout the curriculum ensures a robust and integrated understanding, laying a solid foundation for clinical competence.

## MODULE OUTCOMES

- **Apply Integrated Knowledge of Basic and Clinical Sciences:** Synthesize concepts from general Pharmacology, Pathology, and Forensic Medicine to better understand the physiological and pathological processes underlying common clinical conditions. Correlate the foundational knowledge of disease mechanisms with their clinical presentations in Surgery and Medicine.
- **Demonstrate Competency in Core Pharmacological Principles:** Understand and explain the pharmacokinetics and pharmacodynamics of commonly used drugs in clinical practice. Analyze drug interactions, adverse effects, and therapeutic uses in various organ systems, including cardiovascular, respiratory, gastrointestinal, and neurological systems.
- **Interpret Pathological Findings:** Interpret key pathological processes such as inflammation, infection, neoplasia, and tissue repair in the context of disease progression. Apply knowledge of histopathology and laboratory medicine in diagnosing common diseases seen in clinical practice.
- **Apply Forensic Medicine Principles in Clinical Contexts:** Demonstrate understanding of medicolegal aspects of medical practice, including documentation, consent, patient rights, and legal responsibilities. Analyze and interpret findings relevant to forensic medicine, such as injury patterns, cause of death, and toxicology, and understand their clinical significance.

# SYLLABUS

GENERAL PATHOLOGY			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 06	
		INTEGRATING DISCIPLINE	TOPIC
F2-Pa-001	Define mutation and classify different types Describe the features and examples of the following i. Autosomal dominant disorders ii. Autosomal recessive disorders iii. X-linked disorders Give brief account of steps of PCR and types of PCR	Pathology	Genetics
F2-Pa-002	Give brief account of; i. Marfan syndrome ii. Ehlers-Danlos syndrome iii. Down syndrome iv. Klinefelter syndrome v. Turner syndrome	Pathology	Genetic syndromes

	Define karyotyping and enlist the karyotyping of above-mentioned syndromes		
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MICROBIOLOGY			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 09	
		INTEGRATING DISCIPLINE	TOPIC

<p>F2-Pa-004</p>	<p>Classify gram-positive and negative cocci.</p> <p>Classify gram +ve and gram -ve rods.</p> <p>Classify spirochetes and atypical bacteria.</p> <p>Classify culture media and describe blood, chocolate, McConkey, nutrient, CLED, TCBS, TSI, citrate &amp; urease media. Blood culture. seaboard agar.</p> <p>Define conjugation, transduction, transformation and describe mechanisms of antimicrobial resistance.</p> <p>Define colonization resistance and enlist normal flora of skin, gut, respiratory tract, and vagina.</p> <p>Classify DNA viruses and RNA viruses.</p> <p>Classify medical mycoses fungi.</p> <p>Classify medically important parasites.</p>	<p>General Microbiology</p>	<p>Microbiology</p>
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PATHOLOGY		
SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 02	
	INTEGRATING DISCIPLINE	TOPIC
To perform steps of gram staining. How this staining will help to choose antibiotics.	Pathology	Use of Microscope & Gram staining

Module Weeks	Recommended Minimum Hours
1.74	62

**BLOCK 7**

**MODULE 14**

**HEMATOPOETIC, IMMUNITY & TRANSPLANT**

## MODULE RATIONALE

The study of hematopoietic immunity and transplantation is critical for 3rd-year MBBS students as it forms the foundation for understanding the pathological basis for immune function, blood disorders, and the life-saving field of organ and tissue transplantation. This module integrates immunology, hematology, and clinical medicine, providing students with essential knowledge, skills and behavior about hematopoietic stem cells, immune responses, and their role in diseases like leukemia, lymphoma, and immunodeficiencies.

Understanding graft rejection, immunosuppression, and transplant-related complications prepares students to manage clinical cases involving blood transfusions, organ transplants, and autoimmune diseases. In addition, it integrates key concepts from pharmacology, general medicine, surgery and ethics, preparing students for future clinical practice, decision-making, and research in advanced therapies like immunotherapy and bioengineered organs.

The module also emphasizes the ethical and legal considerations of organ donation, helping students navigate the complexities of modern transplantation medicine.

## MODULE OUTCOMES

- Describe the process of hematopoiesis including sites of blood cell formation in embryonic and adult stages.
- Describe the differentiation of stem cells into various mature blood cell lines
- Classify the key factors and signaling pathways for haemopoietic stem cell development and maintenance.
- Describe the characteristics of various blood cell, including erythrocytes, leukocytes and platelets.
- Explain the various hematological disorders such as inherited and acquired anemias, acute and chronic leukemias, Hodgkin and Non Hodgkin lymphomas and coagulation disorders in terms of inheritance, etiology, classification, pathogenesis, clinical features, diagnosis and prognosis.
- Explain and interpret the data of inheritance, etiology, classification, pathogenesis, clinical features, diagnosis and prognosis of Primary & Secondary Polycythemia and other myeloproliferative neoplasms.
- Interpret the patient and laboratory/radiological data of various hematological disorders such as inherited and acquired anemias, acute and chronic leukemias, Bone Marrow Failure Syndromes, Hodgkin and Non-Hodgkin lymphomas and coagulation disorders in terms of inheritance, etiology, classification, pathogenesis, clinical features, diagnosis and prognosis.

- Classify and explain mechanisms which can cause neutropenia/agranulocytosis, eosinophilia, lymphocytosis, neutrophilia and basophilia
- Differentiation between infective and malignant causes of leukocytosis with special reference to infectious mononucleosis, acute and chronic non-specific lymphadenitis.

- Explain and interpret the data of multiple myeloma with respect to etiology, pathogenesis, morphology, clinical features and diagnosis.

- Explain and apply knowledge of different drugs used to treat anemias, polycythemias, coagulation disorders, myeloproliferative disorders and bone marrow failure syndromes.

- Explain ABO and Rhesus blood groups, their clinical importance and method of group typing.

- Explain and identify common indications of blood products (red cells, platelets and plasma) in different clinical scenarios.

- Explain and interpret the data regarding hazards of blood transfusion and apply methods of their prevention in different clinical scenarios.
  - Describe concepts of immune system and different immunities as passive, active, innate and adaptive

- Compare and contrast the various immune cell

- Elaborate the primary (bone marrow and thymus) and secondary (Spleen, lymph nodes and MALT {mucosa associated lymphoid tissue}) lymphoid organs.

- Analyze the mechanisms of antigen recognition/presentation and interpret the data regarding the related diseases.

- Describe the processes involved in antibody production and B cell role in humoral immunity.

- Describe the complement activation pathways and interpret the data regarding their role in immune response to infections, autoimmunity, transplant rejection and immune deficiency diseases.

- Explain and interpret the data regarding clinical aspects of hypersensitivity reactions (infectious diseases and autoimmune diseases).

- Describe the principles of organ and tissue transplantation including the various types as allograft, isograft etc.

- Identify the common organs/tissue transplanted such as kidneys, liver, cornea, lung etc.
- Understand the role of Human Leukocyte Antigen (HLA) system and tissue matching.

- Illustrate the pharmacological drugs used in immunosuppression along with their mechanism of action.

- Explain the different types of rejection as hyperacute, acute and chronic.

- Apply knowledge of haemopoietic, immune and transplant principles to clinical scenarios along with management of hematological disorders and transplant patients
- Explain recent advancements in haemopoietic stem cell research, immunotherapy and transplantation techniques.
- Describe the ethical considerations such as consent, national and international laws governing organ donation and transplantation.
- Identify the future challenges in field of transplantation such as bioengineered organs.

### SUBJECTS INTEGRATED IN THE MODULE

1. Pharmacology & Therapeutics
2. General Medicine
3. General Surgery
4. Biochemistry

## SYLLABUS

THEORY			
HEMATOLOGY			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 39	
		INTEGRATING DISCIPLINE	TOPIC
	Describe the stages in formation of red blood cells (RBCs), white blood cells (WBCs), platelets		
	Correlate hematopoiesis with various hematopoietic growth factors along with normal bone marrow morphology		

HIT-H-001	Identify normal values of RBC, WBC, hemoglobin level, packed cell volume, MCH, MCV, MCHC and platelet count.	Hematology	Hematopoietic system
	Classify and interpret the anemias on basis of morphology and underlying pathogenesis of RBC production		
	Describe and interpret data related to causes, clinical features, clinical presentation and diagnosis of hypochromic anemia, megaloblastic anemia, anemia of chronic disease, Hereditary Spherocytosis, aplastic anemia and hemolytic anemias		
	Give biochemical explanation for megaloblastic anemia in subjects suffering from deficiency of vitamin B <sub>9</sub> and B <sub>12</sub> .	Hematology	
	Give biochemical explanation for microcytic anemia in subjects suffering from deficiency of vitamin B <sub>6</sub> , vitamin B <sub>2</sub> , vitamin C, vitamin A, and iron.		
	Elaborate the biochemical mechanism underlying hemolysis in subjects suffering from deficiency of pyruvate kinase and glucose-6-phosphate dehydrogenase.		
	<b>Elaborate the biochemical mechanism underlying hemolysis in subjects suffering from hereditary spherocytosis and elliptocytosis.</b>		
	<b>Give biochemical explanation for hemolysis in subjects suffering from vitamin E deficiency.</b>		
	<b>Describe the clinical manifestations, clinically differentiating features and clinical course of patient with anemia.</b>		
<b>Recognize symptoms driving surgical decisions such as jaundice, pallor and fatigue that may require surgical intervention especially splenectomy</b>			

	<p>Evaluate physical signs for surgical planning as splenectomy particularly in cases where splenic sequestration or hypertension exacerbates hemolysis</p>		
	<p>Monitor patient's post-splenectomy for recurrent symptoms like jaundice or anemia, which may suggest incomplete resolution or complications requiring surgical or medical management</p>		
	<p>Describe and interpret data related to etiology, pathogenesis, clinical types and diagnosis of thalassemia with emphasis on incidence, common mutations, associated psychosocial problems and prevention</p>		
	<p>Clearly differentiate between quantitative and qualitative hemoglobinopathies.</p>		
	<p>Elaborate the genetic basis and inheritance of important types of quantitative hemoglobinopathies (alpha and beta thalassemia's).</p>		
	<p>Elaborate the genetic basis and inheritance of important types of qualitative hemoglobinopathies (HbS, HbC, HbSC).</p>		
	<p>Explain how does electrophoresis help in confirming the diagnosis of various types of qualitative hemoglobinopathies (HbS, HbC, HbSC).</p>		

	<p>Enlist the inherited and acquired causes of methemoglobinemia's and elaborate the consequences.</p>		
	<p>Describe and interpret the data inheritance, clinical features, lab diagnosis of Von Willebrand's disease, Hemophilia A&amp;B and Polycythemia</p>	<p>Hematology</p>	
	<p>Give explanation for hemorrhages in subjects suffering from vitamin K and vitamin C deficiency.</p>	<p>Biochemistry</p>	

	Elaborate mechanisms which can cause neutropenia/agranulocytosis	Hematology	
	Explain how does deficiency of glucose-6-phosphate translocase result in neutropenia and recurrent infections.	Biochemistry	
HIT-H-002	Differentiate between infective and malignant causes of leukocytosis with special reference to infectious mononucleosis, acute and chronic non-specific lymphadenitis	Hematology	Lymphoid system
	Explain and interpret the data of Non-Hodgkin's lymphoma in terms of classification, etiology, pathogenesis, clinical features, diagnosis, staging and prognosis.		
	Explain and interpret the data of Hodgkin's lymphoma in terms of classification, etiology, pathogenesis, clinical features, diagnosis, staging and prognosis.		
HIT-H-003	Explain and interpret the data of acute and chronic leukemias with respect to classification, etiology, pathogenesis, clinical features, diagnosis, staging and prognosis.		
	Describe the clinical manifestations, clinically differentiating features and clinical course of patient with leukemia.		
	Explain and interpret the data of multiple myeloma with respect to aetiology, pathogenesis, morphology, clinical features, diagnosis, staging and prognosis	Hematology	Haemopoietic system
	Compare and contrast the mechanism of action, clinical uses, and toxicities of the oral anticoagulants (warfarin, rivaroxaban, and dabigatran). Explain the pharmacokinetic and pharmacodynamic drug interactions of Warfarin	<b>Hematology</b>	
	Discuss the mechanism of action, clinical uses, adverse effects and contraindications of Thrombolytics Tabulate differences between Streptokinase & recombinant tissue plasminogen activators.		



	Understand the types and apply the knowledge in clinical aspects of antibodies		
	Classify immunosuppressants and antibodies with their mechanism of action, clinical uses, and toxicities		
HIT-Pa-002			Hematopoietic system

	Identify the major cytokines and other immunomodulating agents and know their clinical applications.		
HIT-Pa-003	Understand the clinical aspects of hypersensitivity reactions and interpret the data related to these conditions (infectious diseases and autoimmune disease)	General Pathology	Immunology
HIT-Pa-004	Describe types of transplant rejection & Graft vs Host disease and apply the knowledge in different clinical scenarios		
	Describe clinical aspects of auto immunity and autoimmune disease and apply the knowledge in different clinical settings.	General Pathology	

**PRACTICAL / LAB WORK**

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 15	
		INTEGRATING DISCIPLINE	TOPIC
HIT-H-005	Perform CBC on analyzer and interpret the report.		Hematopoietic and Lymphoid System
	Analyze RBC indices, Platelet Indices and WBC parameters.		

HIT-H-006	Perform PT, APTT and Bleeding Time. Interpret the reports	Hematology	Hematopoietic System
	Perform Blood Group and Cross Match, interpret the reports.		
	Identify normal blood cells.		
	Identify common malignant disorders e.g. CML, CLL, Acute Leukemias.		

HIT-Pa-005	Interpret the data of ELISA for different tests related to immunology.	Immunology	Immunology
HIT-Pa-006	Interpret the data of Graft rejection, Graft versus host disease.		Transplant
<b>CLINICAL ROTATIONS / COMMUNITY HEALTHCARE</b>			
<b>CODE</b>	<b>SPECIFIC LEARNING OUTCOMES</b>	<b>TOTAL HOURS = 06</b>	
		<b>INTEGRATING DISCIPLINE</b>	<b>TOPIC</b>
HIT-H-007	Administer Blood Products x3	Hematology	Blood Transfusion

Module Weeks	Recommended Minimum Hours
<b>02</b>	<b>70</b>

# BLOCK 8

<b>THEORY</b>		
<b>PATHOLOGY</b>		
		<b>TOTAL HOURS = 15</b>

CODE	SPECIFIC LEARNING OUTCOMES	INTEGRATING DISCIPLINE	TOPIC
N-Pa-001	Define neoplasia, Nomenclature and difference between benign and malignant tumors based on morphological and functional characteristics and epidemiology of cancer.	Pathology	Nomenclature. benign and malignant tumours.
N-Pa-002	Understand the molecular basis of cancer and pathogenesis of neoplasia, including the role of genetic mutations, oncogenes, tumor suppressor genes, mechanisms of cell cycle dysregulation, apoptosis evasion, angiogenesis in tumor progression and metastasis Differentiate Carcinomas, Sarcomas and lymphoreticular neoplasm		Difference between carcinoma and sarcoma and pathways of spread of malignant tumours.
N-Pa-003	Carcinogenic agents with their cellular interactions.		Carcinogenesis
N-Pa-004	Describe the role of diagnostic tools like biopsy, histopathology with IHC (Immuno-histochemistry) and special stains and molecular diagnostics with common tumor markers.		Tumor markers
N-Pa-005	Grading and staging of tumors and treatment strategies.		Grading and Staging Invasion and metastasis
	Understand the concept of invasion and metastasis		
	Basic tumor markers		
N-Pa-006	Molecular basis of cancer	Molecular basis of cancer	
N-Pa-007	Define and describe Paraneoplastic syndrome and associate with neoplastic lesions.	Paraneoplastic syndrome	

## PRACTICAL / LAB WORK

### PATHOLOGY

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 06	
		INTEGRATING DISCIPLINE	TOPIC
N-Pa-008	Morphological features of Benign and Malignant tumours (Gross and Microscopic features)	Pathology	Nomenclature, Difference between benign and malignant tumours
	Common Benign tumours (Lipoma, Leiomyoma, Fibroadenoma of Breast)		
	Carcinoma in situ (DCIS & Bowens disease)		
	Common Malignant tumours (Adenocarcinoma, Squamous cell carcinoma)		
N-Pa-009	Tumour grade and stage in malignant tumours Adenocarcinoma / Squamous cell carcinoma (including tumour invasion and metastasis)		Clinical aspects of Neoplasia

## MODULE NO. 17

# Infectious Diseases

## THEORY

### MICROBIOLOGY

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 53	
		INTEGRATING DISCIPLINE	TOPIC
ID-Pa-001	Explain the morphological, pathological and diagnostic aspects of: <ul style="list-style-type: none"> <li>• Staphylococci.</li> <li>• Streptococci</li> <li>• Clostridia</li> <li>• Bacillus</li> <li>• Corynebacterium</li> <li>• Listeria and Gardnerella</li> </ul>	Surgery	Bacterial infectious agents
	Explain the morphological, pathological and diagnostic aspects of; <ul style="list-style-type: none"> <li>• Gonococci and meningococci</li> <li>• E. coli and salmonella,</li> <li>• Shigella, vibrio, proteus,</li> <li>• Pseudomonas, H.pylori , campylobacter</li> <li>• Spirochetes, Mycobacteria</li> <li>• Chlamydia, rickettsia, actinomycetes</li> </ul>	Microbiology	
ID-Pa-002	Explain the life cycles and diagnostic aspects of; <ul style="list-style-type: none"> <li>• W. bancrofti, D.medinensis, loa loa</li> <li>• Tenia saginata, tenia solium, echinococcus granulosus, D.latum, H.nana</li> <li>• Giardia, entamoeba and plasmodium</li> <li>• Leishmania, toxoplasma, trypanosomes, naegleria.</li> </ul>	Microbiology	Parasitic infectious agents

ID-Pa-003	<p>Explain the morphological, pathological and diagnostic aspects of ;</p> <ul style="list-style-type: none"> <li>• Dermatophytes, malassezia fur fur, Spoorthi, Histoplasma,</li> </ul>	Microbiology	Fungal infections
	<p>Explain the morphological, pathological and diagnostic aspects of ;</p> <ul style="list-style-type: none"> <li>• coccidioiodes, paracoccidioiodes, blastomyces, candida, mucor, aspergillus, cryptococcus</li> </ul>	Microbiology	Fungal infections
ID-Pa-004	<p>Explain the morphological, pathological and diagnostic aspects of;</p> <ul style="list-style-type: none"> <li>• Adeno virus, papilloma virus, polyoma virus, papova virus</li> <li>• Pox virus, herpes, hepadna</li> <li>• Picornavirus, hepevirus, calicivirus, reovirus</li> </ul>	Microbiology	Viral infectious agents
	<p>Explain the morphological, pathological and diagnostic aspects of;</p> <ul style="list-style-type: none"> <li>• Retrovirus, flaviviruses, togaviruses</li> <li>• Coronavirus, delta virus, paramyxovirus, rhabdovirus, orthomyxovirus, filovirus</li> </ul>	Microbiology	
ID-Pa-005	<p>Enlist organisms producing CNS infections.</p>	Microbiology	Microorganisms producing CNS infections
	<p>Correlate clinically the following bacteria via their virulence factors, transmission, pathogenesis, laboratory diagnosis in CNS infections;</p> <ul style="list-style-type: none"> <li>• Strept. pneumoniae</li> <li>• Strept. agalactiae</li> <li>• Nisseria meningitidis</li> <li>• Haemophilus influenzae</li> <li>• E. coli</li> <li>• L. monocytogenes</li> <li>• Mycobacterium tuberculosis</li> </ul>		

	<p>Correlate clinically the following microbes via their virulence factors, transmission, pathogenesis, laboratory diagnosis in CNS infections;</p> <ul style="list-style-type: none"> <li>• Enteroviruses</li> <li>• Mumps</li> <li>• Herpes simplex</li> </ul>	Microbiology	
	<ul style="list-style-type: none"> <li>• Adenovirus</li> <li>• C. neoformans</li> <li>• Rabies</li> <li>• Herpes simplex</li> <li>• Malaria</li> <li>• Toxoplasma</li> <li>• Negleria</li> </ul>		
	Compare CSF findings of viral and bacterial meningitis.	Microbiology	
	Enlist organisms producing diarrhea & food poisoning.	Microbiology	
ID-Pa-	<p>Correlate clinically the following microbes via their virulence factors, transmission, pathogenesis, laboratory diagnosis in GIT infections;</p> <ul style="list-style-type: none"> <li>• E. coli</li> <li>• B.cereus</li> <li>• Salmonella</li> <li>• Shigella</li> <li>• Vibrio cholerae&amp; other Vibrio species</li> <li>• Helicobacter pylori</li> <li>• Campylobacter jejuni</li> <li>• Clostridium species</li> <li>• Entamoeba histolytica</li> </ul>	Microbiology integrates with medicine	Microorganisms producing

006	<p>Correlate clinically the following microbes via their virulence factors, transmission, pathogenesis, laboratory diagnosis in GIT infections</p> <ul style="list-style-type: none"> <li>• Giardia lamblia</li> <li>• Cryptosporidium parvum</li> <li>• Diphyllbothrium latum</li> <li>• Hymenolepis nana</li> <li>• Ancylostoma duodenale</li> <li>• Necator americanus</li> <li>• Ascaris lumbricoides</li> <li>• Entrobilus vermicularis</li> <li>• Trichiuris trichiura</li> </ul>	Microbiology integrates with medicine	GIT infections
	<ul style="list-style-type: none"> <li>• Trichinella spiralis</li> <li>• Polio</li> <li>• Hepatitis A, E</li> <li>• Norwalk &amp; Rotavirus</li> </ul>		
	<p>Correlate clinically the following viruses via their virulence factors, transmission, pathogenesis, laboratory diagnosis in acute &amp; chronic hepatitis; Hepatitis A, B, C, D, E, G</p>	Microbiology	
	<p>Correlate clinically the virulence factors, transmission, pathogenesis, laboratory diagnosis of Entamoeba &amp; Echinococcus in liver infections.</p>	Microbiology	

ID-Pa-007	<p>Correlate clinically the virulence factors, transmission, pathogenesis, laboratory diagnosis of organism causing genital tract infections;</p> <ul style="list-style-type: none"> <li>• Nisseria gonorrhoea</li> <li>• Treponema pallidum</li> <li>• Chlamydia trachomatis</li> <li>• Mycoplasma hominis</li> <li>• Candida albicans</li> <li>• Trichomonas vaginalis</li> <li>• Gardnerella vaginalis</li> <li>• Hepatitis B</li> <li>• HIV</li> <li>• Herpes simplex –II</li> </ul>	Microbiology integrates with medicine	Sexually transmitted infections
ID-Pa-008	<p>Discuss important properties of:</p> <ul style="list-style-type: none"> <li>• Rickettsia,</li> <li>• Leptospira &amp; Brucella,</li> <li>• anthrax, plague.</li> <li>• Francisella, bartonella</li> </ul>	Microbiology	ZOO NOTIC infections

	Identify prevention and control measures for Pulmonary TB in line with WHO strategies for control of TB		
	Appreciate significance of TB DOTS therapy for TB control		
ID-CM-002	Discuss the global burden of hepatitis		Hepatitis
	Discuss the importance of awareness & screening of hepatitis.		
	Analyze effective prevention methods for each type of hepatitis.		
	Discuss role of vaccination		
	Explain public health initiatives for prevention and control of hepatitis.		
	Describe the measures for prevention of vertical transmission of Hep B virus from mother to child transmission.		
ID-CM-003	Evaluate the Global Polio Eradication Initiative		Polio
	Analyze the historical and current global impact of poliomyelitis vaccination efforts.		
	Evaluate the effectiveness of different poliovirus vaccines (OPV and IPV) and vaccination schedules.		
	Discuss community health strategies for poliovirus surveillance, outbreak response & vaccination campaigns.		
	Describe End game strategy by WHO for Polio eradication		

ID-CM-004	Discuss the global distribution of measles, mumps, Rubella and their occurrence in different population groups	Integrate with Microbiology	Measles, Mumps, Rubella
	Describe the mode of transmission (airborne droplets) and the highly contagious nature of measles, mumps, Rubella		
	Recognize the role of vaccination coverage and herd immunity in controlling outbreaks of measles, mumps, Rubella		
	Discuss public health strategies for prevention and control of measles, mumps, Rubella including vaccination campaigns, surveillance, and outbreak response.		
ID-CM-005	Describe the goals and objectives of the Expanded Program of Immunization in Pakistan. Identify the key vaccines included in the EPI schedule.		EPI
	Analyze the strategies employed to implement the EPI in various communities.		
	Evaluate the role of healthcare workers, community leaders, and families in promoting immunization.		
	Identify the common barriers to immunization coverage in Pakistan		
	Discuss enhance vaccination uptake.		
	Discuss recent developments in the EPI, Pakistan		
	Analyze the potential impact of global health initiatives on the EPI's progress.		
ID-CM-006	Describe the role of vaccination in preventing diphtheria, including the DTP (Diphtheria, Tetanus, Pertussis)		Diphtheria
	Identify the recommended vaccine schedule for children and adults.		
	Analyze community-based vaccination campaigns		

	Analyze public awareness programs & school health initiatives to control its transmission.		
ID-CM-007	Identify the global distribution of tetanus, including endemic areas & populations at higher risk		Tetanus
	Describe the role of tetanus vaccination (Td or Tdap) in children.		
	Describe the role of tetanus vaccination in adults.		
	Discuss the significance of booster doses		
	Discuss the importance of timely immunization after potential exposure to contaminated wounds.		
	Discuss the importance of educating the community about wound care.		
	Discuss the significance of seeking medical attention for injuries.		
<b>INTERNAL MEDICINE</b>			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 05	
		INTEGRATING DISCIPLINE	TOPIC
ID-Pa-009	Define pyrexia of unknown origin.	Integrate with Microbiology/ Pathology	Pyrexia of unknown origin
	Describe the investigations of a patient with pyrexia of unknown origin.		
ID-Ph-009	Summarize the treatment plan of a patient with pyrexia of unknown origin.	Integrate with Pharmacology	
ID-Pa-013	Discuss the signs, symptoms, diagnosis and treatment of septic and aseptic meningitis.	Integrate with Microbiology	CNS
	Discuss the signs, symptoms, diagnosis and treatment of septic and aseptic encephalitis.		
ID-Ph-010	Discuss the signs symptoms diagnosis and treatment of diarrhea and dysentery.	Integrate with Pharmacology	GIT infections
ID-Ph-	Discuss the clinical diagnosis and treatment of typical and atypical pneumonia.		Respiratory

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Discuss the clinical diagnosis and treatment of TB

tract infections

<b>GYNAECOLOGY</b>			
<b>CODE</b>	<b>SPECIFIC LEARNING OUTCOMES</b>	<b>TOTAL HOURS = 02</b>	
		<b>INTEGRATING DISCIPLINE</b>	<b>TOPIC</b>
ID-GO-001	Discuss clinical presentation & treatment of pelvic inflammatory diseases (PID)	Integrate with Pharmacology	Sexually transmitted infections
ID-GO-002	Discuss the differential diagnosis of bacterial, parasitic and fungal vaginosis/vaginitis and their treatment	Integrate with Microbiology	Genital tract
<b>PEDIATRICS MEDICINE</b>			
<b>CODE</b>	<b>SPECIFIC LEARNING OUTCOMES</b>	<b>TOTAL HOURS = 02</b>	
		<b>INTEGRATING DISCIPLINE</b>	<b>TOPIC</b>
ID-Pe-001	Discuss the signs symptoms diagnosis and treatment of neonatal meningitis.	Integrate with Microbiology	CNS
ID-Pe-002	Discuss the signs symptoms diagnosis and treatment of diarrhea in infants.		GIT
ID-Pe-003	Discuss the clinical diagnosis and treatment of childhood respiratory tract infections.		RTI
<b>SURGERY</b>			
<b>CODE</b>	<b>SPECIFIC LEARNING OUTCOMES</b>	<b>TOTAL HOURS = 02</b>	
		<b>INTEGRATING DISCIPLINE</b>	<b>TOPIC</b>
ID-S-001	Discuss the treatment of carbuncle, necrotizing fasciitis and gas gangrene	Integrate with Microbiology	Skin infections
ID-S-002	Discuss the signs symptoms diagnosis and surgical treatment of hydatid cyst and its differential diagnosis with amoebic liver abscess	Integrate with Medicine	GIT

## MICROBIOLOGY (INFECTION CONTROL)

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 08	
		INTEGRATING DISCIPLINE	TOPIC
ID-Pa-009	Define hospital acquired infections (HAI)	Microbiology	Infection prevention & control
	Discuss various types of HAI		
	Enlist bacteria and fungi associated with HAI		
	Describe the main routes of transmission of HAI in detail		
	Discuss the etiology and prevention of VAP (ventilator associated pneumonia)		
	Discuss the etiology and prevention of hospital acquired UTI		
	Discuss the etiology and prevention of nosocomial diarrhea		
	Discuss the etiology and prevention of central line associated infections		
	Discuss various methods of hospital sanitation		
	Define antimicrobial surfaces and enlist the microorganisms that are frequently present on touch surfaces		
	Describe the various preventive techniques to reduce the HAI		

## MICROBIOLOGY

# BIOSAFETY

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 05	
		INTEGRATING DISCIPLINE	TOPIC
ID-Pa-010	<p>Define biosafety and biosafety levels according to WHO?</p> <p>Enlist the bio risk organisms in each of biosafety levels?</p> <p>What are 4 levels of biosafety?</p> <p>Discuss the safety protocols of BSL 1?</p> <p>Discuss the safety protocols of BSL 2?</p> <p>Discuss the safety protocols of BSL 3?</p> <p>Discuss the safety protocols of BSL 4?</p> <p>Define biological waste?</p> <p>categorize the biological wastes (HAZARDOUS, NON HAZARDOUS, SHARPS)?</p> <p>Describe procedures for segregation, storage, treatment and disposal of biological waste?</p> <p>Define spill management and discuss the steps for the management of a laboratory spill?</p> <p>Define PPE and discuss the situations under which PPE should be used by the health care professionals.</p> <p>Discuss the SOP of transportation of biological samples?</p> <p>Define and briefly discuss bio risk management?</p>	Microbiology	Bio-risk management (BRM)

## PRACTICALS / LAB WORK

### MICROBIOLOGY

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 08	
		INTEGRATING DISCIPLINE	TOPIC
ID-Pa-011	Identify the stained slides* of gram positive and gram-negative bacteria (staphylococci, streptococci, Neisseria, Strept. pneumoniae, E. coli, proteus and acid fast bacilli). (*if slides will not be available, photographic slides should be used)	Microbiology	Staining
ID-Pa-012	Interpret the culture sensitivity reports and antibiogram of gram positive and gram-negative bacteria.		Laboratory reporting
ID-Pa-013	Identify and describe the organisms that grow on the Blood agar, Chocolate agar, nutrient agar, TCBS, MacConkey media, LJ media. CLED, TSI, UREASE, CITRATE. blood culture bottle and anaerobic jar		Culture sensitivity
ID-Pa-014	Identify the ova, cysts and trophozoites of protozoans, helminths, cestodes and schistosomes.		Stool examination
ID-Pa-015	Perform and interpret the catalase test, coagulase test and oxidase test.		Laboratory tests

## CLINICAL ROTATIONS / COMMUNITY HEALTHCARE

### INTERNAL MEDICINE

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 08	
		INTEGRATING DISCIPLINE	TOPIC
ID-M-001	Demonstrate an accurate and comprehensive history from patient with fever	Internal medicine	History taking
ID-M-002	Perform a thorough general physical examination of a patient with fever		Physical Examination
ID-M-003	Order laboratory and radiological investigations for a patient with fever		Investigations

ID-M-004	Interpret the results of investigations of a patient with fever		Results
ID-M-005	Use information from history, physical examination, and laboratory investigations to identify and formulate a differential diagnosis of the underlying causes of fever		Differential diagnosis
ID-M-006	Formulate a therapeutic plan by integrating information from history, physical examination, and laboratory data for the management of a patient with fever		Therapeutic plan
ID-M-007	Record and present the complete history, physical examination findings, laboratory data, differential diagnosis, and therapeutic plan in a systematic, concise, and coherent manner, both in writing and orally		Management plan

## MODULE 18

### MUSCULOSKELETAL &

### LOCOMOTION-II

	Identify clinical features of Pseudogout.	Rheumatology, Community Med	
	Discuss diagnostic tests for Crystal Arthritis.	Rheumatology, Medicine	
	Differentiate between Gout and Pseudogout based on clinical and diagnostic findings.		
	Outline management strategies for Gout.		
	Outline management strategies for Pseudogout.		
MS2-Rh-005	Define Systemic Inflammatory Vasculitis.	Pathology	Systemic Inflammatory Vasculitis
	Describe the pathophysiology of Systemic Inflammatory Vasculitis.		
	Identify types of Systemic Inflammatory Vasculitis.		
	Discuss the community burden of Systemic Inflammatory Vasculitis.	Rheumatology, Medicine	
	Explain risk factors for Systemic Inflammatory Vasculitis.	Pathology	
	Describe clinical features of Systemic Inflammatory Vasculitis.		
	Identify diagnostic tests for Systemic Inflammatory Vasculitis.		
	Justify the use of diagnostic investigations in Systemic Inflammatory Vasculitis.	Rheumatology, Medicine	
	Discuss management strategies for Systemic Inflammatory Vasculitis.	Medicine	
MS2-Rh-	Define Autoimmune Rheumatic Diseases (e.g., SLE, Sjogren's, Systemic Sclerosis).	Pathology	Autoimmune
	Describe the pathophysiology of Systemic Lupus Erythematosus (SLE).		

006	Identify clinical manifestations of Sjogren's Syndrome.	Pathology	Rheumatic Diseases
	Explain the pathophysiology of Systemic Sclerosis.		
	Discuss treatment options for Polymyositis and Dermatomyositis.	Rheumatology, Medicine	
	Define Spondylarthritis and its clinical features.		
	Describe clinical features of Spondylarthritis.		
	Explain diagnostic criteria for Autoimmune Rheumatic Diseases.	Pathology	
	Differentiate Autoimmune Rheumatic Diseases from each other.		
MS2-Rh-007	Understand the role of evidence-based medicine in rheumatology management.	Rheumatology, Evidence-Based Medicine	Integrated EBM
	Apply evidence-based guidelines to rheumatology case studies.		
	Critically evaluate current research in rheumatology.		
	Integrate evidence-based practices into rheumatology treatment plans.		
	Demonstrate the ability to appraise rheumatology research studies.		
	Apply evidence-based findings to clinical decision-making in rheumatology.		
	Summarize key research advancements in rheumatology.		
	Implement evidence-based guidelines in rheumatology practice.		
<b>ORTHOPEDICS</b>			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 14	
		INTEGRATING DISCIPLINE	TOPIC
	Define the field of orthopedics and its significance.	Orthopedics	

MS2-Orth-001	Identify common orthopedic conditions and their impact.	Community Medicine	Introduction to Orthopedics
MS2-Orth-002	Explain the classification of fractures using the AO system.	Orthopedics, Radiology	Fracture Classification and Healing
	Describe principles of fracture healing.		
	Differentiate between complete and incomplete fractures.		
MS2-Orth-003	Discuss pediatric fractures and their management.	Orthopedics, Pediatrics, Rehabilitation	Pediatric Fractures
	Explain Salter-Harris classification for growth plate injuries.		
MS2-Orth-004	Define osteoporotic fractures and their clinical features.	Orthopedics, Geriatrics, Endocrinology	Osteoporotic Fractures
	Identify common sites of osteoporotic fractures.		
	Discuss risk factors for osteoporosis.		
MS2-Orth-005	Define pathological fractures and differentiate from traumatic.	Orthopedics, Oncology, Radiology	Pathological Fractures
	Identify causes of pathological fractures.		
	Describe diagnostic approaches for pathological fractures.		
	Explain management options for pathological fractures.		
MS2-Orth-006	Classify sports injuries and their management.	Orthopedics, Sports Medicine, Physical Therapy	Sports Injuries
	Describe common sports injuries in upper and lower limbs.		
	Discuss pathophysiology of muscle strains and ligament sprains.	Pathology, Sports Medicine	
	Explain biomechanics of gait and malalignment injuries.	Biomechanics, Orthopedics, Sports Medicine	

	Outline injury prevention strategies in sports.	Physiology, Sports Medicine	
	Analyze rehabilitation processes for sports injuries.		
	Discuss use of assistive devices in rehabilitation.	Orthopedics, Physical Therapy	
	Explain psychological impact of sports injuries.	Psychology, Sports Medicine	
	Describe nutritional roles in recovery from sports injuries.	Nutrition, Sports Medicine	
	Understand surgical intervention in severe sports injuries.	Surgery, Orthopedics, Physical Therapy	
	Promote multidisciplinary approach in managing sports injuries.	Sports Medicine, Team Management	
MS2-Orth-007	Define genetic conditions: Achondroplasia and Marfan's Syndrome.	Orthopedics, Genetics, Surgery	Genetic Conditions in Orthopedics
	Describe clinical features of Achondroplasia.		
	Explain management of Marfan's Syndrome.		
MS2-Orth-008	Define scoliosis and its types.	Orthopedics, Rehabilitation	Bone and Joint Disorders
	Identify clinical features and screening methods for scoliosis.	Orthopedics, Pediatrics	
	Discuss treatment options for scoliosis.	Orthopedics, Rehabilitation	
	Recognize multidisciplinary approach in managing scoliosis.		
	Define Osteogenesis Imperfecta and its genetic basis.	Orthopedics, Genetics, Rehabilitation	
	Identify clinical features and types of Osteogenesis Imperfecta.	Orthopedics, Pediatrics	

	Discuss management strategies for Osteogenesis Imperfecta.	Orthopedics, Rehabilitation	
	Educate patients on Osteogenesis Imperfecta.	Orthopedics, Rehabilitation	
	Define Marfan's Syndrome and its genetic basis.	Orthopedics, Genetics, Surgery	
	Identify clinical manifestations of Marfan's Syndrome.	Orthopedics, Cardiology	
	Discuss management strategies for Marfan's Syndrome.	Orthopedics, Surgery	
	Promote patient education and support for Marfan's Syndrome.	Orthopedics, Rehabilitation	
<b>SURGICAL TRAUMATOLOGY</b>			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 12	
		INTEGRATING DISCIPLINE	TOPIC
MS2-Orth-009	Define ATLS and describe its relevance in trauma management.	Trauma Surgery, Surgery, Orthopedics	Introduction to Surgical Traumatology
MS2-Orth-010	Explain principles of trauma management and primary survey.	Trauma Surgery, Emergency Medicine	Introduction to Trauma Management & ATLS
	Describe types of injuries managed in traumatology.	General Surgery	
	Discuss multidisciplinary approach in trauma care.	Trauma Surgery, Surgery, Orthopedics	
	Identify key specialties in managing traumatic injuries.	Trauma Surgery, Surgery, Orthopedics	
	Understand ATLS guidelines in primary survey (ABCDE).	Emergency Medicine, Trauma Surgery	

MS2-Orth-011	Recognize common causes of severe trauma.	Emergency Medicine, Trauma Surgery	Primary Survey and ATLS
	Apply ATLS principles in conducting primary survey.	Emergency Medicine,	
		Trauma Surgery	
	Identify indications for rapid imaging in trauma assessment.	Radiology, Emergency Medicine	
MS2-Orth-012	Describe shock recognition and resuscitation measures.	Trauma Surgery, Critical Care	Shock Recognition and Management
MS2-Orth-013	Define Traumatic Brain Injury (TBI) and classify its severity.	Neurology, Neurosurgery	Traumatic Brain Injury (TBI)
	Describe pathophysiology of primary and secondary brain injury.	Neurosurgery, Pathology	
	Identify common causes of TBI.	Epidemiology, Emergency Medicine	
	Describe clinical features of TBI.	Neurology, Emergency Medicine	
	Explain importance of early imaging for TBI diagnosis.	Radiology, Neurology	
	Discuss ATLS role in TBI management.	Emergency Medicine, Trauma Surgery	
	Outline complications of TBI.	Neurology, Neurosurgery, Critical Care	
	Define Neck and Spine Trauma and classify it.	Orthopedics, Neurosurgery, Trauma Surgery	
	Recognize mechanisms of neck and spine trauma.	Epidemiology, Emergency Medicine	

MS2-Orth-014	Describe anatomy of spine and spinal cord in trauma context.	Anatomy, Orthopedics, Neurosurgery	Neck and Spine Trauma
	Identify clinical features of neck and spine trauma.	Neurology, Emergency Medicine, Neurosurgery	
	Understand importance of immobilization in spinal trauma.	Emergency Medicine, Orthopedics	
	Discuss role of imaging in spinal trauma diagnosis.	Radiology, Orthopedics, Neurosurgery	
	Recognize role of ATLS in spinal trauma management.	Emergency Medicine, Trauma Surgery	
	Outline complications of spine trauma.	Critical Care, Neurology, Rehabilitation	
MS2-Orth-015	Define Maxillofacial Trauma and its classification.	Oral & Maxillofacial Surgery, Plastic Surgery	Maxillofacial Trauma
	Identify causes of Maxillofacial Trauma.	Epidemiology, Emergency Medicine	
	Explain anatomy relevant to Maxillofacial Trauma.	Plastic Surgery, ENT	
	Recognize clinical features of facial trauma.	Surgery, Maxillofacial Surgery, ENT	
	Identify importance of airway management in facial trauma.	Emergency Medicine	
	Describe radiological investigations for facial fractures.	Radiology, Oral & Maxillofacial Surgery	
	Discuss complications of maxillofacial trauma.	Emergency Medicine, Plastic Surgery, ENT	

	Outline ATLS principles in maxillofacial trauma management.	Emergency Medicine, Trauma Surgery	
	Discuss surgical interventions for maxillofacial trauma.	Oral & Maxillofacial Surgery, Plastic Surgery	
MS2-Orth-016	Define Extremity Trauma and its types.	Orthopedics, Emergency Medicine	Extremity Trauma
	Explain mechanisms of extremity trauma.	Epidemiology, Trauma Surgery	
	Recognize clinical signs of extremity injuries.	Orthopedics, Emergency Medicine	
	Identify life-threatening complications of extremity trauma.	Orthopedics, Emergency Medicine	
	Understand role of imaging in extremity trauma diagnosis.	Radiology, Orthopedics	
	Describe principles of ATLS in extremity trauma management.	Emergency Medicine	
	Discuss management techniques for extremity trauma.	Orthopedics, Physical Therapy	
	Explain indications for surgical intervention in extremity trauma.	Orthopedics, Trauma Surgery	
<b>PATHOLOGY, PHARMACOLOGY, COMMUNITY MEDICINE and BEHAVIORAL SCIENCES &amp; EBM</b>			
<b>CODE</b>	<b>SPECIFIC LEARNING OUTCOMES</b>	<b>TOTAL HOURS = 20</b>	
		<b>INTEGRATING DISCIPLINE</b>	<b>TOPIC</b>
	Discuss the etiology, pathophysiology, morphology, clinical manifestations and diagnostic criteria of Rheumatoid Arthritis (RA)		
	Discuss the etiology, pathophysiology, morphology, clinical manifestations and diagnostic criteria of Osteoarthritis (OA)		

MS2-Pa-001	Discuss the etiology, pathophysiology, morphology, clinical manifestations and diagnostic criteria of Crystal Arthritis (Gout/Pseudogout)	Pathology	MSK Diseases & Tumors
	Discuss the etiology, pathophysiology, morphology, clinical manifestations and diagnostic criteria of Autoimmune Rheumatic Diseases		
	Identify bone tumors, cartilaginous and soft tumors and their clinical features.		
	Discuss the etiology, pathophysiology, morphology, clinical manifestations and diagnostic criteria of Bone tumours, cartilaginous and soft tumors		
MS2-Ph-001	Describe pharmacologic interventions for MSK disorders.	Pharmacology	MSK Drugs & Interventions
	Explain mechanisms of NSAIDs in MSK disorders.		
	Describe DMARDs and their use in MSK disorders.		
	Discuss corticosteroids in MSK management.		
MS2-CM-001	Explain bisphosphonates and opioids in MSK disorders.	Community Medicine	Epidemiology & Prevention
	Understand epidemiology of MSK diseases.		
	Discuss public health burden of MSK diseases.		
	Explain preventive measures for MSK diseases.	Pharmacology, Rheumatology	Pharmacologic Management in Rheumatology
	Discuss pharmacologic management in rheumatology.		
	Understand the use of NSAIDs in rheumatic diseases.		
	Describe DMARDs and their role in managing RA.		
	Explain corticosteroids in rheumatic disease management.		
	Discuss biologics in rheumatology management.		

	Describe opioids for pain management in rheumatology.		
	Understand the epidemiology of rheumatic diseases.	Community Medicine	Epidemiology & Prevention
	Discuss the public health burden of rheumatic diseases.		
	Explain preventive measures for rheumatic diseases.		
MS2-BhS-001	Analyze psychosocial impact of chronic MSK conditions.	Behavioral Sciences	Psychosocial Impact & Patient Counseling
	Describe patient counseling techniques for MSK conditions.		
	Promote adherence to MSK treatment plans.		
	Educate patients on importance of adherence to MSK management.		
	Discuss impact of disability on MSK patients.		
MS2-Orth-017	Understand role of evidence-based medicine in MSK management.	Rheumatology, Pharmacology	Integrated EBM
	Apply evidence-based guidelines to rheumatology case studies.	Rheumatology, Evidence-Based Medicine	
	Critically evaluate current research in rheumatology.	Rheumatology, Evidence-Based Medicine	
	Integrate evidence-based practices into rheumatology treatment plans.	Rheumatology, Evidence-Based Medicine	
	Demonstrate the ability to appraise rheumatology research studies.		
	Apply evidence-based findings to clinical decision-making in rheumatology.		
Summarize key research advancements in rheumatology.			

Implement evidence-based guidelines in rheumatology practice.	
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## PRACTICAL / LAB WORK

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 09	
		INTEGRATING DISCIPLINE	TOPIC
MS2-Pa-002	Interpret various investigations related to joint diseases including: <ol style="list-style-type: none"> <li>i. Complete Blood Count (CBC)</li> <li>ii. Erythrocyte Sedimentation rate (ESR)</li> <li>iii. C-reactive protein (CRP)</li> <li>iv. Creatine Kinase (CK)</li> <li>v. Rheumatoid factor (RF)</li> <li>vi. Antinuclear antibody (ANA)</li> <li>vii. Anti-Neutrophil Cytoplasmic Antibodies (ANCA)</li> <li>viii. Serum uric acid level</li> </ol>	Pathology	Test Interpretation
MS2-Pa-003	Interpret related cultures for diagnosis for infections	Microbiology, Pathology	
MS2-Ra-001	Interpret imaging tests to evaluate various musculoskeletal disorders including: <ol style="list-style-type: none"> <li>i. X-rays</li> <li>ii. Computed tomography (CT) Scans</li> <li>iii. Ultrasound Scans</li> <li>iv. Bone Scans</li> </ol>	Radiology Rheumatology Orthopedics Surgical Traumatology	
MS2-Ph-002	Analysis and interpretation of Drugs (atracurium or skeletal muscle relaxant) on animal through online videos / simulations / graphs / practical performance.  Analysis and interpretation of different Concentrations of Drugs (atracurium or skeletal muscle relaxant) on Frog's rectus muscle through online videos / simulations / graphs / practical performance.	Pharmacology	MSK & locomotion



**MODULE-19**  
**Forensic Medicine**  
**& Toxicology-II**

	<p>Interpret the age of fractures from radiological findings.</p> <p>Illustrate stages of healing of fractures of bones/teeth.</p> <p>Apply the nature of the fracture in the injury certificate as per Qisas and Diyat act.</p> <p>Explain medico-legal importance of fracture of bone/tooth.</p>		
For2-Tr-007	<p>Define incised/stab wounds.</p> <p>Discuss mechanism of production of an incised wound.</p> <p>Explain medico-legal significance of incised/stab wounds</p>		Incised/stab wounds

### SPECIAL TRAUMATOLOGY

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 12.5	
		INTEGRATING DISCIPLINE	TOPIC
For2-Tr-008	<p>Describe the pathophysiology of injuries.</p> <p>Explain effects of injuries on the body.</p>	Pathology	Pathophysiology of injuries
For2-Tr-009	<p>Elaborate different methods (naked eye examination, microscopic examination, histochemical and biochemical methods) for determination of age of wound.</p> <p>Describe different methods (naked eye examination, microscopic examination, histochemical and biochemical methods of determination of ante mortem/post mortem nature (vital reaction) of a wound.</p>	Pathology, surgery, medicine & Forensic medicine	Timing of injury / ante mortem, post mortem nature of wound
For2-Tr-010	<p>Link Sequelae of trauma to its original cause and search for the relationship of sequelae to pre-existing disease.</p>		Ewing's postulates
For2-Tr-011	<p>Give a detailed account of battered baby or Caffey syndrome from a medicolegal point of view.</p> <p>Diagnose a case of a battered baby on the basis of different injuries sustained by a battered baby</p>		Battered baby syndrome

For2-Tr-012	Define torture. Explain reasons, types and complications of torture. Describe medicolegal aspects of torture.		Torture
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**MODULE NO. 20:**  
**Cardiovascular-II**

# HEORY

## GENERAL MEDICINE

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 10	
		DISCIPLINE	TOPIC
CV2-M-001	Understand the Etiology and Pathogenesis of Rheumatic Fever	Integrate with Pathology	Rheumatic fever
	Describe “Jones Criteria” and its significance in diagnosis of Rheumatic fever		
	Identify the clinical features of acute Rheumatic fever		
	Describe the Pathological Changes in Rheumatic Heart Disease		
	Discuss the Diagnostic Approach to Rheumatic Fever		
	Outline the Treatment and Prevention Strategies for Rheumatic Fever		
CV2-M-002	Define cor-pulmonale and distinguish it from other causes of right heart failure.	Integrate with Pathology	Cor-pulmonale
	Classify cor-pulmonale into acute and chronic forms based on the onset and underlying causes (e.g., pulmonary embolism in acute cor-pulmonale vs. COPD in chronic cor-pulmonale).		
	Explain the Pathophysiology of Cor Pulmonale		
	Identify the Etiological Factors of Cor Pulmonale	Integrate with Pathology	
	Identify the symptoms and signs of cor pulmonale		
	Describe the Diagnostic Approach to Cor Pulmonale		
	Outline the management plan for cor-pulmonale		
CV2-M-003	Define and Classify Infective Endocarditis (IE)	Pathology integrates with medicine	Infective endocarditis
	Explain the Pathophysiology of Infective Endocarditis		
	Identify the Common Etiological Agents of Infective Endocarditis		
	Recognize the Clinical Features of Infective Endocarditis		

	Discuss the Diagnostic Approach to Infective Endocarditis		
	Explain the Complications of Infective Endocarditis		
	Outline the Management and Treatment of Infective Endocarditis		
	Describe the Prevention Strategies for Infective Endocarditis		
CV2-M-004	Define and Classify Pericarditis		Pericarditis
	Describe the Etiology of Pericarditis		
	Explain the Pathophysiology of Pericarditis	Pathology	
	Recognize the Clinical Features of Acute Pericarditis		
	Discuss the Diagnostic Approaches to Pericarditis		
	Explain the Complications of Pericarditis:		
	Outline the Management plan of Acute Pericarditis		
	Discuss Prevention and Prognosis of Pericarditis		

## PHARMACOLOGY

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 14	
		DISCIPLINE	TOPIC
CV2-Ph-001	<p>Classify antihypertensive drugs including vasodilators, calcium channel blockers, drugs acting on RAAS, central sympatholytic drugs and diuretics.</p> <p>Describe their mechanisms of action, clinical uses, adverse effects, drug-interactions and contraindications</p> <p>Identify the compensatory responses to antihypertensive drugs.</p> <p>Give an account of pharmacological considerations taken in hypertensive emergencies, malignant hypertension, IHDs, cardiac failure, cardiomyopathies, coarctation of aorta, diabetes</p>	Pharmacology	Anti-hypertensives

	mellitus, chronic renal diseases, Cerebrovascular Disease, Dementia, and pregnancy		
CV2-Ph-002	<p>Explain strategies used in pharmacological treatment of angina.</p> <p>Classify anti-anginal drugs and describe the mechanism of action, uses, adverse effects and interactions of nitrates and nitrites, Beta Blockers, and Calcium Channel Blockers.</p> <p>Explain the role of Fatty Acid Oxidation Inhibitors in the treatment of Angina.</p> <p>How the Coronary Steal Phenomenon is addressed?</p>		Ischemic Heart Diseases
CV2-Ph-003	<p>Classify drugs used in cardiac arrhythmias; describe their mechanism of action, uses, adverse effects and drug interactions.</p> <p>Explain general strategies used in pharmacological treatment of cardiac arrhythmias.</p>		Cardiac Arrhythmias:
CV2-Ph-004	<p>Classify drugs used in cardiac failure and describe their mechanism of action, pharmacological effects, uses, adverse effects, interactions and contraindications.</p> <p>Describe the cardiovascular effects of Dopamine, Dobutamine, Phosphodiesterase Enzyme Inhibitors, ACE Inhibitors and ARBs, Beta Blockers, directly acting vasodilators in Cardiac Failure.</p> <p>Role of Diuretics, Renin–Angiotensin–Aldosterone System Inhibitors, Beta-blockers, Digitalis glycosides, Nitrates and Hydralazine, Ivabradine and their combination; Anticoagulation, Antiarrhythmic therapy, and Statin, etc.</p>		Cardiac Failure.

CV2-Ph-005	<p>Classify Anti-Hyperlipidemic Drugs</p> <p>Describe their Mechanism of Action, Uses, Adverse Effects and Drug Interactions</p> <p>Enlist combination therapies for treatment of hyperlipidemias</p>		Anti-Hyperlipidemic / Anti-Dyslipidemias
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**CARDIOLOGY**

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 14	
		DISCIPLINE	TOPIC
CV2-M-005	<p>Define cardiomyopathies as diseases of the heart muscle that affect its structure and function.</p> <p>Classify cardiomyopathies into the major subtypes</p> <ul style="list-style-type: none"> <li>i. Dilated cardiomyopathy (DCM)</li> <li>ii. Hypertrophic cardiomyopathy (HCM)</li> <li>iii. Restrictive cardiomyopathy (RCM)</li> <li>iv. Arrhythmogenic right ventricular cardiomyopathy (ARVC)</li> </ul> <p>Unclassified cardiomyopathies (e.g., left ventricular non-compaction)</p> <p>Explain the underlying Pathophysiology of Different Cardiomyopathies</p> <p>Recognize the Clinical Features of Cardiomyopathies</p> <p>Describe the role of echocardiography in diagnosing cardiomyopathies by assessing heart structure, wall thickness, chamber size, and ejection fraction.</p> <p>Highlight the use of ECG in detecting arrhythmias and conduction abnormalities associated with specific cardiomyopathies.</p> <p>Discuss the role of cardiac MRI in identifying myocardial fibrosis, particularly in hypertrophic and arrhythmogenic cardiomyopathies.</p>	Integrate with pathology	Cardiomyopathies

	<p>Explain the importance of genetic testing in familial cardiomyopathies, especially HCM and ARVC, for risk assessment and family screening.</p> <p>Understand the Complications of Cardiomyopathies:</p> <p>Outline the Management of Cardiomyopathies</p> <p>Describe the Genetic and Preventive Aspects of Cardiomyopathies:</p>		
CV2-M-006	<p>Define and Classify Congestive Cardiac Failure</p> <p>Understand the Epidemiology and Risk Factors of Heart Failure</p> <p>Explain the Pathophysiology of Congestive Cardiac Failure</p> <p>Recognize the Clinical Features of Congestive Cardiac Failure</p> <p>Discuss the Diagnostic Approach to Congestive Cardiac Failure</p> <p>Differentiate Between Acute and Chronic Heart Failure</p> <p>Explain the Complications of Congestive Cardiac Failure</p> <p>Outline the non-pharmacological and pharmacological Management of Congestive Cardiac Failure</p> <p>Discuss strategies to prevent the development or progression of heart failure</p> <p>Understand the role of prognostic factors in heart failure</p>	Integrate with pathology	Congestive Cardiac Failure
CV2-M-007	<p>Define coronary artery disease</p> <p>Differentiate between stable angina, unstable angina, myocardial infarction (MI), and acute coronary syndrome (ACS).</p> <p>Discuss the modifiable and non-modifiable risk factors for CAD</p> <p>Describe how CAD can lead to myocardial ischemia, affecting oxygen supply to the heart muscle, and the</p>		Coronary artery disease

	<p>consequences of plaque rupture leading to thrombus formation and acute coronary syndromes.</p> <p>Differentiate between stable angina (caused by fixed plaque) and acute coronary syndromes (caused by plaque rupture and thrombosis).</p> <p>Recognize the Clinical Features of Coronary Artery Disease</p> <p>Discuss the Diagnostic Approach to Coronary Artery Disease:</p> <p>Enlist the complications of CAD</p> <p>Discuss the management plan of stable CAD</p> <p>Discuss the role of revascularization techniques in stable CAD, including percutaneous coronary intervention (PCI) and coronary artery bypass grafting (CABG) in selected patients.</p> <p>Outline the Management of Acute Coronary Syndromes (ACS</p>		
CV2-M-008	<p>Define Valvular Heart Disease</p> <p>Differentiate between stenosis (narrowing of valve orifice) and regurgitation (incompetence or leakage of valve).</p> <p>Understand the Epidemiology and Etiology of Valvular Heart Disease</p> <p>Explain the Pathophysiology of Common Valvular Lesions</p> <p>Discuss the management plan for valvular heart diseases</p>	Integrate with pathology	Valvular heart diseases
CV2-M-009	<p>Define congenital heart disease as structural or functional defects of the heart and great vessels present at birth.</p> <p>Classify Congenital Heart Diseases into:</p> <p>i. Cyanotic congenital heart diseases (e.g., Tetralogy of Fallot, Transposition of the Great Arteries).</p>		Integrate with Pead's

	Cyanotic congenital heart diseases (e.g., Atrial Septal Defect, Ventricular Septal)		
	Understand the Epidemiology and Risk Factors of Congenital Heart Disease.		
	Explain the Pathophysiology of Common Congenital Heart Lesions (ASD, VSD, PDA, TOF, TGA)	Integrate with pathology	
	Recognize the Clinical Features of Congenital Heart Disease.		
	Outline the Diagnostic Approach to Congenital Heart Disease.		
	Explain the Complications of Congenital Heart Disease		
	Discuss the Management of Common Congenital Heart Diseases.		

## PATHOLOGY

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 12	
		DISCIPLINE	TOPIC
CV2-Pa-001	Define aneurysm and differentiate between true and false aneurysms.	Integrate with biochemistry	Aneurysms
	Classify aneurysms based on their morphology (saccular, fusiform) and etiology (atherosclerotic, mycotic, and congenital).		
	Understand the underlying mechanisms leading to aneurysm formation, including vessel wall weakening, genetic factors (e.g., Marfan syndrome, Ehlers-Danlos syndrome), and role of atherosclerosis.		
	Identify the common sites where aneurysms form (e.g., aortic aneurysms, cerebral aneurysms, popliteal aneurysms) and explain why certain areas are more prone to aneurysm development.		
	Discuss the clinical signs and symptoms of aneurysms depending on their location (e.g.,		

	abdominal aortic aneurysm, thoracic aortic aneurysm) and size.		
	Correlate the presentation with possible complications like rupture, dissection, or compression of adjacent structures.		
	List the common diagnostic modalities used in identifying aneurysms (e.g., ultrasound, CT angiography, MRI).		
	Describe the complications of aneurysm		
	Discuss the management of aneurysm		
CV2-Pa-002	Define vascular tumors		Vascular tumors
	Classify vascular tumors		
	Understand the underlying mechanisms involved in the development of vascular tumors, including genetic mutations, environmental factors (e.g., radiation, exposure to chemicals), and infections (e.g., HHV-8 in Kaposi sarcoma).	Integrate with biochemistry	
	Discuss the role of angiogenesis and endothelial cell Proliferation in tumor formation.		
	Identify the characteristic clinical presentations of common vascular tumors (e.g., skin lesions in hemangiomas, liver involvement in cavernous hemangiomas, purple plaques in Kaposi sarcoma).		
	Correlate the size, location, and aggressiveness of the tumor with its clinical manifestations.		
	Discuss the diagnostic techniques used to detect and evaluate vascular tumors, including biopsy, histopathology (e.g., Doppler ultrasound, MRI), and immunohistochemically markers (e.g., CD31, CD34, VEGF).		
	Describe the histological differences between various vascular tumors, emphasizing the appearance of endothelial cells, vascular channels, and mitotic activity	Integrate with histology	

CV2-Pa-003	Define cardiac tumors and differentiate between primary and secondary (metastatic) cardiac tumors.		Cardiac tumors
	Classify primary cardiac tumors into benign (e.g., myxoma, rhabdomyoma, fibroma) and malignant (e.g., angiosarcoma, rhabdomyosarcoma).		
	Discuss the possible genetic and molecular mechanisms involved in the development of cardiac tumors, including familial syndromes associated with cardiac tumors (e.g., Carney complex, tuberous sclerosis).		
	Describe how cardiac tumors can disrupt normal cardiac function through obstruction, embolization, or invasion of adjacent structures.		
	Identify the clinical presentations of cardiac tumors based on their location and size, including obstructive symptoms (e.g., dyspnea, syncope), embolic phenomena (e.g., stroke, systemic embolism), and constitutional symptoms (e.g., fever, weight loss).		
	Describe the key diagnostic tools for identifying cardiac tumors, including echocardiography (trans esophageal and transthoracic), MRI, CT scan, and histopathological examination.		
	Explain how histopathological analysis helps in distinguishing between benign and malignant cardiac tumors.		
	Outline the Principles of Management for Cardiac Tumors	Integrate with surgery	

**GENERAL SURGERY/VASCULAR SURGERY**

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 10	
		DISCIPLINE	TOPIC
	Discuss the Pathophysiology of Peripheral Vascular Diseases	Integrate with pathology	Peripheral Vascular

CV2-S-001	Identify key risk factors for peripheral vascular diseases		Diseases (PVD)
	Differentiate between the types of PVD, such as peripheral artery disease (PAD) and venous insufficiency.		
	Discuss the role of embolism and thrombosis in the etiology of acute limb ischemia		
	Describe the signs and symptoms of peripheral vascular diseases		
	Enlist the investigations required to diagnose peripheral vascular disease		
	Discuss the role of medical treatment and surgical interventions for management of peripheral vascular disease		
	Describe the complications of untreated peripheral vascular diseases		
	Differentiate between acute and chronic limb ischemia		
	Classify different types of gangrene		
	What are different dysfunctions of venous system?		
	Discuss the etiology and pathophysiology of varicose veins and venous ulcers		

## PRACTICAL / LAB WORK

### PHARMACOLOGY

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 01	
		INTEGRATING DISCIPLINE	TOPIC
CV2-Ph-006	Analysis and interpretation of Drugs (Acetylcholine, Atropine Adrenaline, Propranolol) on animal through online videos / simulations / graphs / practical performance.	Pharmacology	Cardiovascular System
	Analysis and interpretation of different Concentrations of Acetylcholine on Frog's heart		

	through online videos / simulations / graphs / practical performance.		
<b>CLINICAL ROTATIONS</b>			
<b>CARDIOLOGY AND SURGERY</b>			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 10	
		DISCIPLINE	TOPIC
CV2-M-009	Take history specific to CVS	Medicine	History taking
	Perform GPE relevant to CVS to observe signs of cyanosis, pallor, edema, hyperlipidemia and clubbing		GPE
	Palpate peripheral pulses, observe signs of raised JVP		
	Measure blood pressure		
CV2-M-010	Perform CVS examination on a patient	Cardiology	CVS examination
CV2-M-011	Interpret changes in ECG and correlate them with clinical conditions		ECG
CV2-S-002	Perform examination of an ischemic limb	Surgery	Examination of peripheral vascular system

## MODULE NO. 21:

# Respiratory-II



# THEORY

## PATHOLOGY

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 16	
		DISCIPLINE	TOPIC
Re2-Pa-001	Describe hypersensitivity reaction 1 with clinical examples Describe immune mechanism involved in HSR-I	Pathology	Hyper-sensitivity reaction (HSR) Type II
Re2-Pa-002	Define asthma Classify asthma Discuss pathogenesis of atopic and non -atopic asthma Discuss pathogenesis of atopic and non -atopic asthma.		Bronchial asthma
Re2-Pa-003	Define chronic bronchitis Describe the pathogenesis of chronic bronchitis Discuss the pathogenesis of bronchiectasis Describe gross and microscopic morphological features of bronchitis. Describe gross and microscopic features of bronchiectasis.		Chronic bronchitis
Re2-Pa-004	Define emphysema Classify types of emphysema Describe protease-antiprotease imbalance hypothesis for development of emphysema		Emphysema
Re2-Pa-005	Differentiate between obstructive and restrictive pulmonary diseases List the causes of restrictive lung diseases Describe pneumoconiosis with respect to etiology and pathogenesis Enlist asbestos related diseases Describe morphologic features of asbestosis Describe morphological features of cryptogenic organizing pneumonia, coal workers		Restrictive Lung Diseases
Re2-Pa-006	Describe various etiological factors of pulmonary pneumonia.		Pneumonia

	<p>Describe the histopathological subtypes of pulmonary pneumonia</p> <p>Describe morphological features of bronchogenic and lobar pneumonia.</p> <p>Describe four stages of lobar pneumonia</p> <p>Explain the complications associated with pulmonary pneumonia</p>		
Re2-Pa-007	<p>Describe the morphological features of different types of granulomatous inflammation</p> <p>Describe Ghons complex.</p> <p>Differentiate between primary and secondary tuberculosis.</p>		Granulomatous Inflammation
Re2-Pa-008	<p>Describe hypersensitivity reaction IV with clinical examples</p> <p>Describe the immune mechanism involved in HSR IV</p>		Hypersensitivity Reaction (Hsr) Type IV
Re2-Pa-009	<p>Classify pleural tumors</p> <p>List the risk factors for development of malignant mesothelioma</p> <p>Describe morphologic features of malignant mesothelioma</p>		Pleural Tumors
Re2-Pa-010	<p>Classify lung tumors</p> <p>Benign &amp; Malignant diseases of lungs and thorax</p> <p>Describe morphologic features of squamous cell carcinoma</p> <p>Adenocarcinoma, neuroendocrine tumors, other Tumors</p> <p>Enumerate paraneoplastic syndromes associated with lung tumors</p>		Lung Tumors
Re2-Pa-011	<p>Small cell carcinoma lung</p> <p>Squamous cell carcinoma lung</p> <p>Adenocarcinoma lung</p> <p>Malignant Mesothelioma</p>		Image Session Of Respiratory System-II
Re2-Pa-012	<p>Classify pulmonary edema according to etiology</p> <p>Describe clinical conditions associated with development of ARDS</p> <p>Describe the pathogenesis of ARDS</p>		Pulmonary Edema & Acute Respiratory Distress

	Describe morphologic features of Diffuse alveolar damage (DAD)		Syndrome (ARDS)
Re2-Pa-013	Describe the important morphological features, virulence factors of Mycobacterium tuberculosis with their clinical significance Describe the pathogenesis of Pulmonary tuberculosis Describe the immunity and hypersensitivity against infections by Mycobacterium tuberculosis Extra pulmonary tuberculosis infections	Microbiology	Mycobacterium Tuberculosis
Re2-Pa-014	Describe Corona virus Explain the structure and antigenicity of the virus Describe the pathogenesis of corona virus Discuss the relation with pneumonia	Microbiology	COVID-19
Re2-Pa-015	Enlist organisms producing respiratory tract infections	Microbiology	Microorganisms producing Respiratory tract infection
	Correlate clinically the virulence factors, transmission, pathogenesis, laboratory diagnosis of organisms causing respiratory tract infections; <ul style="list-style-type: none"> <li>• Mycobacterium tuberculosis</li> <li>• Streptococcus pneumoniae</li> <li>• Mycoplasma pneumoniae</li> <li>• Legionella pneumoniae</li> <li>• Haemophilus influenzae</li> <li>• Klebsiella</li> <li>• Corynebacterium diphtheria</li> <li>• Bordetella</li> </ul>	Microbiology	
	Correlate clinically the virulence factors, transmission, pathogenesis, laboratory diagnosis of organisms causing respiratory tract infections; <ul style="list-style-type: none"> <li>• Influenza &amp; para influenza viruses</li> <li>• RSV</li> <li>• Rhinovirus</li> <li>• Measles</li> </ul>	Microbiology	

	<ul style="list-style-type: none"> <li>• Pneumocystis carinii</li> <li>• Aspergillus</li> </ul>		
<b>PHARMACOLOGY</b>			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 17	
		DISCIPLINE	TOPIC
Re2-Ph-001	<p>Discuss the role of different drugs in the prevention &amp; treatment of asthma</p> <p>Describe the mechanism of action &amp; adverse effects of Beta 2 agonists used in asthma</p> <p>Describe the mechanism of action, actions &amp; adverse effects of Methylxanthines Describe mechanism of action and adverse effects of Mast Cell Stabilizers</p> <p>Discuss the roles of corticosteroids in the treatment of bronchial asthma.</p> <p>Discuss the role of ipratropium in asthma</p> <p>Discuss the mechanism of action and adverse effects of leukotriene synthesis and receptor blockers used in asthma</p> <p>Enlist drugs used in acute and chronic asthma</p>	Clinical Pharmacology & Therapeutics	Anti-Asthmatic drugs
Re2-Ph-002	<p>Discuss the role of Anti-inflammatory drugs in COPD</p> <p>Describe the pharmacodynamics of bronchodilators in COPD treatment</p> <p>Explain the mechanism of action and indications of corticosteroids in restrictive lung diseases.</p>		Anti-Inflammatory drugs
Re2-Ph-003	<p>Describe anti-tussive, mucolytics and expectorants</p> <p>Interactive</p> <p>Classify Anti-tussive Lecture</p> <p>Describe Pharmacodynamics of these drugs.</p>		Anti-tussive, expectorants, mucolytics
Re2-Ph-004	<p>Explain the spectrum of activity for macrolides and cephalosporins</p> <p>Identify adverse reactions associated with common antibiotics</p>		Macrolides and cephalosporins

Re2-Ph-005	<p>Classify the drugs used for hospital and community-acquired pneumonia</p> <p>Describe the mechanism of action for each class</p> <p>Discuss the mechanism of action of pneumococcal and influenza vaccines in stimulating the immune system</p>		Drugs For Treatment Of Pneumonia
Re2-Ph-006	<p>Enumerate first and second line drugs for treatment of tuberculosis</p> <p>Describe mechanism of action of first line drugs used in tuberculosis</p> <p>Describe spectrum of antibacterial action of Rifampicin</p> <p>Describe drug interactions of Rifampicin</p> <p>Discuss adverse effects of 1st line Anti-TB drugs</p> <p>Discuss drugs used for various anti-TB regimes</p> <p>Discuss chemoprophylaxis of TB</p> <p>Discuss second line drugs used in TB</p>		Anti-Tuberculous Drugs
Re2-Ph-007	<p>Define autacoids.</p> <p>Enlist major histamine receptors.</p> <p>Classify anti-histamine drugs.</p> <p>Describe clinical uses of antihistamines.</p> <p>Discuss the toxicity of antihistamines.</p> <p>Classify serotonin agonists &amp; antagonists.</p> <p>Describe the clinical uses of serotonin agonists &amp; antagonists.</p> <p>Discuss the adverse effects of serotonin agonists &amp; antagonists.</p> <p>Enumerate ergot alkaloids.</p> <p>Describe the mechanism of action of ergot alkaloids.</p> <p>Discuss the clinical uses of ergot alkaloids. Discuss the toxicity of ergot alkaloids. Enlist the types of prostaglandins.</p> <p>Discuss the pharmacological actions of prostaglandins.</p> <p>Describe the clinical uses of prostaglandins. Discuss the adverse effects of prostaglandins</p>		Autacoids
Re2-Ph-008	<p>Explain the chemotherapeutic options for lung cancer</p>		Chemotherapeutic Drugs

Re2-Ph-009	Discuss the management strategies for ARDS Explain the role of corticosteroids and sedatives in respiratory failure management		Drugs respiratory failure management
Re2-Ph-010	Describe the mechanism of action and adverse effects of opioid analgesics and NSAIDs in trauma management Explain the role of local anesthetics in pain control through nerve blocks Discuss the use of muscle relaxants in chest trauma to alleviate muscle spasms and improve breathing		Opioid analgesics and NSAIDs
Re2-Ph-011	Discuss the use of vasopressors in managing hypotension due to blood loss in trauma		Vasopressors
<b>SURGERY</b>			
<b>CODE</b>	<b>SPECIFIC LEARNING OUTCOMES</b>	<b>TOTAL HOURS = 08</b>	
		<b>DISCIPLINE</b>	<b>TOPIC</b>
Re2-S-001	Surgical approach to lung cancer resection, Complications of lung resection	Surgery	lung cancer resection
Re2-S-002	Management of Lung metastases		Lung Metastasis
Re2-S-003	Describe mechanism of tension pneumothorax (T.P.) Enlist the causes of T.P. Describe the clinical of features of tension pneumothorax (signs & symptoms) Outline the steps of treatment of T.P.		Tension Pneumothorax
Re2-S-004	Describe sucking chest wound. Describe the underlying respiratory physiological changes in flail chest. Describe steps of management of such wound.		Open Pneumothorax
Re2-S-005	Enlist the causes of thoracic trauma in Describe significance of RTA mortality. Enlist the causative factors for breathing difficulty in chest trauma patients. Review the different thoracic injuries. Enumerate the sources of probable bleeding in a chest trauma.		Thoracic Trauma

	Describe the initial management of a patient with chest trauma. Outline the management of thoracic injuries		
Re2-S-006	Define flail chest. Describe mechanism of respiratory sequel of flail chest. Describe the clinical features of flail chest. Describe treatment options in flail chest Define surgical emphysema. Enumerate the causes of surgical emphysema. Describe clinical features of Surgical emphysema Describe the steps of management of Surgical emphysema Enumerate complications.		Thoracic Trauma-II
Re2-S-007	Describe the clinical features of following respiratory complications: Atelectasis, pneumonia, pulmonary embolism Interpret the X ray findings of post-operative pneumonia Outline the treatment option of complications. Enlist the causes of diaphragmatic rupture Enumerate the clinical features Describe the x-ray/USG findings Describe the steps of management		Post Op Respiratory Complications
Re2-S-008	Define the pulmonary contusions Enumerate the clinical features Describe the steps of management Describe complications of pulmonary contusion.		Lungs Injuries

**MEDICINE**

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 19	
		DISCIPLINE	TOPIC
Re2-M-001	Correlate Clinical features of bronchial asthma to its pathogenesis Describe investigations of a patient with asthma Enlist features of acute severe asthma Enlist features of life-threatening asthma	Medicine	Bronchial asthma

	Discuss the step-wise therapy of stable asthma Discuss the management of acute severe asthma		
Re2-M-002	Enumerate risk factors for asthma. Describe clinical features of acute and chronic bronchial asthma. Classify asthma symptoms according to GINA Guidelines. Outline management of childhood Asthma.	Pediatrics	Childhood asthma
Re2-M-003	Define COPD Describe types of COPD Describe Clinical features of COPD Outline investigation plan of a patient with COPD Describe GOLD staging criteria for COPD Outline the management of acute exacerbation of COPD Describe long term management of COPD Describe criteria for long term oxygen therapy in COPD	Medicine	COPD, Chronic bronchitis, Emphysema
Re2-M-004	Enlist the causes of bronchiectasis Describe the clinical features of bronchiectasis Describe investigations of bronchiectasis Enlist the complications of bronchiectasis Describe the management of bronchiectasis	Medicine	Bronchiectasi s
Re2-M-005	Define cystic fibrosis. Describe pattern of inheritance of cystic fibrosis. Describe pathophysiology of CF Describe clinical features of CF. Interpret investigations for CF. Enumerate steps of management of CF.	Pediatrics	Cystic fibrosis
Re2-M-006	Identify psychological disturbances associated with respiratory diseases/COPD Enlist psychological consequences of COPD Describe steps to manage psychological effects of COPD	Behavioral Sciences	Psychological implications of COPD
Re2-M-007	Enlist the causes of ILD Describe the clinical features of interstitial lung diseases Outline investigation plan of interstitial lung diseases Describe the treatment of interstitial lung diseases	Medicine	Interstitial Lung Diseases

Re2-M-008	<p>Define pertussis.</p> <p>Describe clinical features of pertussis.</p> <p>Describe complications of pertussis.</p> <p>Interpret investigations for pertussis.</p> <p>Describe prognosis and prevention.</p>	Pediatrics	Pertussis
Re2-M-009	<p>Define Croup</p> <p>Describe etiology of croup.</p> <p>Describe clinical features of viral croup.</p> <p>Interpret investigations for viral croup.</p> <p>Discuss differential diagnosis of croup</p> <p>Describe management of viral croup.</p> <p>Describe clinical features of epiglottitis.</p> <p>Interpret investigations for epiglottitis.</p> <p>Describe management of epiglottitis.</p>	Pediatrics	Croup
Re2-M-010	<p>Comprehend the MoA of the asphyxiant poisons</p> <p>Diagnose a case when presented to him</p> <p>Plan management</p>	Forensic Medicine	Asphyxiants Poisons
Re2-M-011	<p>Classify pneumonia</p> <p>Enlist the microbiological agents causing pneumonia</p> <p>Describe the clinical features of pneumonia</p> <p>Enlist investigations plan in a patient of pneumonia</p> <p>Describe CURB-65 criteria for severity of pneumonia</p> <p>Describe the management of pneumonia</p> <p>Describe the complications of pneumonia</p>	Medicine	Pneumonia
Re2-M-012	<p>Define bronchiolitis and pneumonia.</p> <p>Enlist etiology of bronchiolitis and pneumonia.</p> <p>Describe clinical features of bronchiolitis/pneumonia.</p> <p>Interpret investigations for bronchiolitis/pneumonia.</p> <p>Describe management of bronchiolitis/pneumonia</p>	Pediatrics	Childhood Pneumonia
Re2-M-013	<p>Describe investigation plan of a patient with suspected tuberculosis</p> <p>Describe investigation plan of a patient with suspected tuberculosis</p> <p>Discuss primary and secondary tuberculosis</p>	Medicine	Pulmonary Tuberculosis

	<p>Correlate pathophysiology of pulmonary tuberculosis with its clinical presentation.</p> <p>Discuss clinical features of pulmonary tuberculosis.</p> <p>Interpret investigations for tuberculosis.</p> <p>Discuss management of pulmonary tuberculosis.</p> <p>Discuss prevention of tuberculosis.</p> <p>Drug resistant TB</p> <p>Discuss prevention of tuberculosis in a neonate of a mother suffering from tuberculosis.</p>		
Re2-M-014	<p>Describe the epidemiology prevalence and preventive measures of Tuberculosis</p> <p>Describe the epidemiology prevalence and preventive measures of Respiratory infections</p> <p>Describe the epidemiology &amp; Prevention of Pneumoconiosis</p> <p>Describe the epidemiology prevalence and preventive measures of Influenza, Diphtheria, whooping cough, meningococcal meningitis</p> <p>Discuss the efficacy of the BCG vaccine in different populations.</p>	Community Medicine	Preventive Measures
Re2-M-015	<p>Describe Clinical features of bronchogenic carcinoma</p> <p>Enlist investigations of bronchogenic carcinoma</p> <p>Enumerate treatment options in bronchogenic carcinoma</p> <p>Complications of CA</p>		Bronchogenic Carcinoma
Re2-M-016	<p>Define pleural effusion</p> <p>Differentiate between exudative and transudative pleural effusion</p> <p>Enlist causes of pleural effusion</p> <p>Describe Clinical features of pleural effusion</p> <p>Describe investigations in a patient with pleural effusion</p> <p>Describe palliative management of recurrent pleural effusion</p>	Medicine	Pleural Effusion
Re2-M-017	<p>Define pneumothorax</p> <p>Classify pneumothorax</p> <p>Enlist Risk factors of pneumothorax</p>		Pneumothorax

	Describe clinical features of pneumothorax Enlist investigations of pneumothorax Describe management of pneumothorax		
Re2-M-018	Define respiratory failure Classify types of respiratory failure Describe clinical features of respiratory failure Describe management of respiratory failure		Respiratory Failure
Re2-M-019	Define Etiology, clinical features, investigations, treatment of OSA	Medicine	Obstructive Sleep Apnea
Re2-M-020	Enumerate the lab investigations to diagnose Covid 19 Describe the Clinical presentation of Covid-19 Discuss the management protocols to treat Covid patient complications Discuss the vaccination and side effect (for COVID)	Medicine	COVID-19

## PRACTICAL / LAB WORK

### PATHOLOGY

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 16	
		DISCIPLINE	TOPIC
Re2-Pa-016	Describe the important morphological characteristics, biochemical reactions, virulence factors of Bordetella pertussis with their clinical Significance Describe pathogenesis of Bordetella pertussis infections Describe lab diagnosis of Bordetella pertussis infections.	Microbiology	Bordetella Pertussis
Re2-Pa-017	Describe the important morphological characteristics, biochemical reactions, virulence factors of Streptococcus pneumoniae with their clinical significance Enumerate the diseases caused by Streptococcus Pneumoniae Describe the pathogenesis of lobar Pneumonia caused by S. pneumonia Describe the lab investigation of Streptococcus Pneumoniae infections		Streptococcus Pneumoniae & H. Influenza

	<p>Describe the important morphological characteristics, biochemical reactions, virulence factors of H. influenzae with their clinical significance</p> <p>Describe the pathogenicity of H. influenzae in causation of respiratory tract infections</p> <p>Describe the lab diagnosis of H. influenzae infections</p>		
Re2-Pa-018	<p>Describe the important morphological characteristics, biochemical reactions, virulence factors of Mycoplasma pneumoniae</p> <p>Describe the pathogenesis of atypical pneumonia caused by M. pneumoniae</p> <p>Describe the lab diagnosis of M. pneumoniae infections</p>		Mycoplasma Pneumoniae
Re2-Pa-019	<p>Describe the important morphological characteristics, biochemical reactions, virulence factors of Legionella pneumophila</p> <p>Describe the pathogenesis of atypical pneumonia caused by Legionella pneumophila</p>		Legionella
Re2-Pa-020	<p>Define Chlamydia, enumerate their medically important species</p> <p>Enumerate the diseases caused by Chlamydia</p> <p>Describe the important morphological characteristics, biochemical reactions, virulence factors of Chlamydia and their clinical significance</p> <p>Describe the pathogenesis of C. trachomatis, C. pneumoniae, C. psittaci mediated atypical pneumonias</p> <p>Describe the lab diagnosis of Chlamydial infections</p>		Chlamydiae & Coxiella Laburnetii
Re2-Pa-021	<p>Describe the important morphological Characteristics, biochemical reactions, virulence factors of Bacillus anthracis with their clinical significance.</p> <p>Describe the lab diagnosis of Bacillus anthracis infections.</p>		Bacillus Anthracis
Re2-Pa-02	<p>Describe the important morphological characteristics, biochemical reactions, virulence factors of Yersinia pestis and their clinical significance</p> <p>Describe the pathogenesis of plague</p> <p>Describe the lab diagnosis of Yersinia pestis infections</p>		Yersinia Pestis

Re2-Pa-023	Describe the lab diagnosis of Pulmonary (ZN staining and cultures)		Mycobacterium Tuberculosis
<b>FORENSIC MEDICINE</b>			
<b>CODE</b>	<b>SPECIFIC LEARNING OUTCOMES</b>	<b>TOTAL HOURS = 05</b>	
		<b>DISCIPLINE</b>	<b>TOPIC</b>
Re2-For-001	<p>Define hanging</p> <p>Enlist types of hanging</p> <p>Enumerate causes of death in hanging</p> <p>Enlist autopsy findings in hanging.</p> <p>Define strangulation.</p> <p>Enlist its sub types</p> <p>Enlist autopsy findings in case of manual strangulation</p> <p>Enlist autopsy findings in case of ligature strangulation</p> <p>Differentiate between strangulation and hanging ligature mark</p>	Forensic Medicine	Hanging/ Strangulation
Re2-For-002	<p>Define suffocation</p> <p>Enumerate deaths which are caused due to suffocation.</p> <p>Define smothering</p> <p>Enlists autopsy findings in case of death due to smothering</p>		Suffocation, Smothering
Re2-For-003	<p>Define gagging</p> <p>Enlists autopsy findings in case of death due to gagging</p> <p>Define choking</p> <p>Enlists autopsy findings in case of death due to choking</p> <p>Define traumatic asphyxia</p> <p>Enlists autopsy findings in case of traumatic asphyxia</p> <p>Discuss medicolegal importance</p>		Gagging, Choking Traumatic Asphyxia and Autoerotic Asphyxia
Re2-For-004	<p>The student be able to:</p> <p>Enlist important Asphyxiant present in the environment</p> <p>Describe their Mechanism of action.</p> <p>Discuss effect on different body systems with increasing blood concentration</p> <p>Enlist sign and symptoms</p> <p>Enlist autopsy findings</p>		Asphyxiant poisons

	Describe their medico legal importance Comprehend the MoA of the Asphyxiant poisons, Diagnose a case when presented to him Plan management		
<b>PHARMACOLOGY</b>			
<b>CODE</b>	<b>SPECIFIC LEARNING OUTCOMES</b>	<b>TOTAL HOURS = 02</b>	
		<b>DISCIPLINE</b>	<b>TOPIC</b>
Re2-Ph-012	Write down the prescription for Tuberculosis Write down the prescription for Asthma Write down the prescription for Cough Discuss the steps involved in selection of P-drug for bronchial asthma	Clinical Pharmacology & Therapeutics	Prescription Writing
<b>COMMUNITY MEDICINE</b>			
<b>CODE</b>	<b>SPECIFIC LEARNING OUTCOMES</b>	<b>TOTAL HOURS = 02</b>	
		<b>DISCIPLINE</b>	<b>TOPIC</b>
Re2-CM-001	Describe the standard preventive precautions for all patients. Describe the additional precautions for infected patients & for patient requiring single isolated room. Describe the precautions for family members providing care to the patient in hospital & home. Describe the use of face mask, gloves, shoe cover, cap and gown. Recognize the common errors made while using personal protective equipment. Demonstrate the method to wear face mask, gloves, shoe cover, cap and gown & remove them aseptically.	Community Medicine	Isolation Precautions

## CLINICAL ROTATIONS / COMMUNITY HEALTHCARE

### MEDICINE & SURGERY

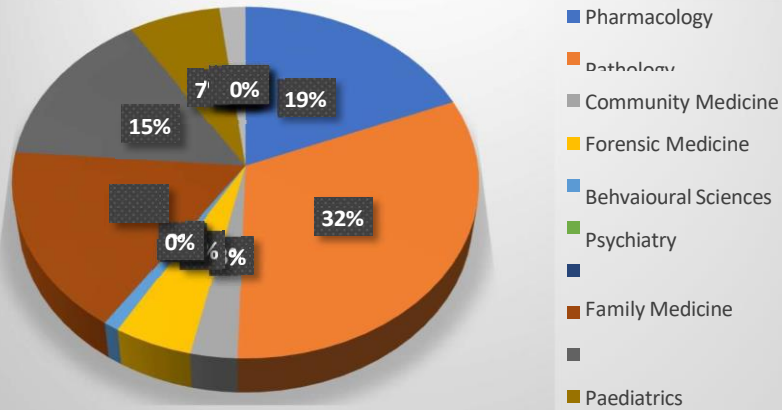
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 17	
		DISCIPLINE	TOPIC
Re2-M-021	Use of Devices for Inhaled Medication: Types of Inhalation Devices: Metered-dose inhalers >Explain to a patient how to use an inhaler correctly, including spacers, and check that their technique is correct.	Medicine (Pulmonology)	Instruct patients in the use of devices for inhaled medication
Re2-M-022	Indications for Oxygen Therapy Oxygen Delivery Methods Monitoring Oxygen Saturation > Prescribe and administer oxygen safely using a delivery method appropriate for the patient's needs and monitor and adjust oxygen as needed. Knows the exact volume given per Minute	Medicine (Pulmonology)	Prescribe and administer oxygen
Re2-M-023	Common Findings of Pneumothorax, pleural effusion, lung consolidation, fractures. > Students should be able to identify rib fractures, hemothorax, pneumothorax, free air under diaphragm, pelvic fractures	Radiology	Interpretation of x-rays of chest
Re2-M-024	Define Mantoux test Enumerate the indications and contraindications Describe the procedure and interpretation of results	Medicine (Pulmonology)	Tuberculosis Mantoux Test
Re2-S-009	Clinical Presentation, Management Strategies & Complications Students should be able to identify and differentiate between types of pneumothoraxes (primary, secondary, and tension pneumothorax) through clinical assessment and imaging techniques	Surgery (Thoracic)	Pneumothorax
Re2-S-010	Management & Complications	Surgery (Thoracic)	Pulmonary embolism

	>Should be able to perform risk assessments using validated scoring systems (e.g., Wells criteria) interpret imaging findings to differentiate pulmonary embolism from other respiratory conditions.		
Re2-S-011	ABCDE approach in trauma settings >Students should be able to assess and prioritize the management of thoracic trauma by identifying key injuries (such as pneumothorax, hemothorax, rib fractures, and flail chest)	Surgery (Thoracic)	Principles of management of trauma
Re2-S-012	Student should be able to demonstrate appropriate interventions (including airway management and fluid resuscitation)	Surgery (Thoracic)	Principles of management of trauma
Re2-S-013	Students should be able to identify the anatomical landmarks of the pediatric patient for pleural tap 2) perform the pleural tap procedure on simulation in skill lab 3) Counsel the attendants for the indication, procedure, and contraindication of the pleural tap.	Paeds (Thoracic)	Pleural Tap

## **MODULE NO. 22:**

### **Community Medicine & Family Health-I**

## Respiratory System-II



Module Weeks	Recommended Minimum Hours
<b>03</b>	<b>101</b>



## **MODULE NO. 22:**

### **Community Medicine & Family Health-I**

## MODULE RATIONALE

The module on Community Medicine and Family Medicine is crucial for addressing the learning needs of medical students about holistic concept of health, prevalent health problems, their determinants and provision of comprehensive healthcare to the communities.

Curriculum on Community Medicine and family medicine equips future healthcare professionals with the knowledge, skills and attitude to implement preventive strategies, health promotion & reduce the burden of disease through primary health care approach targeting universal health coverage. Health outcomes are influenced by social, economic & environmental factors. It helps students understand the broader determinants of health & how to address health disparities. Public health crises such as pandemics, natural disasters & environmental hazards require professionals trained in community-based responses & health emergencies and reaching at door step through provision of family health services. Healthcare professionals must be equipped to engage in provision of health care needs at smaller scale and building health policy at local, national and global levels to improve public health outcomes.

## MODULE OUTCOMES

- To apply principles of epidemiological study designs in research methodology to establish association and causations
- To apply principles of community diagnosis, screening in general population and high-risk population
- To apply the concept of environmental safety and global environmental concerns including air, water, waste disposal, radiation, noise and climate change
- To apply principles of infectious disease epidemiology in classification, prevention and control of communicable diseases
- To apply different types of surveillance in disease control, elimination and eradication
- To understand the concept of herd immunity and role of immunizing agents in disease prevention and control
- To demonstrate the difference between health education and propaganda, application of different health education, communication, information in different settings using different techniques and approaches
- To apply principles of primary health care targeting universal health care coverage through family medicine.
- To demonstrate comprehensive health care services as a concept of One Health which is attainable and achievable.

## **SUBJECTS INTEGRATED IN THE MODULE**

1. Community Medicine
2. Family Health

## 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 first professional examination. The same table of specifications should be used for the respective three block exams for internal assessment.



**SYLLABUS**

# THEORY

## COMMUNITY MEDICINE

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 44	
		DISCIPLINE	TOPIC
CMFH1-CM-001	To understand the development of Public Health in Pakistan.	Community Medicine	Health Systems in Pakistan
	To describe the Health Policy and planning in Pakistan.		
	To explain the background, concepts and progress made towards achieving "Health for all",		
	To understand the concepts and assess the progress of "Primary Health Care"		
	To describe the National Disease Control programs including policies, strategies and operations.		
	To analyze the roles Federal and Provincial Governments in managing Healthcare services in Pakistan		
	To understand The District Health System, in the context of devolution. The Physician as a manager: Functions of manager management of material, human and financial resources.		
	To understand key principles of leadership and motivation in healthcare settings		
	To describe the collaboration between the public and private sectors in health care		
	To evaluate the role of Non-governmental Organizations and International Agencies.		
	To analyze the resources available for health.		
To understand the importance of community mobilization			
CMFH1-CM-002	To understand the background, concepts, uses and basic measurements of epidemiology (morbidity, mortality, disability and fatality)	Community Medicine	General Epidemiology and
	To describe the different epidemiological methods including descriptive, analytic and experimental approaches		

	To differentiate between association and causation		Research Methodology and Screening
	Investigation of an outbreak or an epidemic.		
	To understand the principles and methods of disease screening		
	To conduct a community diagnosis and interpret its findings		
	To describe research and survey methodologies		
CMFH1- CM-003	To understand the composition of air	Community Medicine	Environment al Health Sciences
	To describe the causes of air pollution and methods of air purification		
	To explain the diseases caused by impurities in the air and their prevention		
	To identify the sources of water and understand daily water requirements		
	To analyze the causes of water pollution and methods for its prevention		
	To understand the process of water purification and water quality standards		
	To describe diseases caused by polluted water and their prevention		
	To explain the contents, hazards, and safety measures for the disposal of solid and liquid waste from domestic, industrial, and hospital sources and To understand global and marine problems related to waste disposal		
	To differentiate between climate and weather		
	To analyze global environmental concerns like greenhouse effect, depletion of Ozone layer and acid rains		
	To explain the effects of extremes in temperature, humidity, and atmospheric pressure on human health, along with prevention methods		
	To describe the sources, types, causes, hazards, and prevention of radiation exposure		

	To understand the concepts of healthful housing and the challenges faced in urban and rural slums		
	To define noise, its causes, acceptable levels, and the hazards and methods of control		
CMFH1- CM-004	Definitions to differentiate between Infection, contamination, pollution, infestation		Prevention and control of Infectious diseases
	To understand the terminology of Infectious disease, communicable disease, contagious disease		
	To define Host, Immune and susceptible persons		
	To differentiate between Sporadic, Endemic, Epidemic, Pandemic, Epizootic, Exotic and Zoonotic		
	To understand the roles of contact, fomites, carriers, insect vectors, and reservoirs of infection		
	To describe the incubation period, infective period, and generation time		
	To differentiate between cross infection, nosocomial infections, opportunistic infections, and iatrogenic disorders (Physician induced)		
	To explain the concepts of surveillance, control, eradication, and elimination		
	To analyze the various modes of disease transmission		
	To understand the principles of disease prevention and control		
	To describe the methods and types of disinfection		
	To explain the concept of immunity		
	To identify different immunizing agents		
CMFH1- CM-005	Describe the concepts aims and approaches of IEC and approaches used in public health (Knowledge)	Community Medicine	Communication, information and health education
	Recall the contents, principles and stages of health education (Knowledge)		
	Explain the process, types, methods and barriers of communication		
	Identify the role of health care provider in health education (knowledge)		

	Plan, organize and evaluate a health education program (skill)		
	Describe the concept of social marketing and its' applications in health sector (knowledge and skill)		
	Conduct health education sessions		
CMFH1- CM-006	Developing new models for patient care, such as telemedicine, personalized medicine, and digital health tools.	Community Medicine	Clinical entrepreneur ship
	Focusing on improving patient outcomes and experiences through technology, services, or products that cater to specific needs		
	Working with professionals from various fields—technology, business, and healthcare—to foster innovation and create comprehensive solutions.		
	Identifying gaps in the market and understanding patient and provider needs to create viable business models.		
	Designing solutions that can grow and adapt over time while maintaining quality and efficiency.		
	Securing funding through grants, venture capital, or partnerships to support the development and launch of new products or services.		
	Utilizing advancements in technology, such as AI, big data, and wearables, to enhance clinical practice and patient management targeting ethical and social responsibility		

### FAMILY MEDICINE

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 15	
		DISCIPLINE	TOPIC
CMFH1- FM-001	Understand and describe the impact of social, demographic, cultural, environmental, and climate factors on health and disease.	Community Medicine	Epidemiology
CMFH1- FM-002	Describe principles of prevention and control and apply them to common/prevalent diseases		Health promotion

CMFH1-FM-003	Describe the role, purpose, and method of counseling and patient education		Counselling and advocacy
CMFH1-FM-004	Discuss breaking bad news and effective communication strategies and their role in violence de-escalation and management.		Communication skills
CMFH1-FM-005	Understand the history and evolution of general practice as a medical specialty and the structure and organization of general practice at national and international levels.	Medicine, surgery	Scope of GP practice
CMFH1-FM-006	Describe health literacy and shared decision-making concepts.	Community Medicine	Concept of health & disease
	Discuss evidence-based clinical decision-making.		
	Describe different healthcare models and the concept of universal health coverage.		
CMFH1-FM-007	Define and apply ethical practices in clinical decision-making within family medicine	Community Medicine	Epidemiology of diseases
	Discuss the general practitioner's role in coordinating patient care, including treatment plans, educating patients, and ensuring continuous care.		
	Discuss the principles of patient-centered care, focusing on the individual's needs and preferences.		
CMFH1-FM-008	Discuss the importance of quality care across preventive, therapeutic, rehabilitative, and palliative domains of healthcare.	Community Medicine	Preventive medicine
	Learn how to effectively utilize available healthcare resources to optimize patient care.		
CMFH1-FM-009	Implement strategies to reduce risk in clinical practice and ensure patient safety being a safe doctor	Medicine & surgery	Patient Safety
<b>PRACTICAL / LAB WORK</b>			
<b>COMMUNITY MEDICINE</b>			
<b>CODE</b>	<b>SPECIFIC LEARNING OUTCOMES</b>	<b>TOTAL HOURS = 10</b>	
		<b>DISCIPLINE</b>	<b>TOPIC</b>
CMFH1-CM-007	To assess the application of standards and KPIs in hospital lab settings and Blood banks	Pathology	MSDS Standards

To assess the application of standards and Quality assurance indicators for imaging services	Radiology
To assess the application of standards and Quality assurance indicators for emergency services	Emergency and traumatology
To assess the application of standards and Quality assurance indicators for high-risk obstetrical services	Gynae & Obs
To assess the application of standards and Quality assurance indicators for anesthetic services	Anaesthesia
To assess the application of standards and Quality assurance indicators for surgical procedures	Surgery and Allied
To assess the application of standards and Quality assurance indicators for prescription and dispensing and administration of the drugs	Working Pharmacies
To assess the application of standards and Quality assurance indicators for patients' rights and education	Medical and Surgical OPDS
To collect data and transform into a report with recommendations	Community Medicine

### FAMILY HEALTH

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 10	
CMFH1-FM-010	<p>Conduct patient history and physical exams.</p> <p>Identify common conditions and refer when necessary.</p> <p>Develop patient-centered management plans.</p>	General OPD	<p>History taking and physical examination. Diagnosis of acute and chronic conditions. Patient education on lifestyle and disease management. Recognizing red flags and making appropriate referrals.</p>
CMFH1-FM-011	Symptomatic Approach to Adults with nutritional supplements	Clinical pharmacology	Fever, Body aches and Pain, Flulike symptoms,

			Cough (Dry & Productive), Muscles Pain, Joint Pains, Diarrhea, Dysentery, Abdominal Cramps and Allergic Reactions
CMFH1-FM-012	Symptomatic Approach to pregnant female with nutritional supplements	Gynae & Obs.	Fever, Body aches and Pain, Flulike symptoms, Cough (Dry & Productive), Muscles Pain, Joint Pains, Diarrhea, Dysentery, Abdominal Cramps and Allergic Reactions
CMFH1-FM-013	Symptomatic Approach to children with nutritional supplements	Clinical pharmacology	Fever, Body aches and Pain, Flulike symptoms, Cough (Dry & Productive), Diarrhea (Role of ORS / Homemade), dysentery, Abdominal Cramps and Allergic Reactions
CMFH1-FM-014	Engage in community health promotion and disease prevention. Participate in health screening, vaccination drives, and education.	Community Health Center Rotation	Conduct health education sessions and screening programs Participate in vaccination drives and

community outreach activities. Identify health needs in the community and implement preventive strategies.

**CLINICAL ROTATIONS / COMMUNITY HEALTHCARE**

**COMMUNITY MEDICINE**

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 36	
		DISCIPLINE	TOPIC
CMFH1-CM-008	<p>Assess the appropriateness of location of a water purifying facility.</p> <p>Elaborate the process of delivering and transporting water to a water treatment plant.</p> <p>Differentiate the critical aspects of water supply from various sources.</p> <p>Identify the physical and chemical characteristics of the water.</p> <p>Determine the characteristics of the ingredients contained in water purification plants.</p> <p>Characterize infectious organisms and indicators.</p> <p>Explain how chemical compounds affect human health.</p> <p>Discuss the physical, chemical, and biological unit operations that are commonly encountered in treatment processes;</p> <p>Determine which rules, regulations, and guidelines govern the selection of various water treatment processes at the local, national, and international levels.</p> <p>Highlight the requirement for surface water and some ground water treatment for drinking reasons.</p> <p>Comprehend the role of each treatment procedure in the treatment of drinking water.</p>	Community Medicine	Water purification plant/Water testing lab

	<p>Provide a fundamental overview of technology selection.</p> <p>Evaluate the working of water treatment plants.</p>		
CMFH1-CM-009	<p>Identify working biomedical waste department</p> <p>Describe various type of biomedical waste &amp; their disposal in hospital</p> <p>Explain with rationale about the waste management plan of their hospital</p> <p>Describe color coding scheme for various type of waste according to WHO</p> <p>Describe the various methods to dispose of waste, their advantages and disadvantages.</p> <p>Describe non risk waste</p> <p>Describe risk waste</p> <p>Describe incineration working and cost analysis</p> <p>Describe storage site of waste at hospital</p>	Community Medicine	Visit to hospital waste management
CMFH1-CM-010	<p>Describe the various physical, emotional and cognitive disabilities experienced by people who receive rehabilitation services and understand their functional limitations.</p> <p>Explain the medical &amp; psychosocial impact of disabilities.</p> <p>Explain the impact of society's attitudes towards disabilities on the treatment of people with disabilities</p> <p>Critically evaluate the effect of physical, mental, gender, racial, cultural, and environmental factors on the lives of people with disabilities.</p> <p>Develop interaction skills to accommodate cultural sensitivity when working with consumers &amp; their families.</p> <p>Explain the local context to familiarize the wide variety of generic and specialized community resources available to serve people with disabilities.</p> <p>Describe the major services provided in rehabilitation (e.g., rehabilitation counseling, vocational evaluation, adjustment services, job placement, physical restoration, environmental adaptations).</p>	Community Medicine	Visit to Rehabilitation center

	<p>Explain the role of the rehabilitation case manager in coordinating services for people with disabilities.</p> <p>Explain the local, state, and federal laws that affect rehabilitation services and the rights of people with disabilities.</p> <p>Explain the importance of advocacy (including self-advocacy) in the field of rehabilitation</p> <p>Discuss awareness and imparting skills to empower consumers to be active participants in their own rehabilitation plan.</p> <p>Critically appraise the ethical guidelines based on principles that encompass the rehabilitation field.</p> <p>Develop the verbal, written, and nonverbal communication skills necessary to work with people with disabilities, their families, and other service providers.</p> <p>Develop basic rehabilitation service delivery skills</p> <p>Describe the rehabilitation process and techniques used to evaluate eligibility for services, assess consumers to identify employment and independent living options, develop appropriate treatment plans, and provide follow-up</p> <p>Explain the similarities and differences among public, private not-for-profit, and private-for-profit rehabilitation practice.</p> <p>Discuss the community-based employment options for individuals with disabilities</p> <p>Recognize the social, political, economic, and legal issues pertinent to an aging society and rehabilitation</p> <p>Develop the knowledge and skills pertinent to the procedures and programs provided to persons with developmental disabilities.</p> <p>Develop the knowledge and skills pertinent to the procedures and programs provided to persons with psychiatric disabilities.</p>		
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	<p>Develop the knowledge and skills to train, supervise, and evaluate employees who are providing direct care to consumers.</p> <p>Discuss the professional organizations, professional journals, and job opportunities in the field of rehabilitation.</p> <p>Discuss the integration of the biological, physical, behavioral, and clinical sciences into physical therapy services</p> <p>Exhibit professional conduct and behaviors that are consistent with the legal and ethical practice of physical therapy.</p> <p>Demonstrate compassion, care, integrity, and respect for differences, values, and preferences in all interactions with patients/clients, family members, health care providers, students, other consumers, and payers.</p> <p>Screen patients/clients to determine if they are candidates for physical therapy services or if a referral to, or consultation with, another health care professional or agency is warranted.</p> <p>Complete a patient/client examination/re-examination and evaluate and interpret the examination data to determine a physical therapy diagnosis and prognosis</p> <p>Employ critical thinking, self-reflection, and evidence-based practice to make clinical decisions about physical therapy services.</p> <p>Collaborate with patients/clients, caregivers, and other health care providers to develop and implement an evidence-based plan of care that coordinates human and financial resources.</p> <p>Critically appraise the services and information related to health promotion, fitness, wellness, health risks, and disease prevention within the scope of physical therapy practices and rehabilitation</p>		
CMFH1-CM-011	Apply 5 levels of prevention for diseases of public health importance.	Community Medicine	Visit to BHU & RHCs

	Design and implement community-based Health education and promotion projects. Collect, organize, analyze, interpret and disseminate data of disease burden in community and present report		
CMFH1- CM-012	House hold survey of 10 houses. Data collection and report writing	Community Medicine	Acquired community in vicinity of Medical College

# MODULE-23

## Forensic Medicine & Toxicology-III

THEORY

LAW

MODULE COMMITTEE

# INSTRUCTIONAL STRATEGIES

Delivery of a curriculum also needs a diversity of educational vernacular for the different learning styles. Following are a few of the recommended instructional strategies. It is advised that at least **three different methods of instructions** should be adopted in the institutional planning. This will enable the diversity of learning patterns to be facilitated.

## Large Group Interactive Session (LGIS)

Lecture format is the most widely used approach to teaching especially in a large class size with average attention span of 20-30 mins. Interactive lecturing involves a two-way interaction between the presenter and the participants. Interactive methods like brainstorming, buzz group, simulation, role play, and clinical cases can be used.

### Significance of its usage

- Relaxed environment, diverse opinions, active involvement
- Increase attention and motivation.
- Independence and group skills.
- Cost effective.
- Suitable for taking advantage of available audiovisual technologies.

## Team based learning (TBL)

TBL is a uniquely powerful form of small group learning. It provides a complete coherent framework for building a flipped course experience. There are four essential elements of TBL which include:

- Teams must be properly formed and managed (5-7 students)
- Getting students ready
- Applying course concepts
- Making students accountable

### Significance of its usage

- Students are more engaged.
- Increased excitement in TBL classroom
- Teams outperforms best members.
- Students perform better in final and standardized exams.

## Problem based learning (PBL)

It is an instructional student-centered approach in which students work in small groups on a health problem, identifying their own educational needs and being responsible for the acquisition of the knowledge required to understand the scenario.

### Significance of its usage

- Teamwork
- Critical evaluation of literature
- Self-directed learning and use of resources
- Presentation skills
- Leadership
- Respect for colleagues' views

## Case based learning (CBL)

It is an inquiry structured learning experience utilizing live or simulated patient cases to solve, or examine a clinical problem, with the guidance of a teacher and stated learning objectives.

### Significance of its usage

- Induce a deeper level of learning by inculcating critical thinking skills.
- Flexibility on use of case
- Helps students acquire insightful information.
- Stay abreast with novel advancements in healthcare

## Tutorials

Tutorial is a class or short series of classes, in which one or more instructors provides intensive instruction on some subject to a small group. Its purpose is to explore students' point of view, allowing time for discussion, and inculcating self-directed, reflective learning skills.

### Significance of its usage

- Develop and assess the extent of background knowledge of students, which enables them to properly understand concepts which may not have been understood in lectures.
- Develop problem-solving skills.
- Develop practice of self-learning.
- Reduced time to understand the topic.

## Reflective Writing

It is a metacognitive process that occurs before, during and after the situation with the purpose of developing greater understanding of both the self and situation so that future encounters with the situation are informed from previous encounters.

### Significance of its usage

- Questioning attitude and new perspectives.
- Areas for change and improvement.
- Respond effectively to new challenges.
- Critical thinking and coping skills

## Bedside Teaching

Teaching and learning that occurs with actual patient as the focus. It occurs in wards, emergency departments, operating rooms, and high dependency units.

### Significance of its usage

- Stimulus of clinical contact
- Psychomotor skills
- Communication skills
- Language skills
- Interpersonal skills
- Professional attitudes and empathy
- Role modelling

## Simulation

Person, device or set of conditions, which attempts to present education and evaluation of problems authentically. The student or trainee is required to respond to the problems as s/he would under natural circumstances.

### Significance of its usage

- Safety for patients
- Liberty to make mistakes.
- Manageable/variable complexity of tasks
- Opportunity to develop self-efficacy before real patient encounter.
- Repeatability of tasks
- Learning at different pace is permissible

## Skill laboratories

It refers to specifically equipped practice rooms functioning as training facilities offering hands on training for the practice of clinical skills within non-threatening environment prior to their real-life application This applies to both basic clinical skills as well as complex surgical skills.

### Significance of its usage

- Controlled, anxiety-free, and risk-free learning environment to students.
- A platform for repeated practice for mastery in relevant clinical skills
- Increase the preparedness of student learners before transitioning to the real hospital setting.
- Build strong communication skills.
- Enable learners to make critical decisions.

## Clinical Case based Conference

Clinical Case based conferences allow clinicians and medical students to present difficult case material and include discussions of diagnostic, clinical formulation, and/or treatment issues.

### Significance of its usage

- Provides detailed (rich qualitative) information.
- Provides insight for further research.
- Permitting investigation of otherwise impractical (or unethical) situations.

## Laboratory Practical

Lab practical involve things like identifying a structure, a type of stain through a microscope, a problem with a preparation, reading biochemical test results and answering safety questions. These simulations allow students to attempt the experiments in the laboratory in a risk-free way that provides the opportunity to make mistakes and learn how to correct them using the immediate feedback generated.

### Significance of its usage

- Enhance mastery of subject matter.
- Develop scientific reasoning.
- Develop practical skills.
- Develop teamwork abilities.

## Ward Rounds

It is a composite clinical practice to review inpatients' management and progress, to make decisions about further investigations, treatment options and discharge from hospital. It is an opportunity for clinicians, students, and patients to participate in education and training at bedside.

### **Significance of its usage**

- Patient management skills
- History taking
- Physical examination
- Time management skills
- Communication skills

## Demonstrations

The demonstration method in teaching can be defined as giving a demo or performing a specific activity or concept. It is a teaching-learning process carried out in a very systematic manner.

### **Significance of its usage**

- Promotes learning and correlates theory with practice.
- Sharpens the observation skills.
- Sustain interests in learning environment.
- Helps teacher to evaluate students' response

## Case Presentations

It is a teaching method which provides descriptive information about a clinical patient scenario and to share this educational experience with the general medical and scientific community. It prepares students for clinical practice, using authentic clinical cases by linking theory to practice with the help of inquiry-based learning methods.

### **Significance of its usage**

- Cultivate the capacity for critical analysis.
- Judgement and Decision making
- Facilitate creative problem solving.
- Allow students to develop realistic solutions to complex problems

# Assessment Policy

## Statutes

1. The third Professional MBBS Examination shall be held at the end of the third year.
2. Every candidate shall be required to study contents of Anatomy (including Histology), Physiology, Biochemistry, Behavioural Sciences, Community Medicine & Public Health, Pathology including microbiology, Pharmacology & Therapeutics, Ophthalmology, Otorhinolaryngology, Surgery, Medicine, Clinical skills and Professionalism, Ethics, Research and Leadership. The teaching and assessment shall be done in three modular blocks.
3. There will be three papers in the third professional examination:

### Third Professional Exam:

- a. Paper 1 will be based on contents of Block 7;
  - b. Paper 2 will be based on contents of Block 8;
  - c. Paper 3 will be based on contents of Block 9;
4. Each paper will comprise of two components "Written" and "Oral/Practical/Clinical" examinations.
  5. The Written and 'Oral/Practical/Clinical' examination in each paper will carry 175 marks each, making the total marks of 350 for each of the papers 7,8, and 9 (inclusive of Internal Assessment).
  6. Total marks for the Third Professional Examinations shall be 1050.
  7. Major content areas of the third professional years shall be from:
    - a. Pharmacology including applied/clinical Pharmacology;
    - b. Pathology including microbiology;
    - c. Community Medicine and Public Health
    - d. Forensic Medicine.
  8. The Applied/Clinical content shall be based on clinical correlations.
  9. Integrated clinical content areas include General Medicine, General Surgery, Community Medicine & Public Health, Pathology, Pharmacology & Therapeutics, Clinical Rotations (C-FRC- III), PERLs- III, Expository writing and IT.

### Written Examination

- a. The written component of Papers 7, 8, and 9 will consist of 'One-best-type' Multiple Choice Questions (MCQ) and Structured Essay Questions (SEQ) in a ratio of 65:35 %.
- b. Each MCQ will have five options (one best response and four distractors) and will carry one (01) mark.
- c. There will be no negative marking.
- d. Each SEQ will be a structured question with five (05) marks each.
- e. SEQ's will only be based on the major content areas of the year.

- f. There will be total of 90 MCQs and 10 SEQs in every written paper in Papers 7, 8, and 9.
- g. The duration of each written paper will be 190 minutes (03 hours and 10 minutes).
- h. The section 'B' of the MCQs and the section 'B' of the SEQs must be passed independently also to be declared as 'pass' in the theory exam.
- i. The MCQ section will be 90 minutes duration and the SEQ section of 100 minutes.

### Oral/Practical/Clinical Examination

- j. The 'Oral/Practical/Clinical' component of each Papers 7, 8, and 9 will consist of a total of fifteen (15) OSPE/OSCE/OSVE stations in each 'Oral/Practical/Clinical' examination.
- k. There will be eleven (11) Observed OSPE/OSCE (Objective Structured Practical Examination Objective Structured Clinical Examination) stations from major subject areas. Each OSPE/OSCE station will have the practical component and an evaluation of the underlying principle relevant to that practical with a component of applied knowledge.
- l. There will be one (01) Observed OSCE (Objective Structured Clinical Examination) station, based on PERLs-3 & Expository-3 in each 'Oral/Practical/Clinical' examination.
- m. There will be three (03) Observed interactive OSVE (Objective Structured Viva Examination) from major subject areas. Each OSVE station will have a structured viva, to assess a practical component along with evaluation of the underlying principle relevant to that practical with a component of applied/practical knowledge and related clinical application.
- n. OSPE/OSCE station from the major subject areas will carry eight (08) marks.
- o. The OSCE station of PERLs-3 & Expository-3 will carry ten (10) marks.
- p. Each OSVE station will carry fourteen (14) marks
- q. The duration of each "Oral/Practical/Clinical" examination will be 120 minutes (2 hours).
- r. Time for each OSPE, OSCE and OSVE station will be eight (08) minutes.

10. Every candidate shall take the examination in the following Blocks (Modules) in the third Professional MBBS Examinations: -

YEAR-3		
		Marks
A.	<b>Block 7</b> (Foundation-II + Hematopoietic, Immunity & Implant + General Pharmacology + Forensic Medicine & Toxicology-I)	350
B.	<b>Block 8</b> (Musculoskeletal & Locomotion-II + Infectious Diseases + Neoplasia + Forensic Medicine & Toxicology - II)	350
C.	<b>Block 9</b> (Cardiovascular-II + Respiratory II + Community Medicine & Public Health + Family Medicine I + Forensic Medicine & Toxicology - III)	350
	<b>Total</b>	1050

**A. Block 7 (Foundation-II + Hematopoietic, Immunity & Implant + General Pharmacology + Forensic Medicine-I)**

The examination in Block 7 shall be as follows: -

- I. One written paper of 140 marks having two parts:
  - i. Part I shall have ninety Multiple Choice Questions (MCQs) of total 90 marks (01 mark for each MCQ) and the time allotted shall be 90 minutes. There will be no negative marking.
  - ii. Part II shall have ten Structured Essay Questions (SEQs) of total 50 marks (05 marks for each SEQ) and the time allotted shall be 110 minutes.
- II. "Oral/Practical/Clinical" examination shall have 140 marks in total.
- III. The continuous internal assessment through 'Block Examination' and other parameters specified, conducted by the college of enrollment shall carry 70 marks, i.e., 20% of the total allocated marks (350) for the block. The score will be equally distributed to the Written and 'Oral/Practical/Clinical' Examinations.

**B. Block 8 (Musculoskeletal & Locomotion--II + Infectious Diseases + Neoplasia + Forensic Medicine - II)**

The examination in Block 8 shall be as follows: -

- I. One written paper of 140 marks having two parts:
  - iii. Part I shall have ninety Multiple Choice Questions (MCQs) of total 90 marks (01 mark for each MCQ) and the time allotted shall be 90 minutes. There will be no negative marking.
  - iv. Part II shall have ten Structured Essay Questions (SEQs) of total 50 marks (05 marks for each SEQ) and the time allotted shall be 110 minutes.
- II. "Oral/Practical/Clinical" examination shall have 140 marks in total.
- III. The continuous internal assessment through 'Block Examination' and other parameters specified, conducted by the college of enrollment shall carry 70 marks, i.e., 20% of the total allocated marks (350) for the block. The score will be equally distributed to the "Written" and "Oral/Practical/Clinical" Examinations.

**C. Block 9 (Cardiovascular -II + Respiratory II + Community Medicine & Public Health + Family Medicine I + Forensic Medicine - II)**

The examination in Block 9 shall be as follows: -

- I. One written paper of 140 marks having two parts:
  - v. Part I shall have ninety Multiple Choice Questions (MCQs) of total 90 marks (01 mark for each MCQ) and the time allotted shall be 90 minutes. There will be no negative marking.
  - vi. Part II shall have ten Structured Essay Questions (SEQs) of total 50 marks (05 marks for each SEQ) and the time allotted shall be 110 minutes.
- II. "Oral/Practical/Clinical" examination shall have 140 marks in total.
- III. The continuous internal assessment through 'Block Examination' and other parameters specified, conducted by the college of enrollment shall carry 70 marks, i.e., 20% of the total allocated marks (350) for the block. The score will be equally distributed to the "Written" and "Oral/Practical/Clinical" Examinations.



11. The marks distribution in each subject is given in Table 1:

**Table 1**

<b>YEAR-3</b>						
<b>Subject</b>	<b>Theory</b>		<b>Practical</b>			<b>Total</b>
<b>BLOCK 7</b> <b>Modules</b> (Foundation-II + Hematopoietic, Immunity & Implant + General & Clinical Pharmacology + Forensic Medicine & Toxicology-I)	Part I MCQs (90)	90 Marks	Practical /Clinical Examination	11 OSPE 01 OSCE 03 OSVE	Marks 88 10 42	<b>350</b>
	Part II SEQs (10)	50 Marks				
	Internal Assessment 10%	35 Marks	Internal Assessment 10%	35 Marks		
	Total	<b>175</b>	Total	<b>175</b>		
<b>BLOCK 8</b> <b>Modules</b> (Neoplasia + Infectious Diseases + Musculoskeletal & Locomotion-II + Forensic Medicine & Toxicology- II)	Part I MCQs (90)	90 Marks	Practical /Clinical Examination	11 OSPE 01 OSCE 03 OSVE	Marks 88 10 42	<b>350</b>
	Part II SEQs (10)	50 Marks				
	Internal Assessment 10%	35 Marks	Internal Assessment 10%	35 Marks		
	Total	<b>175</b>	Total	<b>175</b>		
<b>BLOCK 9</b> <b>Modules</b> (Cardiovascular -II + Respiratory II + Community Medicine & Public Health + Family Medicine I + Forensic Medicine & Toxicology- III)	Part I MCQs (90)	90 Marks	Practical /Clinical Examination	11 OSPE 01 OSCE 03 OSVE	Marks 88 10 42	<b>350</b>
	Part II SEQs (10)	50 Marks				
	Internal Assessment 10%	35 Marks	Internal Assessment 10%	35 Marks		
	Total	<b>175</b>	Total	<b>175</b>		
<b>Total Marks:</b>						<b>1050</b>

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14. No grace marks shall be allowed in any examination or practical under any guise or name.

15. At least 50% MCQs & 50% SEQs shall be based on applied/clinical/case scenario to assess high order thinking in the papers set for the students of Third Professional MBBS Examinations.

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## Internal Assessment (Theory)

Sr #	Scoring Parameter	Marks out of 20%	Marks distribution
1	Attendance in Lectures	85-90%=1%, > 90%=2%	85-90%= <b>01</b> mark > 90%= <b>02</b> marks
		Remedial classes – re-sit examination allowed only after case endorsed and submitted by the college <b>Principal</b> and approval given by the <b>Competent Authority</b> . However, no marks given	
		Remedial classes – re-sit exam allowed only in genuine cases after approval from <b>Competent Authority</b> . However, no marks given	
2	Block Examination	15%	<b>27</b>
3	Continuous Internal Assessment/Class Quiz/Class participation/ Professional Behaviour/ Ethical practices/ Leadership traits/ Module Exam Discipline/Punctuality	3%	<b>06</b>

## Internal Assessment (Practical & Behavioral)

Sr #	Scoring Parameter	Marks out of 20%	Marks distribution
1	Attendance in Practicals & Rotations	85-90%=1%, > 90%=2%	85-90%= <b>01</b> mark > 90%= <b>02</b> marks
		Remedial classes – re-sit examination allowed only after case endorsed and submitted by the college <b>Principal</b> and approval given by the <b>Competent Authority</b> . However, no marks given	
		Remedial classes – re-sit exam allowed only in genuine cases after approval from <b>Competent Authority</b> . However, no marks given	
2	Block Examination (OSPE/OSCE/OSVE)	13%	<b>23</b>
3	CFRC Log Book / PERLs Portfolio	02%	<b>06</b>
4	Ward / Clinical / Bedside assessment based on the clinical rotation / DOPS	02%	<b>04</b>

# MBBS 3<sup>rd</sup> Professional

## Block-7

Subject	Written Exam			Oral/Practical/Clinical Exam			
	MCQ (1 mark)	SEQ (5 mark each)	Marks	OSPE /OSCE (8 marks each observed)	OSCE (10 marks each observed)	OSVE (14 marks each observed)	Marks
Pharmacology	30	05	55	03	-	01	38
Pathology	30	04	50	03	-	01	38
Family Medicine	-	-	-	-	-	-	-
Community Medicine	02	-	02	01	-	-	08
Surgery	05	-	05	01	-	-	08
Medicine	05	-	05	01	-	-	08
Forensic	13	01	18	01	-	01	22
Behavioral	02	-	02	-	-	-	-
Patient Safety	03	-	03	-	-	-	-
CFRC	-	-	-	01	-	-	08
PERLs + Expository	-	-	-	-	01	-	10
<b>Total</b>	<b>90</b>	<b>10x5=50</b>	<b>140</b>	<b>11 stations x 08 = 88</b>	<b>01 stations x 10 = 10</b>	<b>03 stations x 14=42</b>	<b>140</b>

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## Block-9

Subject	Written Exam			Oral/Practical/Clinical Exam			
	MCQ (1 mark)	SEQ (5 mark each)	Marks	OSPE /OSCE (8 marks each observed)	OSCE (10 marks each observed)	OSVE (14 marks each observed)	Marks
Pharmacology	09	02	19	02	-	01	30
Pathology	12	02	22	02	-	-	16
Family Medicine	05	-	05	-	-	-	-
Community Medicine	27	03	42	03	-	01	38
Surgery	10	01	15	-	-	-	-
Medicine	10	01	15	01	-	-	08
Forensic	15	01	20	02	-	01	30
Behavioral	02	-	02	-	-	-	-
Patient Safety	-	-	-	-	-	-	-
CFRC	-	-	-	01	-	-	08
PERLs + Expository	-	-	-	-	01	-	10
<b>Total</b>	<b>90</b>	<b>10x5=50</b>	<b>140</b>	<b>11 stations x 08 = 88</b>	<b>01 stations x 10 = 10</b>	<b>03 stations x 14=42</b>	<b>140</b>

*Handwritten notes and signatures in blue ink, including a large 'Q' and various initials.*



# LIST OF RESOURCES

## **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.

