AYUB MEDICAL COLLEGE ABBOTTABAD

DEPARTMENT OF MEDICAL EDUCATION

Musculoskeletal Module II

3RD YEAR MBBS

BLOCK: H

DURATION: 5 WEEKS

FROM: 2023

STUDENT NAME

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DISCLAIMER

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

Contents

1 Module Committee:

s.no	Name	Department	Role
1.	Prof. Dr. Umar Farooq	CEO & Dean	
2.	Prof. Dr. Irfan U. Khattak	Director DME	
Module Team			
3.	Prof. Haq Nawaz	Pharmacology	Block Coordinator
4.	Dr. Saima Bukhari	Pharmacology	Module Coordinator
5.	Miss Ayesha salim	Psychiatry	Co-developer
6.	Dr. Adnan Rashid	Community Medicine	Co-developer
7.	Dr. Kashif Rafiq	General Surgery	Co-developer
8.	Dr. Salma Shazia	Forensic Medicine	Co-developer
9.	Dr. Ayesha Rafiq	DME	Co-developer

2 What Is A Study Guide?

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

2.1 The studyguide:

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

2.2 Module objectives.

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

2.3 Achievement of objectives.

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

3 Recommended List Of Icons

Introduction To Case

For Objectives

Critical Questions

Assessment

Resource Material

4 Organization of Module

4.1 **Introduction& Rationale**:

Conditions related to musculoskeletal system have a significant value in clinical practice. Back pain, trauma and violence are presently quite common in Pakistan. Conditions like joint diseases, bone diseases and deformities are additionally essential to have a command on. Analogously70% of the people suffers from skin diseases in some part of their life and most of the skin infections are endemic in developing countries like Pakistan. Therefore it's additionally important to give students essential knowledge about common skin lesions and explain their clinical presentation to understand the importance of health issues related to skin and the burden of disease.

Hence to better understand these states, as well as the neoplastic and infective conditions of the musculoskeletal system including skin, appropriate pathological, microbiological aspects, pharmacological aspects as well as preventions and control will be covered in this specific module. The relevance of the various imaging modalities, the importance of medico legal practices will also be put into prospective throughout.

5 Learning Objectives

S.NO	Theme	Duration 4 weeks
1	Aching Bones	2 week (1st& 2nd Week)
2	Joint Stiffness	1 week (3rd Week)
3	Muscle weakness and Trauma	1 week (4th Week)
4	Skin Rash and Itching	1 week (5th Week)

5.1 General Learning Objectives

At the end of this module, students will be able to

5.1.1 Knowledge

Reinforcement

- Explain important anatomical and physiological characteristics of musculoskeletalsystem

Pathology

- Explain essential pathological concepts of diseasesinvolving
  - Joints
  - Bones
  - Muscles
  - Cartilages
  - Soft tissues
  - Skin

Pharmacology

- Describe the clinical applications of NSAIDs in the treatment of musculoskeletaldisorders
- Describe the basic and clinical pharmacology of drugs affecting bone and Mineral Homeostasis
- Describe the basic and clinical pharmacology of drugs used to treat Gout and Rheumatoid Arthritis

- Describe the basic and clinical pharmacology of skeletal musclesrelaxants
- Describe the drugs used for dermatologicaldisorders.

Community medicine

- Classify accidents and injuries, burden of RTAs, prevention and control strategies ofRTAs
- Definepoliomyelitisanddiscusstheepidemiology,prevention,andcontrolofpoliomyelitis
- Define Ergonomics, Principles of Ergonomics, Epidemiology of MSK disorders and their prevention
- Discuss burden and prevention of Osteoporosis, OsteomalaciaandRickets

Forensic medicine

- Define and classifywounds
- Describe types of hurt according to Qisas and DiyatAct
- Describe firearm and explosivesinjuries
- Describe RTAs, Railway and Aircraftinjuries
- Describe the Medico legal aspects of wounds

Medicine

- Describe Osteoporosis and Osteomalacia and develop its managementplan
- Discuss Rheumatoid Arthritis and AnkylosingSpondylitis
- DiscussMyopathies

Orthopedic

- Describe types of fracture and explain the open fractures
- Explain the emergency treatment of an injuredlimb.
- Identify and describe common benign and malignant bone tumours.
- Describe common ligamentous, tendon injuries and common spinal fractures

Dermatology

- Describe the pathological lesions of skin and their clinical presentation with differential diagnosis.

Radiology

- Interpret normal X-Rays and X-Rays showing structuraldeformities

Paeds

- Explain bone pains and aches inchildren
- Discuss Congenital/HereditaryMyopathies

Eye

- Describe the basic Anatomy ofEye

ENT

- Discuss anatomy of Ear, Nose, Para nasal Sinuses and OralCavity

Prime:

Communication Skills

- Dealing with patients

Behavioral Sciences / Professionalism

- Attributes ofProfessionalism

Research

- Study Designs
- Research question

5.1.2 Skills:

Special Pathology

- Identify morphological features of Basal cell carcinoma and Squamous cellcarcinoma
- Identify morphological features of Tuberculous osteomyelitis

Pharmacology

- Writing a prescription for a patient with Rheumatoid arthritis
- Writing a prescription for a patient withGout

Forensic Medicine

- Identify types of mechanicalwound
- Identify the causativeweapon
- Identify the manner of woundcausation
- Issue a medico legal certificate for the givenwound

Orthopedic/Medicine

- Acquire a thorough history in relevance to MSK and take focused general examination of musculoskeletal system.
- Identify, evaluate and interpret the X-ray to diagnose fractures/musculoskeletalconditions
- Discuss the radiological characteristics of fractures and radiological characteristics of dislocations

5.1.3 Attitude:

While not necessarily taught explicitly, students are expected to develop following attitudes throughout the course:

1. Demonstrate teamwork, leadership, punctuality and goodmanners
2. Demonstrate humbleness and use socially acceptable language during academic andsocial interactions with colleagues and teachers.
3. Make ethically competent decisions when confronted with an ethical, social or moral problem related to MSK in professional or personallife
4. Discuss ethical issues, social and preventive aspect of health care in the context of MSK system.

Theme I: Aching Bones				
Subject	**Topic**	**Learning Outcome**	**MIT**	**No. of hrs**
Anatomy	**Important Anatomical Characteristics of MSK**	Discuss important anatomical characteristics of musculoskeletal system	LGF	1
Physiology	**Important Physiological Characteristics of MSK**	Discuss important Physiological characteristics of musculoskeletal system	LGF	1
Pathology	**Metabolic diseases of bone**	Describe the following metabolic diseases of bone from pathological point of view: • Osteopenia andOsteoporosis • Paget Disease (Osteitis Deformans) • Osteomalacia and Rickets	LGF	1
	Bone Fracture and Osteonecrosis	Classify fractures and describe healing process in fractures	LGF	1
		Enlist aetiologies of osteonecrosis (Avascular Necrosis)		
		Describe clinical features and morphological findings in osteonecrosis		
	Osteomyelitis	Classify osteomyelitis and delineate its etiology, pathogenesis, common clinical features, morphological findings, and complications related to osteomyelitis		
	Bone Tumors	Classify bone tumors	LGF	1
		Describe the frequency of different bone tumors in general population		
		Enlist common clinical features found in common types of bone tumors.		
		Enlist key morphological features of Osteosarcoma, Osteoid osteoma and Osteoblastoma		

	Cartilage-Forming Tumors	Discuss the frequency of different cartilaginous tumors in general population		
		Enlist common clinical features of common cartilaginous tumors		
	Tumors of Unknown Origin	Describe etiology, pathogenesis, and key clinico-morphological features of Ewing's Sarcoma and Giant Cell Tumor	LGF	1
	Lesions Simulating Primary Neoplasms	Describe key clinico-morphological features and essential points in the pathogenesis of Fibroma		
Pharmacology	**Drug affecting Bone & Mineral Homeostasis**	Classify drugs used in metabolic bone disorders	LGF	2
		Enlist calcium preparations		
		Describe clinical uses of calcium salts		
		Enlist vitamin D preparations		
		Describe actions of vitamin D on intestine, Kidney and Bone		
		Describe clinical uses of vitamin D		
		Explain the mechanism of action of SERM (Raloxifene) and RANK ligand (Denosumab)		
Forensic Medicine	**Mechanism of production of wound**	Define and classify wound	LGF	1
		Describe mechanism of action of wound production associated factors, appearance and complications.		
	Age and wound complications	Describe events associated with wound healing. Differentiate between old and fresh wounds. Describe injury zone on the basis of histochemical and biochemical events taking place.		
	Abrasion	Define and classify abrasion	LGF	1
		Explain types of abrasion and mechanism of wound production associated factors,		

		appearance, and complication.		
		Differentiate between antemortem & postmortem abrasion.		
		Describe the medico legal aspects of abrasion		
	Bruise	Define and classify bruise		
		Describe types of bruise and mechanism of wound production associated factors, appearance, and complication.		
		Differentiate between ante mortem & postmortem Bruise.		
		Describe the medico legal aspects of Bruise		
	Lacerated wound	Define and Classify lacerated wound	LGF	1
		Describe types of lacerated wound and Mechanism of wound production associated factors, appearance and complication.		
		Difference between ante mortem & postmortem Laceration.		
		Describe the medico legal aspects of Lacerated wound		
	Incised Wound	Define and classify incised wound		
		Describe types of incised wound and mechanism of wound production associated factors, appearance, and complication.		
		Difference between ante mortem & postmortem Incised Wound		
		Differentiate between incised & lacerated wound.		
		Describe the medico legal aspects of Incised wound		
	Stab wounds	Define and classify Stab wound	LGF	1
		Describe types of Stab wound and mechanism of wound production associated factors, appearance, and complication.		
		Difference between ante mortem & postmortem stab wound		

		Describe the medico legal aspects of stab wound		
	Battered baby syndrome	Explain the salient features of diagnosing Battered baby syndrome	LGF	1
Community Medicine	**Ergonomics**	Describe Ergonomics	LGF	1
		Describe the principles & importance of Ergonomics at work place		
		Explain the epidemiology of musculoskeletal disorders		
		Discuss prevention and control strategies for Musculoskeletal disorders		
	Public health aspects of disability limitations: (Osteoporosis, Osteomalacia and Rickets)	• Explain the types of rehabilitation and public health issues faced bythe disabled person, and measures to be taken for rehabilitation • Discuss epidemiology and prevention of Osteoporosis, Osteomalacia and Rickets	LGF	1
Medicine	**Osteoporosis and Osteomalacia**	Describe Osteoporosis and Osteomalacia	LGF	1
		List common causes and risk factors of Osteoporosis and Osteomalacia		
		Discuss clinical features , differential diagnosis of Osteoporosis and Osteomalacia		
		Enlist the Investigations for patient presenting with Osteoporosis and Osteomalacia		
Orthopedics	**Fractures**	Describe and illustrate types of fracture, fracture patterns, displacement and angulation of fractures in children and adults.	LGF	1
		Explain open fractures Discuss the basic principles of wound debridement.		

Radiology	**X-Ray Interpretation**	Identify and interpret different types of fractures	LGF	1
Eye	**Anatomy of Eye**	Describe anatomy of Orbit	LGF	1
		Describe anatomy of Eye Ball		
ENT	**Ear**	Explain anatomy of ear	LGF	1
Paeds	**Bone pains and aches in children**	Common causes of bones aches and pains including Growing pains in children	LGF	1
		Discuss nutritional Rickets causation, clinical presentation, Lab and Radiological findings and prevention		
	Skeletal dysplasia's	Discuss clinical feature and differential diagnosis of the following • Achondroplasia • Osteopetrosis • Osteogenesis Imperfecta	LGF	1
PRIME/Research	**Proposal writing**	Write a proposal for research project using KMU or CPSP guidelines or any other standard guidelines	LGF	5
PRIME/MEDICAL EDUCATION	**Attributes of professionalism-Empathy**	Discriminate empathy levels and its applications.	LGF	1
Theme II: Joint Stiffness				
Pathology	Osteoarthritis	Describe aetiology and pathogenesis of osteoarthritis	LGF	1
		Discuss clinical and morphological features of osteoarthritis		
		Enumerate complications of osteoarthritis		
	Rheumatoid Arthritis	Describe aetiology and pathogenesis of Rheumatoid Arthritis	LGF	1
		Discuss clinical and morphological features of Rheumatoid Arthritis		
		Enumerate complications of Rheumatoid Arthritis		

	Seronegative Spondyloarthropathies	Classify and explain Spondyloarthropathies	LGF	1
		Discuss pathogenesis and clinical features of Ankylosing Spondylitis		
		Discuss pathogenesis and clinical features of Reactive Arthritis		
		Discuss pathogenesis and clinical features of Psoriatic Arthritis		
	Infectious Arthritis	Describe etiology and pathogenesis of Suppurative Arthritis	LGF	1
		Discuss clinical featuresand morphological features of Suppurative arthritis.		
	Rheumatic Fever	Enumerate complications of Suppurative arthritis		
		Describe etiology and pathogenesis of Mycobacterial Arthritis		
		Discuss clinical features and morphological features of Mycobacterial Arthritis		
		Enumerate complications of Mycobacterial Arthritis		
		Describe key structural features, virulence factors, modes of pathogenesis and diagnosis of Streptococcus pyogenes		
		Explain etiology, pathogenesis, clinical features, diagnosis, and complications of Rheumatic Fever.		
	Crystal-Induced Arthritis	Enlist different types of crystal- Induced arthritis Describe key points of aetiology, pathogenesis, clinical features, morphological features, and complications of: • Gout • Calcium PyrophosphateCrystal deposition Disease (Pseudo- Gout)	LGF	1
Pharmacology	Pharmacotherapy of Gout	Classify drugs used to treat gout	LGF	2
		Describe the role of NSAIDs in the treatment of gout		

		Describe the role of Glucocorticoids in the treatment of gout		
		Describe the mechanism of actionof various drugs (Colchicine, Probenecid,Allopurinol, Febuxostat)usedinthetreatmentof Gout		
		Discuss the adverse effects of anti- gout drugs		
		Describe the drug interactions of Allopurinol and Probenecid		
		Enlist the drugs causing hyperuricemia		
		Discuss the mechanism by which drugs causes hyperuricemia		
	Pharmacotherapy of Rheumatoid Arthritis	Classify drugs used in Rheumatoid arthritis	LGF	3
		Discuss the role of NSAIDs in RheumatoidArthritis		
		Discuss the role of Glucocorticoids in Rheumatoid Arthritis		
		Define and classify DMARDs		
		Enlist biological and non-biological agents used to treat rheumatoid arthritis		
		Describepharmacokinetics mechanism of action, clinical uses and adverse effects of methotrexate.		
		Enlist adverse effects and therapeutic uses ofDMARDs		
Forensic Medicine	Qisas&Diyat	Define hurt, Wound & injury	LGF	1
		Classify hurt according to International law		
		Types of hurt according to Qisas&Diyat Act		

		Explain Punishments (tazir), compensation and Fine (Diyat)		
	Injured person medical aid act	Describe the salient features of injured person medical aid act	LGF	1
	Work-men compensation laws	Describe the salient features of Work-men compensation laws		
Medicine	Rheumatoid Arthritis	Describe Rheumatoid Arthritis with its clinical presentation and differential diagnosis.	LGF	1
	Ankylosing Spondylitis	Describe Ankylosing Spondylitis with its clinical presentation and differential diagnosis.		
ENT	Nose, Para Nasal Sinuses & Oral Cavity	Discuss anatomy of Nose, Para nasal sinuses & oral cavity	LGF	1
Paeds	Juvenile Idiopathic arthritis (JIA)	Discuss criteria for classification of JIA	LGF	1
		Discuss its clinical features and differential diagnosis and its management plan		
PRIME/MEDICAL EDUCATION	Communication Skills: Dealing with Patients	Explain importance of answering questions and giving explanation and/or instructions	LGF	3
Theme III: Muscle weakness and Trauma				
Pathology	Tumors of adipose tissue	Classify soft tissue tumors and provide a brief description of their salient clinical features	LGF	1
		Enlist key morphological features of lipoma and liposarcoma		
	Fibrous Tumors	Describe important clinico- pathological and morphological features of: • NodularFasciitis • Fibromatoses		
	Muscle tumors	Classify muscle tumors		
		Describe etiology, clinico- morphological features, and complications of Rhabdomyosarcoma		

		Describe etiology, clinico-morphological features, and complications of Leiomyoma		
		Describe etiology, clinico- morphological features, and complications of Leiomyosarcoma		
		Describe etiology, clinico- morphological features, and complications of Fibrosarcoma		
	Skeletal muscle atrophy and myopathies	Describe pathological features of Skeletal Muscle Atrophy	LGF	1
		Describe pathological features of Neurogenic and Myopathic changes in Skeletal Muscle		
		Describe pathological features of Inflammatory Myopathies		
		Describe pathological features of Dermatomyositis		
		Describe pathological features of Polymyositis		
		Describe pathological features of Inclusion Body Myositis		
		Describe pathological features of Toxic Myopathies		
	Inherited Diseases of Skeletal Muscle	Describe genetic abnormality, morphology and clinical features of Muscular Dystrophies	LGF	1
Pharmacology	Skeletal muscle relaxants	Classify skeletal muscle relaxants.	LGF	2
		Describe the mechanism of action of Non-depolarizing and depolarizing neuromuscular blockers.		
		Discuss the differences between depolarizing and non-depolarizing skeletal muscle relaxants		
		Describe the therapeutic uses and adverse effects of skeletal muscle relaxants		
		Describe centrally acting skeletal muscle relaxants (Spasmolytics)		

		Name drugs causing malignant hyperthermia		
		Discuss the rationale for use of Dantrolene in the treatment of malignant hyperthermia		
		Discuss succinylcholine apnea and its management		
Forensic Medicine	Transportation Accidents	Discuss injuries to the driver & front seat occupant and rare seat occupant.	LGF	1
		Discuss spinal injuries including Whiplash injury and railway spine		
		Explain Railway injuries with medico legal significance		
		Discuss Air crash accidents.		
	Firearm Injuries	Describe wound ballistics and its types.	LGF	3
		Describe terms /Definition used in firearm injuries, types of bullets.		
		Explain basic mechanism of firearm.		
		Explain ranges of fire in firearm injuries, beveling phenomenon, wound production mechanism.		
		Identify types of gun powders and ammunition used.		
		Interpret findings of injuries produced by different weapons.		
		Explain pattern of identification of entry and exit wound.		
		Explain information inferred from examination of firearm entry wound.		
	Injuries By Explosives	Describe mechanism of production of injuries by bomb blast.	LGF	1
		Explain different causes of death in blast injuries.		
		Interpret Autopsy findings in explosion fatalities.		
	Thermal Injuries	Describe Thermal Injuries	LGF	1
		Describe their classifications		
		Describe Burns and Scalds		

	Electrical Injuries	Explain electrocution	LGF	1
		Types of electrical injuries		
		Describe PM findings		
		Explain Lightning		
Community Medicine	Rehabilitation of disabilities: Poliomyeliti	Define disabilities and its types, and concepts, and distinguish between impairment, disability and handicapped, and significance of DALYs and QALYs.	LGF	1
		Describe the Epidemiology, determinants & distribution of poliomyelitis		
		Describe the prevention and control measures and rehabilitation of Poliomyelitis		
	Accidents and its prevention	Describe of types of accidents and their mechanisms and their prevention (Haddon`s model)	LGF	1
		Describe Road Traffic Accidents		
		Classify different types of road traffic accidents and injuries?		
		Describe and compare the burden of road traffic accidents in a developed country with a developing country like Pakistan		
		List and Explain the risk factors of road traffic accidents		
		Explain effective public health strategies used at individual and national level to prevent for road traffic accidents		
Medicine	Myopathies	Define Myopathy	LGF	1
		Enlist Myopathies (Hereditary & Acquired Myopathies)		
		Describe the etiology and clinical features of Myopathies		
		Plan investigations for Myopathies		
Orthopedic	Fracture management and Application of Cast	Explain the emergency treatment of an injured limb.	LGF	2

		Explain emergency immobilization techniques of the Neck, Spinal column and limbs.		
		Describe and discuss the basic principles pertaining to application of a cast, the complications of cast application.		
		Discuss the principles of a three- point pressure system in a cast.		
	Bone and joint disorders	Describe the common ligamentous and tendon injuries and advise appropriate management	LGF	2
		Recognize common Spinal fractures, and provide appropriate initial management		
Paeds	Congenital/Hereditary Myopathies	Discuss common congenital and hereditary myopathies, their genetics, causation, clinical presentation, diagnosis.	LGF	1
	Duchene Muscular dystrophy (DMD)	Describe DMD, its clinical presentation and differential diagnosis.	LGF	1

Theme IV: Skin Rash and Itching				
Pathology	Important pathological terms	Define the following skin lesions and describe these with respect to their etiologies and gross morphological features. • Macule • Papule • Nodule • Plaque • Vesicle • Bulla • Blister • Pustule • Scale • Lichenification • Excoriation	LGF	1

		• Hyperkeratosis • Parakeratosis • Acanthosis • Dyskeratosis • Acantholysis • Papillomatosis • Lentiginousspongiosis • Urticaria • Pemphigus • Bullouspemphigoid • Warts		
	Eczematous dermatitis	Classify eczematous dermatitis		
		Describe the morphological and clinical features of acute eczematous dermatitis		
		Describe the etiology and pathogenesis of • Contactdermatitis • Atopicdermatitis • Drug related eczematous dermatitis • Photoeczematuseruption • Primary irritantdermatitis		
	Erythema multiforme	List the conditions which are associated with erythema multiforme and describe its clinical features		
	Psoriasis	Describe the etiopathogenesis, morphological and clinical features of psoriasis		
	Pre-malignant epithelial lesions	List the pre-malignant epithelial lesions (Epidermal) • List the predisposing factors for squamous cell carcinoma ofskin • Differentiate squamouscell carcinoma from basal cell carcinoma on the basisof morphology and clinical features	LGF	1

	Nevocellular Nevi and Malignant Melanoma	List types of Nevocellular Nevi (Congenital Nevus, blue nevus, Spitz's Nevus, halo nevus dysplastic nevus) along with their clinical significance. (Dermal) • Describe the clinical and morphological features of dysplasticnevi • Describe malignant melanoma with respect to frequent siteof origin, clinical and morphological features.		
	Viral skin infections	Describe the following viral skin infections in context of etiopathogenesis: • Herpes simplexvirus • Herpes zostervirus	LGF	1
	Fungal skin infections	Classify and describe the following fungal skin infections in context of etiopathogenesis: • Tinea • Candida		
	Skin and soft tissue infections	Describe the following skin lesions in context of ethiopathogenesis and diagnosis • Impetigo • Cellulitis /Erysipelas • Folliculitis • Skin Abscess (Furuncle &Carbuncle) • Necrotizing Soft TissueInfections		
Pharmacology	Drugs used for dermatological disorders	Classify dermatological preparations	LGF	3
		Enlist topical antibacterial, ntifungal &antiviral preparations.		
		Describe clinical uses and adverse effects of topical antibacterial, antifungal and antiviral drugs.		
		Discuss oral treatment of candidiasis dermatophytosis and onychomychosis.		
		Describe various acne preparations and antibiotics used to treat acne.		

		Enlist clinical uses of immunomodulators (Imiquimod, Tacrolimus) related to skin diseases.		
		Enlist ectoparasiticides		
		Enlist clinical uses and adverse effects of Permethen.		
		Discuss drug treatment of Scabies & Pediculosis.		
		Describe the mechanism of action and adverse effects of various agents used for pigmentation disorders		
		Describe the clinical uses and adverse effects of drugs used for the treatment of psoriasis.		
		Describe clinical uses and adverse effects of topical corticosteroids		
		Enlist dermatological disorders responsive to topical corticosteroids ranked in order of sensitivity.		
		Discuss keratoytic agents, antipruritic agents, trichogenic and antitrichogenic agents and use of antineoplastic agents in topical conditions		

Medicine/Dermatology	Important pathological terms with Clinical presentations	Enlist and explain the clinical presentation of the following skin Lesions: • Macule • Papule • Nodule • Plaque • Vesicle • Bulla • Blister • Pustule • Scale • Lichenification • Excoriation • Hyperkeratosis • Parakeratosis • Acanthosis • Dyskeratosis • Acantholysis • Papillomatosis • Lentiginousspongiosis • Urticaria • Pemphigus • Bullouspemphigoid • Warts	LGF	1
	Pre-malignant skin conditions	Enlist the pre-malignant skin conditions Explain their differential diagnosis on the basis of clinical presentations Enlist the relevant investigations		
	Malignant conditions of skin	Enlist the malignant conditions of skin (squamous and basal cell carcinoma) Explain their differential diagnosis on the basis of clinicalpresentations		
		Enlist the relevant investigations		
	Nevocellular Nevi	List the types of Nevocellular Nevi and discuss their differential diagnosis on the basis of their clinical presentations. Enlist the relevant investigations		

Paeds	Juvenile Dermatomyocytis (JDM)	Discuss diagnostic criteria of JDM	LGF	1
		Discuss its clinical features differential diagnosis		

PRACTICAL WORK

Pathology Practicals			
Week	**Topic**	**Practical**	**No. of hrs**
Week 1	Tuberculous osteomyelitis	Identify gross and microscopic morphological features of tuberculous osteomyelitis	2
Week 2	Osteogenic sarcoma, Osteoclastoma and chondrosarcoma	Identify gross and microscopic morphologic features of osteogenic sarcoma, osteoclastoma and chondrosarcoma	2
Week 3	ASO (Anti Streptolysin O) test	Perform ASO (Anti Streptolysin O) test by latex agglutination technique	2
Week 4	Tumors of Skin	Identify gross and microscopic features of • Squamous cell carcinoma • Basal cellcarcinoma	2
Pharmacology Practicals			
Week	**Topic**	**Practical**	
Week 1	Gout	Write prescription for Gout	2
Week 2	Rheumatoid Arthritis	Write prescription for Rheumatoid Arthritis	2
Week 4	Drugs used to treat Dermatological Disorders	Write down prescription for scabies./Write down prescription for Psoriasis	4
Forensic Practicals			
Week	**Topic**	**Practical**	

Week 1	Examination of wound and weapon	• Abrasion • Bruise • Laceration • Incisedwound • Qisas and Diyatmodels/ • Dura prints ofinjuries	2
Week 2	Examination of wound and weapon	• Stab wound • Fracture • Displacement • Qisas and Diyat models of injuries/ multimedia slides remaining	2
Week 3	Examination of wound and weapon	Firearm injuries / Weapons Identification of bullets	2
Week 4	Writing a medico legal certificate	Medicolegal report writing in case of firearm Injuries	2

Hours Distribution	
Theory	
Discipline	**No. of hours**
Anatomy	01
Physiology	01
Pathology	15
Pharmacology	12
Forensic Medicine	14
Community Medicine	04
General Medicine	04
Radiology	01
Orthopaedics	05
Eye	01
ENT	02
Paeds	06
PRIME	09
Total	**78**
Practical/ SGDs	
Pathology	08
Pharmacology	08
Forensic Medicine	08
Total	**22**

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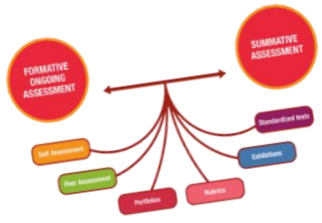


6 Examination and Methods of Assessment:

The year-3 will be assessed in 3 blocks.

1) Block-1 (Foundation 2 and Infection and Inflammation modules) will beassessed in **paper-G.**
2) Block-2 (Multisystem, blood and MSK modules) will be assessed in **paper-H.**
3) Block-3 (CVS and Respiratory module) will be assessed in **paper-I.**
4) Each written paper consists of 120 MCQs.
5) Internal assessment will be added to final marks in KMU.
6) In OSPE, each station will be allotted 6 marks, and a total of 120 (+10% marksof internal assessment) marks are allocated for each OSPE/OSCE examination.
7) Practical assessment will be in the form of OSPE/OSCE which will also include embedded viva stations. The details of each section are given in the tables given below.

Table-1: Total Marks Distribution 3rd Year MBBS

Assessment Plan of 3rd Year MBBS						
Theory paper	**Modules**	**Theory marks**	**Internal assessment theory (10%)**	**OSPE/OSPE**	**Internal assessment OSPE/OSPE(10%)**	**Total Marks**
Paper G	Foundation-II Inf.&Inflamm.I	120	14	120	14	268
Paper H	Multisystem I Blood II MSK-II	120	13	120	14	267
Paper I	CVS-II Respiratory-II	120	13	120	12	265
Total Marks		360	40	360	40	800

Paper-H (Multisystem, Blood and MSK)

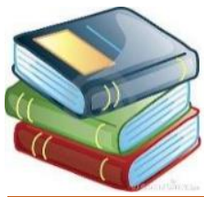
MCQs

Subject	Multisystem-1 module	Blood and Immunology-2	Musculoskeletal (MSK)-2 module	Total MCQs
Pharmacology	12	03	05	20
Pathology	16	22	13	51
Forensic medicine	09	02	09	20
Community medicine	03	04	03	10
ENT			01	01
Eye			01	01
PRIME			01	01
Research			05	05
Medicine	01	02	02	05
Orthopedics			02	02
Pediatrics		01	03	04
Total	41	35	44	120

OSPE

Subject	OSPE/OSCE	Viva stations	Total*
Pharmacology	5	2	7
Pathology	3	2	5
Forensic medicine	2	2	4
Community medicine	0	2	2
Paeds (history and physical examination)	1	0	1
Medicine (history and physical examination)	1	0	1
Total	12	8	20

*** A minimum of 20 stations will be used in final exams. Total marks will be 120 (6 marks for each station).**



7 Learning Opportunities and Resources

7.1 RECOMMENDED BOOKS

Pharmacology

Text Books

1. Basic and Clinical Pharmacology by Katzung BG, Masters SB, Trevor AJ, 14th Edition.
2. Lippincott's Illustrated Reviews: Pharmacology, Clark MA, Finkel R, Rey JA, Whalen K, 7th Edition.

Reference Books:

1. Goodman & Gilman's The Pharmacological Basis of Therapeutics, Brunton LL 12th Edition.

Pathology

Text Books

1. Robbins Pathologic Basis of Disease

Reference Books:

1. Walter& Israel's General Pathology"
2. Harsh Mohan's "Textbook of Pathology".
3. Pathology Illustrated
4. Stefan Silbernagl's "Color Atlas of Pathophysiology"
5. Muir's Textbook of Pathology

Textbook for Microbiology

1. Jawetz, Melnick&Adelberg's "Medical Microbiology"

Reference Books:

1. Levinson's "Medical Microbiology & Immunology"
2. Sherris Medical Microbiology
3. Lippincott's Illustrated Reviews: Microbiology

Forensic Medicine

Textbooks:

1. CK Parikh new edition

Reference Books:

1. Nasib R Awan
2. KrishanVij
3. Smart series (SSS) Forensic MCQs with explanation
4. Gazette Pakistan Penal Code (PPC)
5. VV Pillay and Rajesh Bardale

Community Medicine

Textbooks:

1. Public Health & Community Medicine by Shah Ilyas Ansari; 8th Edition
2. Parks Textbook of Prevention& Social Medicine by K.Park; 25th Edition

Ophthalmology

Textbooks:

1. Parsons' Disease of the EYE

Reference Books:

2. Short Kanski
3. Clinical Ophthalmology Shafi M Jatoi

Research and Biostatistics

1. A synopsis of epidemiology and basic statistics (Ali Muhammad Mir)

2. Statisstics at square one (TDVS winscow)
3. Essentials of research design and methodology. (GeoferryMarczyk)
4. The essentials of clinical epidemiology (Robert H)

Medicine & Allied

1. Kumar and Clark for Medicine 8th edition 2012
2. Davidson's Principles and practice of medicine

Surgery & Allied

1. Bailey and Love. Short Practice of Surgery 25th edition 2008
2. Current Surgical Diagnosis and Treatment 13th edition 2009

Otorhinolaryngology

1. PL Dhingra 7th edition
2. Cuming standards, ENT

Paediatric Medicine

1. Text book of paediatrics, Pakistan paediatrics association
2. Essentials of paediatrics, Nelson, 21st edition
3. Basis of paediatrics, Pervez akbar khan, Ninth edition

7.2 Website:

www.ayubmed.edu.pk

8 Timetables

AYUB MEDICAL COLLEGE ABBOTTABAD

TIMETABLE OF 3RD YEAR MBBS CLASS FOR THE SESSION 2020-2021

Musculoskeletal II, Week 01: Theme 01 (Aching Bones)

Days	8:00-9:00 am	09:00-10:00 am	10:00-12:00	12:00-12:45 am	1:15-2:00 pm	02:00-03:00 pm
Mon	Anatomical characteristics of MSK **Anatomy L1** Dr. Shahid Farooq	Physiological characteristics of MSK **Physiology L1** Dr. Sajjad	**Hospital duty**	Metabolic bone diseases **Pathology L1** Dr. Sabana	Osteoporosis &Osteomalacia **Medicine L1** Dr. Adnan	Wounds **Forensic Medicine L1** Dr. Omair
Tue	Bone pains in children **Paediatrics L1** Dr. Saima Bibi	Drugs affecting Bone & Mineral Homeostasis **Pharmacology L1** Dr. Wajid Ali		Drugs affecting Bone & Mineral Homeostasis **Pharmacology L2** Dr. Wajid Ali	Epidemiology Osteoporosis, Osteomalacia, Rickets **Community Med L1** Dr. Awais	Abrasion **Forensic Medicine L2** Dr. Salma
Wed	Ergonomics **Community Med L2** Dr. Awais	Skeletal Dysplasia **Paediatrics L2** Dr. Saima Bibi		Fractures, Avascular necrosis, Osteomyelitis **Pathology L2** Dr. Sabana	Fractures **Orthopedics L1** Dr. ShoaibZardad	Anatomy of Eye **Anatomy L2** Dr. Humaira Imtiaz
Thurs	Fractures **Orthopedics L2** Dr. ShoaibZardad	X-ray Interpretation **Radiology L1** Dr. Azmat Ali		Bone tumors **Pathology L3** Dr. Sabana	Bone tumors **Orthopedics L3** Dr. M Younus	Anatomy of Eye **Anatomy L3** Dr. Humaira Imtiaz
Fri	Cartilage forming Tumors, Tumors of unknown origin **Pathology L4** Dr. Sabana	Bruise **Forensic Medicine L3** Dr. Sadia		Anatomy of Ear **Anatomy L4** Dr. M Ashfaq	**HALFDAY**	

2. L: Sequence of lectures of a discipline.

AYUB MEDICAL COLLEGE ABBOTTABAD

TIMETABLE OF 3RD YEAR MBBS CLASS FOR THE SESSION 2020-2021

Musculoskeletal II, Week 02: Theme 02 (Joint Stiffness)

Days	8:00-9:00 am	09:00-10:00 am	10:00-12:00	12:00-12:45 am	01:15-2:00 pm	02:00-03:00 pm
Mon	Lacerated wound **Forensic Medicine L4** Dr. Omair	Incised wound **Forensic Medicine L5** Dr. Salma	Hospital duty	Stab wound **Forensic Medicine L6** Dr. Sadia	Arthritis **Pathology L5** Dr. Sabana	Attributes **PRIME (Psychiatry) L1** Miss. Aisha Saleem
Tue	Rheumatoid Arthritis, Ankylosing spondylitis **Medicine L2** Dr. Rashid	Juvenile Idiopathic Arthritis **Paediatrics L3** Dr. Syed Sajjid		Bone & Joint Infections **Orthopedics L4** Dr. Usman Shah	Pharmacotherapy of Rheumatoid Arthritis **Pharmacology L3** Dr. Sumbal Tariq	Nose, Paranasal sinuses, & Oral Cavity **Anatomy L5** Dr. Sara Jadoon
Wed	Pharmacotherapy of Rheumatoid Arthritis **Pharmacology L4** Dr. Sumbal Tariq	Bone & Joint Infections **Orthopedics L5** Dr. Usman Shah		Seronegative, Spondyloarthropathies, Crystal induced Arthritis **Pathology L6** Dr. Sabana	Pharmacotherapy of Gout **Pharmacology L5** Dr. Adeel Alam	Listening Skills **PRIME (Surgery) L2** Dr. Shawana
Thurs	Pharmacotherapy of Gout **Pharmacology L6** Dr. Adeel Alam	Age of wound & complication **Forensic Medicine L7** Dr. Omair		Qisas&Diyat **Forensic Medicine L8** Dr. Salma	Soft tissue tumors **Pathology L7** Dr. Sabana	Knowing Limitations **PRIME (Surgery) L3** Dr. Haider Kamran
Fri	Soft tissue injuries **Orthopedics L6** Dr. Taj Mohammad	Spinal Injuries **Orthopedics L7** Dr. Younas		Skeletal muscle atrophy &Myopathies **Pathology L8** Dr. Sabana	Myopathies **Medicine L3** Dr. Farhat	**HALFDAY**

3. L: Sequence of lectures of a discipline.

AYUB MEDICAL COLLEGE ABBOTTABAD

TIMETABLE OF 3RD YEAR MBBS CLASS FOR THE SESSION 2020-2021

Musculoskeletal II, Week 03: Theme 03 (Muscle weakness & Trauma) & Theme 04 (Skin Rash & Itching)

Days	8:00-9:00 am	09:00-10:00 am	10:00-12:00	12:00-12:45 am	01:00-02:00 pm	02:00-03:00 pm
Mon	Congenital Myopathies **Paediatrics L4** Dr. Syed Sajjid	Skeletal Muscle Relaxants **Pharmacology L7** Dr. Faryal Mustafa	Hospital duty	Skeletal Muscle Relaxants **Pharmacology L8** Dr. Faryal Mustafa	Duchene Muscular Dystrophy **Paediatrics L5** Dr. Syed Sajjid	Poliomyelitis **Community Med L3** Dr. Adnan
Tue	Transportation Accidents **Forensic Medicine L9** Dr. Omair	Transportation Accidents **Forensic Medicine L10** Dr. Omair		Road Traffic Accidents **Community Med L4** Dr. Awais	Application of Cast **Orthopedics L8** Dr. Adeel	Firearm injuries **Forensic Medicine L11** Dr. Salma
Wed	Firearm injuries **Forensic Medicine L12** Dr. Salma	Application of Cast **Orthopedics L9** Dr. Adeel		Skin Lesions & Eczematous Dermatitis **Pathology L9** Dr. Sabana	Firearm injuries **Forensic Medicine L13** Dr. Salma	Thermal injuries **Forensic Medicine L14** Dr. Sadia
Thurs	Injuries by Explosives **Forensic Medicine L15** Dr. Omair	Skin Infections **Pathology L10** Dr. Sabana		Juvenile Dermatomyocytis **Paediatrics L6** Dr. Saima Bibi	Electrical injuries **Forensic Medicine L16** Dr. Sadia	Skin Tumors **Pathology L11** Dr. Sabana
Fri	Drugs for Skin Disorders **Pharmacology L9** Dr. Haq Nawaz	Miscellaneous Skin Lesions **Pathology L12** Dr. Sabana		Skin Disorders **Medicine L4** Dr. KamranRizvi	Drugs for Skin Disorders **Pharmacology L10** Dr. Haq Nawaz	**HALFDAY**

4. L: Sequence of lectures of a discipline.

AYUB MEDICAL COLLEGE ABBOTTABAD

TIMETABLE OF 3RD YEAR MBBS CLASS FOR THE SESSION 2020-2021

Musculoskeletal II, Week 03: Theme 02 (Joint Stiffness)& Theme 03 (Muscle weakness & Trauma)

Days	8:00-9:00	9:00-10:00	10:00 11:00	11:00-12:00	12:00-12:45	12:45-1:15	PRACTICAL	
							1:15-2:00	**2:00-3:00**
Mon	Qisas&Diyat **Forensic MedicineL8** Dr. Salma	Soft tissue tumors **Pathology L7** Dr. Sabana	**HOSPITAL DUTY**		Soft tissue injuries **Orthopedics L6** Dr. Taj Mohammad	**PRAYER BREAK**	**A: Pharmacodynamics** (Dr. Noaman) **B: Pharmacy** (Dr. Maha) **C: Pathology 1** **D: Pathology 2**	
Tue	Spinal Injuries **Orthopedics L7** Dr. Younas	Skeletal muscle atrophy &Myopathies **Pathology L8** Dr. Sabana	**HOSPITAL DUTY**		Myopathies **Medicine L3** Dr. Farhat		**A: Pathology 2** **B: Pharmacodynamics** (Dr. Saad) **C: Pharmacy** (Dr. Azfar) **D: Pathology 1**	
Wed	Congenital Myopathies **Paediatrics L4** Dr. Syed Sajjid	Skeletal Muscle Relaxants **Pharmacology L7** Dr. Faryal Mustafa	**HOSPITAL DUTY**		Skeletal Muscle Relaxants **Pharmacology L8** Dr. FaryalMustafa		Duchene Muscular Dystrophy **Paediatrics L5** Dr. Syed Sajjid	Knowing Limitations P**RIME (Surgery) L3** Dr. Haider Kamran
Thurs	Poliomyelitis **Community Med L3** Dr. Adnan	Transportation Accidents **Forensic Medicine L9** Dr. Omair	**HOSPITAL DUTY**		Transportation Accidents **Forensic Medicine L10** Dr. Omair		**A: Pathology 1** **B: Pathology 2** **C: Pharmacodynamics** (Dr. Faryal) **D: Pharmacy** (Dr. Mahwish)	
Fri	**PRACTICAL** **A: Pharmacy** (Ms. Farhana) **B: Pathology 1** **C: Pathology 2** **D: Pharmacodynamics** (Dr. Faheem)		Road Traffic Accidents **Community Med L4** Dr. Awais	Application of Cast **Orthopedics L8** Dr. Adeel	Firearm injuries **Forensic Medicine L11** Dr. Salma	**12:45-1:30** **Jumma Prayer**	**1:30-3:00** **SDL**	

Pharmacodynamics: Ceiling effect acetylcholine + antagonism b/w acetylcholine & atropine

_____

Pharmacy: Ceiling effect histamine + antagonism b/w histamine & anti-histamine

Module Coordinator

Pathology 1: Coagulase test (Dr. Saman)

Pathology 2: Catalase test (Dr. Abid)

AYUB MEDICAL COLLEGE ABBOTTABAD

TIMETABLE OF 3RD YEAR MBBS CLASS FOR THE SESSION 2020-2021

Musculoskeletal II, Week 04: Theme 04 (Skin Rash & Itching)14.06.21 – 18.06.21

Days	8:00-9:00	9:00-10:00	10:00-11:00	11:00-12:00	12:00-12:45	12:45-1:15	PRACTICAL 1:15-2:00	PRACTICAL 2:00-3:00
Mon	Firearm injuries **Forensic Medicine L12** Dr. Salma	Application of Cast **Orthopedics L9** Dr. Adeel	**HOSPITAL DUTY**		Skin Lesions & Eczematous Dermatitis **Pathology L9** Dr. Sabana	**PRAYER BREAK**	**A: Pharmacodynamics** (Dr. Noaman) **B: Pharmacy** (Dr. Maha) **C: Pathology 1** **D: Pathology 2**	
Tue	Firearm injuries **Forensic Medicine L13** Dr. Salma	Thermal injuries **Forensic Medicine L14** Dr. Sadia	**HOSPITAL DUTY**		Injuries by Explosives **Forensic Medicine L15** Dr. Omair		**A: Pathology 2** **B: Pharmacodynamics** (Dr. Saad) **C: Pharmacy** (Dr. Azfar) **D: Pathology 1**	
Wed	Electrical injuries **Forensic Medicine L16** Dr. Sadia	Skin Infections **Pathology L10** Dr. Sabana	**HOSPITAL DUTY**		Juvenile Dermatomyocytis **Paediatrics L6** Dr. Saima Bibi		Skin Tumors **Pathology L11** Dr. Sabana	Skin Disorders **Medicine L4** Dr. KamranRizvi
Thurs	Drugs for Skin Disorders **Pharmacology L9** Dr. Haq Nawaz	Miscellaneous Skin Lesions **Pathology L12** Dr. Sabana	**HOSPITAL DUTY**		Drugs for Skin Disorders **Pharmacology L10** Dr. Haq Nawaz		**A: Pathology 1** **B: Pathology 2** **C: Pharmacodynamics** (Dr. Faryal) **D: Pharmacy** (Dr. Mahwish)	
Fri	**PRACTICAL** **A: Pharmacy** (Ms. Farhana) **B: Pathology 1** **C: Pathology 2** **D: Pharmacodynamics** (Dr. Faheem)		Anatomy of heart **Anatomy L1** Dr. Rizwana Iqbal	Anatomy of heart **Anatomy L2** Dr. Haris Hamid	Cardiac cycle **Physiology L1** Dr. Faisal Iftekhar	**12:45-1:30** **Jumma Prayer**	**1:30-3:00** **SDL**	

Pharmacodynamics: Ceiling effect acetylcholine + antagonism b/w acetylcholine & atropine

Pharmacy: Ceiling effect histamine + antagonism b/w histamine & anti-histamine

Module Coordinator

Pathology 1: Oxidase test (Dr. Maleeha)

Pathology 2: Hydatid Cyst (Dr. Sabahat)

9 For **inquiry** and troubleshooting

10 Course FeedbackForm

CourseTitle:_____

Semester/Module _____ Dates:_____

Please fill the short questionnaire to make the course better.

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

THE DESIGN OF THEMODLUE

A. Were objectives of the course clearto you? Y N ☐

B. The course contents met with yourexpectations
l.Stronglydisagree 5. Stronglyagree ☐

C. The lecture sequence was well-planned
l.Stronglydisagree 5. Stronglyagree ☐

D. The contents were illustratedwith
l. Toofewexamples 5. Adequateexamples ☐

E. The level of the coursewas
l.Toolow 5. Toohigh ☐

F. The course contents compared with yourexpectations
l.Tootheoretical 5. Tooempirical ☐

G. The course exposed you to new knowledge andpractices
l.Stronglydisagree 5. Stronglyagree ☐

H. Will you recommend this course to yourcolleagues?
l. Notatall 5. Verystrongly ☐

THE CONDUCT OF THEMODLUE

A. The lectures were clear and easy tounderstand
l.Stronglydisagree 5. Stronglyagree ☐

B. The teaching aids were effectivelyused
l.Stronglydisagree 5. Stronglyagree ☐

C. The course material handed out wasadequate
l.Stronglydisagree 5. Stronglyagree ☐

D. The instructors encouraged interaction and werehelpful
l.Stronglydisagree 5. Stronglyagree ☐

E. Were objectives of the courserealized? Y ☐ N ☐

F. Please give overall rating of thecourse

90% - l00%	( )	60% - 70%	( )
80% - 90%	( )	50% - 60%	( )
70% - 80%	( )	below50%	( )

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

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

Please give suggestions for the improvement of the course.

Optional – Your name and contact address:

Thank you!!