MUSCULOSKELETAL MODULE

3rd Year MBBS

Study Guide

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Vision Statement

Become a prominent regional healthcare center focused on improving individual and community health and achieving national and international standards of excellence.

Mission Statement

Bacha Khan Medical College is committed to train students to become knowledgeable, skillful, and empathetic to meet the needs of society with an emphasis on research professionalism and health advocacy.

Outcomesfor Graduatesof BKMC

Introduction to the Study Guide

This study guide is designed for MBBS undergraduate students of BKMC to provide thema resource material that will highlight the important aspects of the curriculum to make them self-regulated lifelong learners.

This study guide will give an overview of course outcomes and objectives in relation to the course content. The assessment methodologies along with blueprintsare also provided.

This study guide has been carefully designed, keeping in view the PMDC and KMU curriculum and guide lines. Dedicated effort by the faculty is done to make this guide tailored to the student's needs.

Introduction to the Module

The Bacha Khan Medical College MUSCULOSKELETAL module is designed to provide both basic and clinical knowledge and skills to the medical students. The module is aligned with the general outcomes required at the exit level, and includes sessions on preventive medicine, medico legal, communication skills, professionalism, self-management, and developing scholarly skills.

This module will be of 4 weeks duration and the assessment will be carried out through MCQs and OSPE.

CurriculumCommittee BKMC

Chair

Prof.DrAmjid Ali (Dean BKMC)

Co-Chair

Professor Dr. Usman Ali, Chairperson Anatomy Department.

Clinical Sciences:

Dr. Naila Noor, Department of Obstetrics and Gynaecology BKMC/MMC.

Dr. Bilal, Department of Ophthalmology, BKMC/MMC.

Dr. Mudassir,Department of ENT, BKMC/MMC.

Dr.Karamat,Department of Pediatrics, BKMC/MMC.

Dr.Muhammad Sohrab Department of Medicine, BKMC/MMC.

Dr. AjmalAfridi, Department of General Surgery, BKMC/MMC.

Dr. Zafar Ahmed Khan, Department of Urology, BKMC/MMC.

Behavioral Sciences:

Dr. EjazGul, Department of Psychiatry, BKMC/MMC.

Dr. Muslim Khan,Department of Psychiatry, BKMC/MMC

Dr. Aizaz Jamal,Department of Psychiatry, BKMC/MMC

Medical Education:

Dr. ImtiazUddin, Director Medical Education BKMC.

Dr. MehreenLajber, Department of Medical Education BKMC.

Basic Sciences:

Dr. FarhatRehman, Department of Physiology BKMC.

Dr. Siyyar, Department of Biochemistry BKMC.

Dr. Khalid Khan, Department of Forensic Medicine, BKMC

Dr. IftikharUddin, Department of Community Medicine, BKMC.

Dr. Shah Muhammad Khan Jadoon, Department of Pharmacology, BKMC.

Dr. NazishFarooq, Department of Pathology, BKMC

Modular Committee for MUSCULOSKELETAL Module

Module Coordinator: Dr.FATIMA LAJBER

Co Coordinators': Dr. HUMA HABIB.

Medical Educationists: Dr.Imtiazud Din

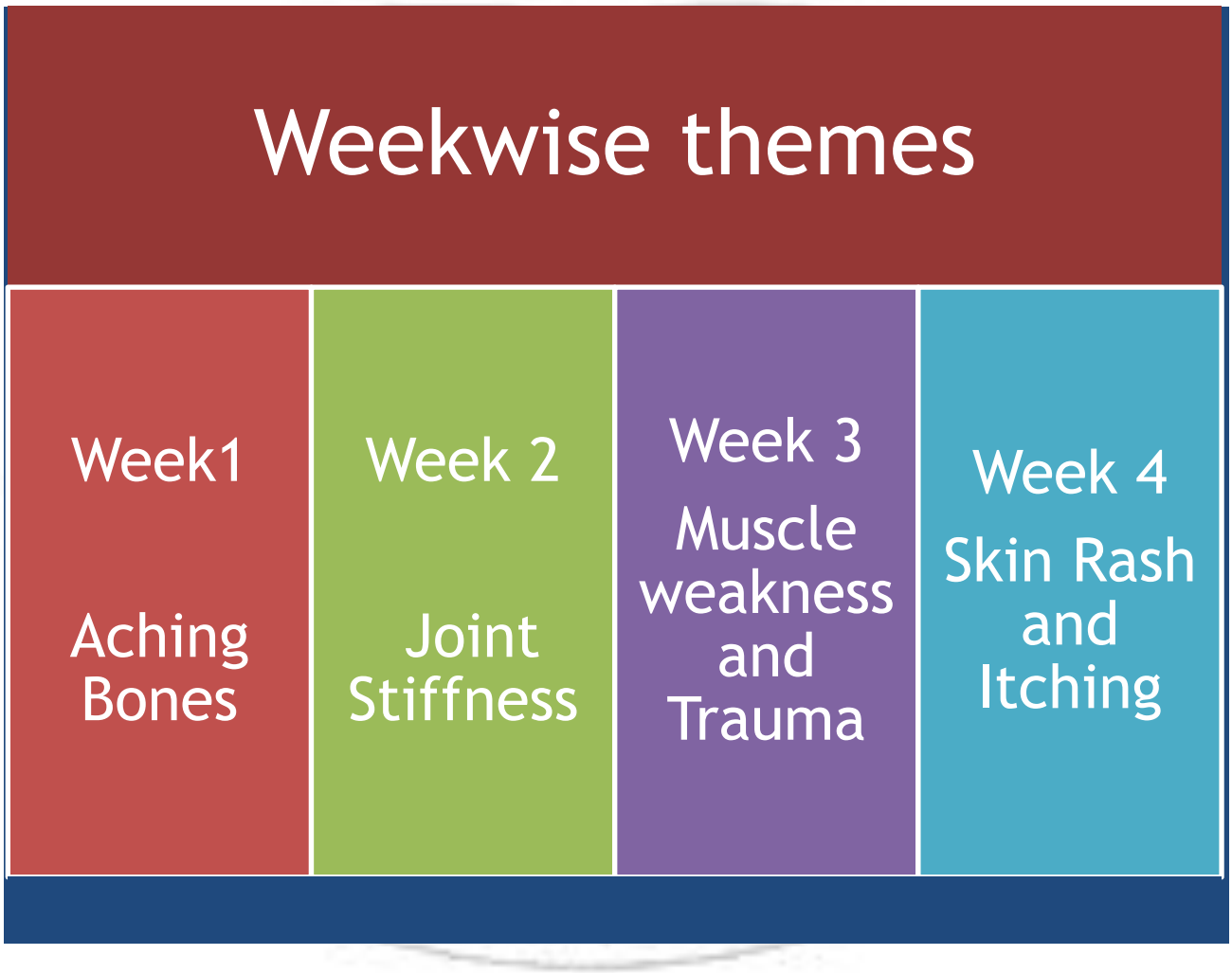
Dr. Mehreen Lajber

Introduction tothe Module Facilitators

Table 1: Module facilitators

S. No	Names	Designation/Department
1	Dr. IftikharUddin	Community Medicine Department
2	Dr. ShahanaNisar	Community Medicine Department
3.	Dr. Nighat Musa	Community Medicine Department
4.	Dr. NaeemKhattak	Community Medicine Department
5.	Dr. HumaHabib	Community Medicine Department
6.	Dr. Fatima Lajber	Community Medicine Department
7.	Dr. HaleemaSadia	Pharmacology Department
8	Dr. Fazli Rabi	Pharmacology Department
9	Dr. Abdullah	Forensic Medicine Department
10.	Dr. Shahid	Forensic Medicine Department
11	Dr. Murad	Medicine Department
12	Dr. Zafar	Surgery Department
13	Dr. Khalid Ahmad	Paediatrics Department
14	Prof DrNazishFarooq	Pathology Department
15.	Dr. Komal	Pathology Department
16.	Dr. Mashal	Pathology Department
17	Dr. Khalida	Pathology Department
18.	Dr. Ayesha	Pathology Department
19.	Dr. Zarmina	Pathology Department
20.	Dr. Zahir Shah	Pathology Department
21.	Dr. Sadia	Pathology Department
22.	Dr. Zainab	Pathology Department

Themes covered during MUSCULOSKELETA Module



TeachingHoursAllocation

Table2: Hour'sallocationfordifferentsubjects

S. No	Subject	Hours
1	Pathology	33
2	Pharmacology	18
3	Forensicmedicine	22
4	Communitymedicine	3
5	Medicine	5
6	Familymedicine	1
7	EYE	1
8	ENT	1
9	Orthopedics	5
10	Pediatrics	6
11	Radiology	1
12	Research *	2
	Total	**98**

LearningObjectives

Bytheendof MusculoskeletalModule, 3rdyearMBBSstudentswillbeableto:

1) Explain important anatomical and physiological characteristics of musculoskeletal system
2) Explain essential pathological concepts of diseases involving Joints, Bones, Muscles, Cartilages, Soft tissues and Skin.
3) Describe the clinical applications of NSAIDs in the treatment of musculoskeletal disorders and the basic and clinical pharmacology of drugs affecting bone and Mineral Homeostasis
4) Describe the basic and clinical pharmacology of drugs used to treat Gout and Rheumatoid Arthritis and dermatological disorders
5) Describe the basic and clinical pharmacology of skeletal muscles relaxants
6) Classify accidents and injuries, burden of RTAs, prevention and control strategies of RTAs
7) Define poliomyelitis and discuss the epidemiology, prevention, and control of poliomyelitis and prevention of Osteoporosis, Osteomalaciaand Rickets
8) Define Ergonomics, Principles of Ergonomics, Epidemiology of MSK disorders and their prevention
9) Define and classify wounds andDescribe types of hurt according to Qisas and Diyat Act
10) Describe firearm and explosives injuriesRTAs, Railway and Aircraft injuries and Medico legal aspects of wounds
11) Describe Osteoporosis and Osteomalacia and develop its management plan
12) Discuss Rheumatoid Arthritis, Ankylosing SpondylitisMyopathies
13) Describe types of fracture and explain the open fractures
14) Explain the emergency treatment of an injured limb.
15) Identify and describe common benign and malignant bone tumours.
16) Describe common ligamentous, tendon injuries and common spinal fractures
17) • Describe the pathological lesions of skin and their clinical presentation with differential diagnosis
18) Interpret normal X-Rays and X-Rays showing structural deformities
19) Explain bone pains and aches in children
20) Discuss Congenital/Hereditary Myopathies

21) Describe the basic Anatomy of Eye ,Ear, Nose, Para nasal Sinuses and Oral Cavity

22) Communication Skills-Dealing with patients

23) Behavioral Sciences / Professionalism-Attributes of Professionalism

24) Research-Study Designs,Research question

25) Identify morphological features of Basal cell carcinoma and Squamous cell carcinoma,Tuberculous osteomyelitis

26) Writing a prescription for a patient with Rheumatoid arthritisand Gout

27) Identify types of mechanical wound,causative weaponmanner of wound causation, and medico legal certificate for the given wound

28) Acquire a thorough history in relevance to MSK and take focused general examination of musculoskeletal system,evaluate and interpret the X-ray to diagnose fractures/musculoskeletal conditions.

29) Discuss the radiological characteristics of fractures and radiological characteristics of dislocations.

SpecificLearningObjectives

Table 3: LearningObjectives Theme Wise

Subject	Topic	Hours	Learning objectives
Theme I Aching Bones			
Anatomy	DescribeImportant Anatomical Characteristics of MSK	1	Discuss important anatomical characteristics of musculoskeletal system.
Physiology	Important Physiological Characteristics of MSK	1	Discuss important Physiological characteristics of musculoskeletal system
Pathology	Metabolic diseases of bone	1	Describe the following metabolic diseases of bone from pathological point of view: • Osteopenia and Osteoporosis • Paget Disease (OsteitisDeformans) • Osteomalacia and Rickets
	Fracture and Osteonecrosis	1	Classify fractures and describe healing process in fractures Enlist aetiologies of osteonecrosis (Avascular Necrosis) Describe clinical features and morphological findings in osteonecrosis
	Osteomyelitis	1	Classify osteomyelitis and delineate its etiology, pathogenesis, common clinical features, morphological findings, and complications related to osteomyelitis
	Bone Tumors	1	Classify bone tumors.
			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	1	Discuss the frequency of different cartilaginous tumors in general population
			Enlist common clinical features of common cartilaginous tumors
	Tumors of Unknown Origin	1	Describe etiology, pathogenesis, and key clinico-morphological features of Ewing's Sarcoma and Giant Cell Tumor
	Lesions Simulating Primary Neoplasms)	1	Describe key clinico-morphological features and essential points in the pathogenesis of Fibroma
Pharmacology	NSAIDs	1	Describe the clinical applications of NSAIDs in the treatment of musculoskeletal disorders
	Drug affecting Bone & Mineral Homeostasis	2	.Classify drugs used in metabolic bone disorders
			. 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
			Describe the mechanism of action, clinical uses and adverse effects of Bisphosphonates
			Describe the mechanism of action, clinical uses and adverse effects of calcitonin
			Classify drugs used to treat osteoporosis
			Explain the mechanism of action of SERM (Raloxifene) and RANK ligand (Denosumab
Forensic Medicine	Mechanism of production of wound	1	Mechanism of production of wound
			Describe mechanism of action of wound production associated factors, appearance and complications.
	Abrasion	1	. Define and classify abrasion
			. 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	1	Describe the medico legal aspects of 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
	Lacerated wound	1	.Define and Classify lacerated wound
			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	1	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	1	Define and classify Stab wound
			.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	1	Explain the salient features of diagnosing Battered baby syndrome .
Community Medicine	Ergonomics	1	Describe Ergonomics
			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)Rehabilitation of disabilities: Poliomyelitis /	1	• Explain the types of rehabilitation and public health issues faced by the disabled person, and measures to be taken for rehabilitation • Discuss epidemiology and prevention of Osteoporosis, Osteomalacia and Rickets Define disabilities and its types, and concepts, and distinguish between impairment, disability and handicapped, and significance of DALYs and QALYs .Describe the Epidemiology, determinants & distribution of poliomyelitis Describe the prevention and control measures and rehabilitation of Poliomyelitis
Medicine	**Osteoporosis and Osteomalacia**	1	Describe Osteoporosis and Osteomalacia
			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**	**1**	Describe and illustrate types of fracture, fracture patterns, displacement and angulation of fractures in children and adults
			Explain open fractures Discuss the basic principles of wound debridement
	Bone Tumours	1	To recognize, investigate and describe the radiological features of common benign and malignant Bone Tumours.
Radiology	**X-Ray Interpretation**	1	Identify and interpret different types of fractures
Eye	**Anatomy of Eye**	1	Describe anatomy of Orbit
ENT	**Ear**	1	Explain anatomy of ear
Paeds	**Bone pains and aches in children**	1	Common causes of bones aches and pains including Growing pains in children
			Discuss nutritional Rickets causation, clinical presentation, Lab and Radiological findings and prevention
	Skeletal dysplasia's	1	Discuss clinical feature and differential diagnosis of the following • Achondroplasia • Osteopetrosis OsteogenesisImperfecta
PRIME/Research	Proposal writing	3	Write a proposal for research project using KMU or CPSP guidelines or any other standard guidelines
PRIME/MEDICAL EDUCATION	**Attributes of professionalism- Empathy**	1	Discriminate empathy and sympathy
			Demonstrate empathy in patient- health professional interaction
Theme II Joint Stiffness			

Pathology	Osteoarthritis	1	Describe aetiology and pathogenesis of osteoarthritis
			Discuss clinical and morphological features of osteoarthritis
			Enumerate complications of osteoarthritis
	Rheumatoid Arthritis	1	.Describe aetiology and pathogenesis of Rheumatoid Arthritis
			Discuss clinical and morphological features of Rheumatoid Arthritis
			Enumerate complications of Rheumatoid Arthritis
	SeronegativeSpondyloarthropathies	1	.Classify and explain Spondyloarthropathies
			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	1	Describe etiology and pathogenesis of Suppurative Arthritis
			Discuss clinical featuresand morphological features of Suppurative arthritis
			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
	Rheumatic Fever	1	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	1	Enlist different types of crystal- Induced arthritis
			Describe key points of aetiology, pathogenesis, clinical features, morphological features, and complications of: • Gout • Calcium Pyrophosphate Crystal deposition Disease (Pseudo- Gout)
Pharmacology	Pharmacotherapy of Gout	2	Classify drugs used to treat gout
			Describe the role of NSAIDs in the treatment of gout
			.Describe the role of Glucocorticoids in the treatment of gout
			Describe the mechanism of action of various drugs (Colchicine, Probenecid, Allopurinol, Febuxostat) used in the treatment of 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	3	Classify drugs used in Rheumatoid Arthritis
			Discuss the role of NSAIDs in Rheumatoid Arthritis
			Discuss the role of Glucocorticoids in Rheumatoid Arthritis
			Define and classify DMARDs
			Enlist biological and non-biological agents used to treat rheumatoid arthritis
			Describe pharmacokinetics mechanism of action, clinical uses and adverse effects of methotrexate.
			Enlist adverse effects and therapeutic uses of DMARDs
Forensic	Age of Wound	1	Describe events associated with wound healing

sic Medici ne	&Complication		Differentiate between old and fresh wound
			Describe injury zone on the basis of histo-chemical changes and Biochemical events taking place.
	Qisas&Diyat	1	Define hurt, Wound & injury
			.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	1	Describe the salient features of injured person medical aid act
	Work-men compensation laws	1	.Describe the salient features of Work-men compensation laws
Medicine	Rheumatoid Arthritis	1	.Describe Rheumatoid Arthritis with its clinical presentation and differential diagnosis
	Ankylosing Spondylitis		Describe Ankylosing Spondylitis with its clinical presentation and differential diagnosis
Orthopedics	Bone and Joint Infections	1	Descirbe the aetiology, pathology, clinical presentation and investigations of Bone and Joint infections
ENT	Nose, Para Nasal Sinuses & Oral Cavity	1	Discuss anatomy of Nose, Para nasal sinuses & oral cavity
Paeds	Juvenile Idiopathic arthritis (JIA)	1	Discuss criteria for classification of JIA
			Discuss its clinical features and differential diagnosis

PRIME/MEDICAL EDUCATION	Communication Skills: Dealing with Patients	1	Explain importance of answering questions and giving explanation and/or instructions .

Theme IIIMuscle weakness and Trauma			
Pathology	Tumors of adipose tissue	1	. Classify soft tissue tumors and provide a brief description of their salient clinical features
			Enlist key morphological features of lipoma and liposarcoma
	Fibrous Tumors	1	.Describe important clinico- pathological and morphological features of: • Nodular Fasciitis • Fibromatoses
	Muscle tumors		.Classify muscle tumors
			Describe etiology, clinico- morphological features, and complications of Rhabdomyosarcoma
		1	.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	1	.Describe pathological features of Skeletal Muscle Atrophy
			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
		1	Describe pathological features of Toxic Myopathies
	Inherited Diseases of Skeletal Muscle		Describe genetic abnormality, morphology and clinical features of Muscular Dystrophies
Pharmaco	Skeletal muscle	3	Classify skeletal muscle relaxants

logy	relaxants ,		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	2	Discuss injuries to the driver & front seat occupant and rare seat occupant.
			Discuss spinal injuries including Whiplash injury and railway spine
			.Explain Railway injuries with medico legal significance
			Discuss Air crash accidents
	Firearm Injuries	3	.Describe wound ballistics and its types
			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

	Injures By Explosives	1	.Describe mechanism of production of injuries by bomb blast
			Explain different causes of death in blast injuries
			.Interpret Autopsy findings in explosion fatalities
	Thermal Injuries	1	Describe Thermal Injuries
			Describe their classifications
			Describe Burns and Scalds
	Electrical Injuries	1	Explain electrocution
			Describe PM findings
			Types of electrical injuries
			Explain Lightning
Community / Medicine	Accidents and its prevention)	1	. Describe of types of accidents and their mechanisms and their prevention (Haddon`s model)
			.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	1	.Define Myopathy
			Enlist Myopathies (Hereditary & Acquired Myopathies)
			Describe the etiology and clinical features of Myopathies
			Plan investigations for Myopathies
Orthopedic	Application of Cast	1	Explain the emergency treatment of an injured limb

			.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
	Soft Tissue Injuries, Spinal Injuries	1	I.Describe the common ligamentous and tendon injuries and advise appropriate management
			.Recognize common Spinal fractures, and provide appropriate initial management
Paeds	Congenital/Hereditary Myopathies	1	Discuss common congenital and hereditary myopathies, their genetics, causation, clinical presentation, diagnosis
	Duchene Muscular dystrophy (DMD)	1	Describe DMD, its clinical presentation and differential diagnosis
Theme IVSkin Rash and Itching			

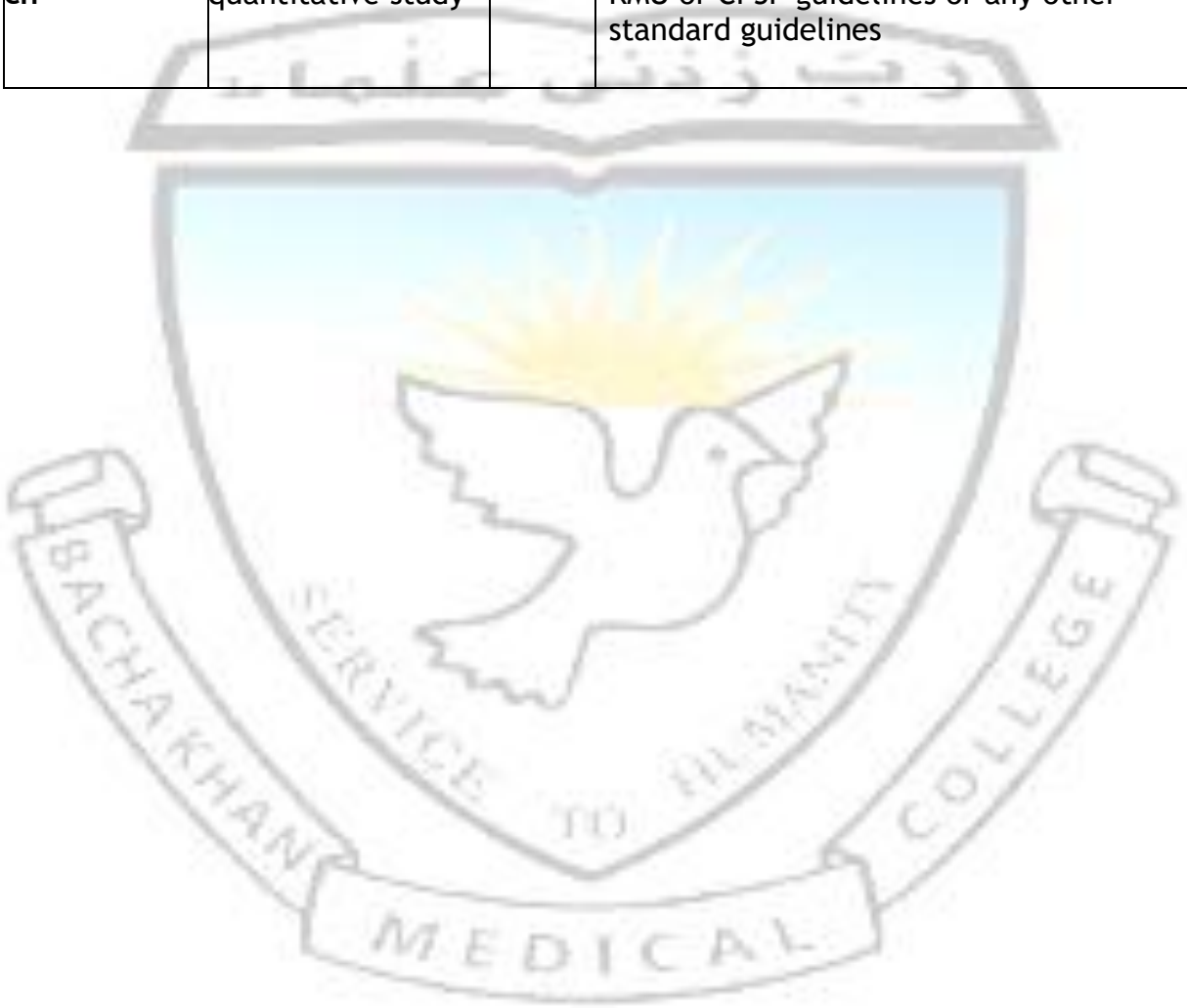
Pathology	Important pathological terms	1	.Define the following skin lesions and describe these with respect to their etiologies and gross morphological features. • Macule • Papule • Nodule • Plaque • Vesicle • Bulla • Blister • Pustule • Scale • Lichenification • Excoriation Hyperkeratosis • Parakeratosis • Acanthosis • Dyskeratosis • Acantholysis • Papillomatosis • Lentiginousspongiosis • Urticaria • Pemphigus • Bullous pemphigoid • Warts
	Eczematous dermatitis	1	Classify eczematous dermatitis
			.Describe the morphological and clinical features of acute eczematous dermatitiss
			Describe the etiology and pathogenesis of • Contact dermatitis • Atopic dermatitis

			• Drug related eczematous dermatitis • Photoeczematus eruption • Primary irritant dermatitis
	Erythema multiforme	1	List the conditions which are associated with erythema multiforme and describe its clinical features
	Psoriasis	1	Describe the etiopathogenesis, morphological and clinical features of psoriasis
	Pre-malignant epithelial lesions	1	List the pre-malignant epithelial lesions (Epidermal) • List the predisposing factors for squamous cell carcinoma of skin • Differentiate squamous cell carcinoma from basal cell carcinoma on the basis of morphology and clinical features
\	Nevocellular Nevi and Malignant Melanoma	1	.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 dysplastic nevi • Describe malignant melanoma with respect to frequent site oforigin, clinical and morphological features
	Viral skin infections	1	Describe the following viral skin infections in context of etiopathogenesis: • Herpes simplex virus • Herpes zoster virus .
	Fungal skin infections	1	Classify and describe the following fungal skin infections in context of etiopathogenesis: • Tinea • Candida
	Skin and soft tissue infections	1	.Describe the following skin lesions in context of ethiopathogenesis and diagnosis • Impetigo

			• Cellulitis / Erysipelas • Folliculitis • Skin Abscess (Furuncle & Carbuncle) • Necrotizing Soft Tissue Infections
Pharmacology	Drugs used for dermatological disorders	2	Classify dermatological preparations
			.Enlist topical antibacterial, antifungal &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	1	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 • Bullous pemphigoid • Warts
	Pre-malignant skin conditions	1	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 clinical presentations
			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

Family medicine	Leishmaniasis	1	Explain the clinical features and management of cutaneous Leishmaniasis in primary healthcare
Paeds	Juvenile Dermatomyocytis (JDM)	1	Discuss diagnostic criteria of JDM
			Discuss its clinical features differential diagnosis
PRIME/Research	Qualitative and quantitative study	2	Write a proposal for research project using KMU or CPSP guidelines or any other standard guidelines



Pathology Practicals

Week	Topic	Practical
Week 1	Tuberculous osteomyelitis	Identify gross and microscopic morphological features of tuberculous osteomyelitis
Week 2	Osteogenic sarcoma, Osteoclastoma and chondrosarcoma	Identify gross and microscopic morphologic features of osteogenic sarcoma, osteoclastoma and chondrosarcoma
Week 3	ASO (Anti Streptolysin O) test	Perform ASO (Anti Streptolysin O) test by latex agglutination technique
Week 4	Tumors of Skin	Identify gross and microscopic features of • Squamous cellcarcinoma • Basal cellcarcinoma

Pharmacology Practicals

Week	Topic	Practical
Week 1	Gout	Write prescription for Gout
Week 2	Rheumatoid Arthritis	Write prescription for Rheumatoid Arthritis
Week 4	Drugs used to treat Dermatological Disorders	Write down prescription for scabies.
		Write down prescription for Psoriasis

Forensic Practicals

Week	Topic	Practical
Week 1	Examination of wound and weapon	• Abrasion • Bruise • Laceration • Incisedwound • Qisas and Diyatmodels/ • Dura prints ofinjuries
Week 2	Examination of wound and weapon	• Stabwound • Fracture • Displacement • Qisas and Diyat models of injuries/ multimedia slides remaining

Week 3	Examination of wound and weapon	Firearm injuries / Weapons Identification of bullets
Week 4	Writing a medico legal certificate	Medicolegal report writing in case of firearm Injuries

Timetables

The timetable for the module will be shared via WhatsApp in the BKMC academic activities group. It will also be displayed on college notice boards in advance.

Instructional Strategies

The following teaching-learning strategies are used to promote better understanding.

- ❖ Interactive lectures
- ❖ Small group discussions
- ❖ Clinical rotation in the hospital
- ❖ Self-directed learning.

Learning Site

Library
Ambulatory care settings
Hospital Wards
Lecture theatres
Skills Laboratory

LearningResources

Table4: ReferenceTextbooks

S #	Subjects	Resources
1.	Anatomy	**A.GROSSANATOMY** 1.K.L.Moore,ClinicallyOrientedAnatomy **B.EMBRYOLOGY** 1. KeithL.Moore.TheDevelopingHuman 2. Langman'sMedicalEmbryology
2.	Community Medicine	unityMedicinebyParikh unityMedicinebyMIlyas StatisticsfortheHealthSciencesbyJanWKuzma
3.	Pathology	1. Robbins&Cotran,PathologicBasisofDisease,9th edition. 2. RapidReviewPathology,4th editionbyEdwardF.GoljanMD
4.	Physiology	1. TextbookOfMedicalPhysiologybyGuytonAndHall 2. Ganong'sReviewofMedicalPhysiology 3. HumanPhysiologybyLauraleeSherwood 4. Berne&LevyPhysiology 5. Best&TaylorPhysiologicalBasisofMedicalPractice
.5	Paediatrics	BasisofPediatrics (8thEditionPervezAkbar)
6	ENT	PL Dhingra 7th edition Cuming standards, ENT
7	Surgery	Bailey and Love. Short Practice of Surgery 25th edition 2008
8	Medicine	Kumar and Clark for Medicine 8th edition 2012 Davidson
9	Ophthalmology	Parsons' Disease of the EYE Short Kanski Clinical Ophthalmology Shafi M Jatoi
10	Pharmacology	Basic and Clinical Pharmacology by Katzung BG, Masters SB, Trevor AJ, 14th Edition. Lippincott's Illustrated Reviews: Pharmacology, Clark MA, Finkel R, Rey JA, Whalen K, 7th Edition. Goodman & Gilman's The Pharmacological Basis of Therapeutics, Brunton LL 12th Edition
11	Forensic Medicine	Parikh new edition Nasib R Awan KrishanVij Smart series (SSS) Forensic MCQs with explanation Gazette Pakistan Penal Code (PPC) VV Pillay and Rajesh Bardale

AssessmentPlan-3rdYearMBBS

Theyear-3willbeassessedin3blocks

1) Block-1(Foundation 2.Infection and Inflammation module)willbeassessedin**paper-G**

2) Block-2(Multisystem Blood 2 and MSK 2module)willbeassessedin**paper-H**

3) Block-3(Respiratory 2 and CVS 2 module)willbeassessedin**paper-I**

4) Eachwrittenpaperconsistsof120MCQs.

5) Internalassessmentwillbeaddedtofinalmarksin KMUasshowninbelo wtable.

6) InOSPE,eachstationwillbeallotted6marks,andatotalof120(+10% marksofinternalassessment)marksareallocatedforeachOSPE/OS CEexamination.

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

Year 3 Professional Exam in System-based Curriculum

Theory paper	Modules	Theory marks	Internal assessment theory (10%)	OSPE/OSPE	Internal assessment OSPE/OSPE (10%)	TOTAL MARKS
Paper G	Foundation-II Inf.&Inflamm.	120	14	120	14	268
Paper H	Multisystem Blood 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

AssessmentBlueprints

Table 2 Paper-H (Multisystem, Blood and MSK)

Subjects	Total MCQs
MSK	44
Multisystem I	41
Blood and Immunology	35
Total	**120**

Table6:OSPE/OSCEDistribution

Subjects	Total OSCEs
MSK	10
Multisystem I	0
Blood and Immunology	10
Total	**20**

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