Rajiv Gandhi University of Health Sciences

Bengaluru, Karnataka

Department of Orthopaedics

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1. Goals and Objectives for the undergraduate MBBS curriculum in Orthopaedics (As per Graduate Medical Education Regulations (GMR), 1997 Part II)

GOAL

The aim of teaching the undergraduate student in Orthopaedics (including Trauma) and Physical Medicine and Rehabilitation is to impart such knowledge and skills that may enable him to diagnose and treat common ailments. He/she shall have ability to diagnose and suspect presence of fracture, dislocation, acute osteomyelitis, acute poliomyelitis and common congenital deformities such as Congenital Talipes Equino Varus (CTEV) and Developmental Dysplasia of Hip (DDH).

(a) **COMPETENCIES**: The student must demonstrate:

- 1. Ability to recognize and assess bone injuries, dislocation and poly-trauma and provide first contact care prior to appropriate referral,
- 2. Knowledge of the medico-legal aspects of trauma,
- 3. Ability to recognize and manage common infections of bone and joints in the primary care setting,
- 4. Recognize common congenital, metabolic, neoplastic, degenerative and inflammatory bone diseases and refer appropriately,

5. Ability to perform simple orthopaedic techniques as applicable to a primary care setting,

6. Ability to recommend rehabilitative services for common orthopaedic problems across all ages.

(b) **INTEGRATON**: The teaching should be aligned and integrated horizontally and vertically in order to allow the student to understand

the structural basis of orthopaedic problems, their management and correlation with function, rehabilitation and quality of life.

List	List of Topics and Competencies in Phase II MBBS, Phase III Part 1 and Part 2 MBBS					
SI.No	Topics	Competencies	Procedures requiring certification			
1	Skeletal trauma, poly trauma	06	Nil			
2	Fractures	16	Nil			
3	Musculoskeletal Infection	03	Nil			
4	Skeletal Tuberculosis	01	Nil			
5	Rheumatoid Arthritis and associated inflammatory disorders	01	Nil			
6	Degenerative disorders	01	Nil			
7	Metabolic bone disorders	01	Nil			

8	Poliomyelitis	01	Nil
9	Cerebral Palsy	01	Nil
10	Bone Tumors	01	Nil
11	Peripheral nerve injuries	01	Nil
12	Congenital lesions	01	Nil
13	Procedural Skills	02	Nil
14	Counselling Skills	03	Nil
	Total	39	Nil

Period of Training in Phase II and Phase III								
	Phase II	Phase III Part 1	Phase III Part 2	Total				
Theory	NONE	40 hours	50 hours	90 hours				
Clinicals	2 weeks	4 weeks	2 weeks	8 weeks				

Minimum Teaching Hours in MBBS Phase II, Phase III Part 1 and Part 2								
Term	Lectures (hours)	Small group discussions (SGD) (Tutorials / Seminars) /Integrated learning (hours)	Self - Directed Learning (SDL) (hours)	Total (hours)				
Phase II	NONE	NONE	NONE					
Phase III Part 1	15	20	05	40				
Phase III Part 2	20	25	05	50*				
Total				90				
* 25% of allotted time :	shall be utilized	d for integrated learning						
AETCOM (OR14.1, 14.2, 14.3)								
Phase II								

Phase III Part 1		
Phase III Part 2	2 hours (OR 14.1, 14.2, 14.3)	
Total		

Specific Learning Objectives

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH / SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Vertical integration	Horizontal integration
TOPIC : SK	ELETAL TRAUMA, Poly trauma							
OR1.1	Describe and discuss the Principles of pre-hospital care and Causality management of a trauma victim including principles of triage.	К	к/кн	Y	Lecture with video, Small group discussion	Written/ Viva voce/ OSCE/ Simulation		GENERAL SURGERY ANESTHESIOLOGY
Specific lear	ning objectives:							
1.1.1	Discuss prehospital trauma care in a polytrauma patient.							

1.1.2	Enumerate interventions that may be performed by emergency personnel prior to transport to hospital in a polytrauma patient.				
1.1.3	Differentiate polytrauma and multiple fracture patients.				

1.1.4	Enumerate the steps in primary survey of a polytrauma patient in Emergency Department (ED).				
1.1.5	Discuss BLS and ATLS.				
1.1.6	Discuss secondary and tertiary survey.				
1.1.7	Discuss the concept of "GOLDEN HOUR"				
1.1.8	Discuss the principles of "TRIAGE"				

1.1.9	List the diagnostic tests done in poly trauma patient in ED.				
1.1.10	Discuss the management of polytrauma patient in ED.				9

OR1.2	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of shock	к	к/кн	Y	Lecture	Written/ Viva voce/ OSCE/ Simulation	GERERAL SURGERY
Specific lear	ning objectives:						

1.2.1	Define shock.				
1.2.2	Enumerate the various causes of shock.				
1.2.3	Describe the pathophysiology as a basis for signs and symptoms associated with progression through various stages of shock.				
1.2.4	Classify hemorrhagic shock.				
1.2.5	Discuss the investigative work up in patients with various causes of shock.				
1.2.6	Describe the principles of management of hemorrhagic shock in a poly trauma patient in emergency department.				
1.2.7	Discuss the role of pharmacotherapy in various shock states.				

1.2.8	Discuss massive blood transfusion protocol in hemorrhagic shock.				
1.2.9	Discuss the ideal fluid resuscitation in shock.				

OR1.3	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of soft tissue injuries	К	к/кн	Y	Lecture, Small group discussion	Written/OSCE		GENERAL SURGERY		
Specific learning objectives:										
1.3.1	Enumerate the tissues involved in soft tissue injuries (STI)									
1.3.2	Classify soft tissue injuries									

1.3.3	Discuss the common causes of soft tissue injuries				
1.3.4	Discuss the clinical features of soft tissue injuries				

1.3.5	Discuss the treatment of sprains depending on grading					
1.3.6	Discuss the common investigations to diagnose soft tissue injuries					
1.3.7	List common ligaments which are injured. Knee Joint/ Ankle					
1.3.8	Enumerate the sports which puts athletes in risk for soft tissue injuries with examples.		7			
1.3.9	List common causes for overuse soft tissue injuries					
1.3.10	Discuss the principles of management of soft tissue injuries.	\bigtriangledown				

OR1.4	Describe and discuss the Principles of management of soft tissue injuries.	к	к/кн	Y	Lecture, small group discussion	Written/ Assessment/ Viva voice		GENERAL SURGERY
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Specific lear	Specific learning objectives:										
1.4.1	Discuss the principles of management of soft tissue injuries										
1.4.2	Describe "RICE" protocol in soft tissue injuries.										
1.4.3	Discuss "NO HARM" protocol in soft tissue injuries.										
1.4.4	Discuss the management of chronic overuse soft tissue injuries (tendinitis and bursitis)										

1.4.5	Discuss how will you give prevention tips on avoiding soft tissue injuries for your non-medical friends.				

OR1.5	Describe and discuss the aetiopathogenesis , clinical features, investigations, and principles of management of dislocation of major joints, shoulder, knee ,hip.	к	к/кн	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE/ Simulation	
Specific lear	ning objectives:						
1.5.1	Define dislocation and subluxation.						
1.5.2	Discuss etiology and pathoanatomy of shoulder dislocation.						
1.5.3	Classify shoulder dislocations.						
1.5.4	Discuss clinical features of anterior and posterior shoulder dislocation.	\sum					
1.5.5	Discuss relevant investigations in shoulder dislocations.			0			
1.5.6	Define recurrent shoulder dislocations.						
1.5.7	Enumerate the essential lesions of recurrent anterior dislocation.						

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1.5.8	Discuss the methods of closed reduction of shoulder dislocations.				
1.5.9	Discuss the post reduction protocol following closed reduction of anterior dislocation of shoulder.				
1.5.10	Enumerate the complications of shoulder dislocations.				

1.5.11	Describe the mechanism of knee dislocations.				
1.5.12	Classify knee dislocations.				
1.5.13	Discuss associated injuries with knee dislocation.				

1.5.14	Discuss relevant investigation in knee dislocation.				
1.5.15	Discuss the management of knee dislocation.				
1.5.16	Enumerate the complications associated with knee dislocations.				

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1.5.17	Classify hip dislocations.					
1.5.18	Explain the mechanism and clinical features of anterior dislocation of hip.			$\boldsymbol{\wedge}$		
1.5.19	Describe the mechanism and clinical features of posterior dislocation of hip.					
1.5.20	List the investigation in hip dislocation.					
1.5.21	Discuss the management of anterior and posterior dislocation.					
1.5.22	Describe the post reduction protocol of hip dislocation.					
1.5.23	Enumerate the complication of hip dislocation.	X				

OR1.6	Participate as a member in the team for closed reduction of shoulder dislocation /hip dislocation /knee dislocation	к	к/кн/ SH	Y	Simulation, DOAP session	OSCE/ Simulation	
Specific lea	rning objectives:						

1.6.1	Discuss the principles of closed reduction of a dislocated joint.				
1.6.2	Describe the common closed reduction techniques of shoulder dislocation.				
1.6.3	Describe the common closed reduction techniques of hip dislocation.				
1.6.4	Observe, assist in closed reduction of shoulder dislocation in skill lab as an assistant using various methods.				
1.6.5	Observe , assist in closed reduction of hip dislocation in skill lab as an assistant using various methods.				

TOPIC : FI	RACTURES						
OR2.1	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fracture of clavicle.	К	к/кн	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE	

Specific lear	rning objectives:	
2.1.1	Describe the anatomy of clavicle and acromioclavicular joint.	
2.1.2	Discuss the mechanism of injury of clavicle fracture.	
2.1.3	Discuss the clinical features of clavicle fracture.	
2.1.4	Classify clavicle fractures.	
2.1.5	Enumerate associated injuries in fracture clavicle patient.	
2.1.6	Discuss the principles of management of clavicle fractures.	
2.1.7	List the surgical indications for clavicle fractures.	
2.1.8	Enumerate complications in clavicle fractures.	

OR2.2	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fractures of proximal humerus	К	к/кн	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE	
Specific lea	rning objectives:						
2.2.1	Describe the anatomy of proximal humerus.						
2.2.2	Discuss the blood supply and its importance.						
2.2.3	Explain the mechanism of injury.						

2.2.4	Discuss the clinical features and relevant investigations.				
2.2.5	Classify proximal humerus fractures.				
2.2.6	Discuss the principles of management of proximal humeral fractures.				

2.2.7	List the surgical indications of proximal humerus fractures.				
2.2.8	Enumerate the complications of proximal humerus fractures.				

OR2.3	Select, prescribe and communicate appropriate medications for relief of joint pain	к	к/к H/S H	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE	
Specific lear	ning objectives:						
2.3.1	Discuss the pathophysiology of joint pain.						
2.3.2	Enumerate the causes of joint pain .	X					
2.3.3	How do you evaluate join pain.		Ì				
2.3.4	Discuss WHO analgesics ladder						
2.3.5	Describe the role of opioid analgesics used in joint pains.						

2.3.6	Enumerate NSAIDS group of analgesics used in relief of joint pain.							
2.3.7	Mention parental analgesics used in relief of join pain.							
2.3.8	Discuss the side effects of chronic use of NASIDS in a osteoarthritic joint pain.							
2.3.9	Name some topical analgesics.							
2.3.10	Discuss the role of intra-articular steroid injections in osteoarthritis.							
2.3.11	Discuss the role of viscosupplementation.in osteoarthritis.							
OR2.4	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of fracture of shaft of humerus and supracondylar fracture humerus with emphasis on neurovascular deficit	К	к/кн	≻	Lecture, Small gro Bed side clinic	ip discussion,	Written/ Viva voce/ OSCE	
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Specific learning objectives:

2.4.1	Discuss the mechanism of injury and pathoanatomy of fracture shaft of humerus.				
2.4.2	Describe the classification and various patterns of fracture shaft of humerus.				
2.4.3	Define Holstein-Lewis fracture.				

2.4.4	Discuss the principles of management of fracture shaft of humerus.				
2.4.5	Enumerate various methods of conservative management of fracture shaft of humerus.				

2.4.6	Discuss various surgical methods of fixation of fracture shaft of humerus				
2.4.7	Discuss the management of humerus fracture with radial nerve Injury.				
2.4.8	Define supracondylar fracture of humerus.				
2.4.9	Differentiate supracondylar and intercondylar humerus fractures.				

2.4.10	Classify supracondylar fracture in children.				
2.4.11	Discuss the radiological findings in paediatric supracondylar fracture humerus.				
2.4.12	Discuss the management of paediatric supracondylar fracture humerus.				19

2.4.13	Discuss the management of paediatric supracondylar fracture with absent radial pulse.				

2.4.14	Define compartment syndrome.				
2.4.15	Discuss the investigations and management of compartment syndrome of forearm.				
2.4.16	Enumerate the various complications of paediatric supracondylar fracture humerus				

OR2.5	Describe and discuss the aetiopathogenesis, clinical features, mechanism of injury, investigation & principles of management of fractures of both bones forearm and Galeazzi and Monteggia injury	К	к/кн	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE	
Specific lear	ning objectives:						
2.5.1	Describe the anatomy of radius and ulna.						
2.5.2	Discuss the mechanism of injury of fracture both bones of forearm.						
2.5.3	Discuss clinical features and investigations in fracture both bones of forearm.						
2.5.4	Define greenstick fracture.						

2.5.5	Discuss the principles of management of forearm fracture in children				
2.5.6	Discuss the principles of management of forearm fracture in adults				

2.5.7	Define Galeazzi fracture.									
2.5.8	Describe the mechanism of injury, pathoanatomy and clinical features in Galeazzi fracture.									
2.5.9	Classify Galeazzi fracture.									
2.5.10	Discuss the management of Galeazzi fracture									

2.5.11	Define Monteggia fracture.				
2.5.12	Describe the mechanism of injury, pathoanatomy and clinical features of Monteggia fracture.				
2.5.13	Classify Monteggia fracture.				
2.5.14	Discuss the management of Monteggia fracture.				

2.5.15	Enumerate various complications of forearm fractures.				

OR2.6	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of distal radius	к	к/кн	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE	\$\$	
Specific lear	ning objectives:							
2.6.1	Define Colle's fracture.							
2.6.2	Discuss the mechanism of injury, pathoanatomy and radiological findings in Colle's fracture.							
2.6.3	Define Smith's fracture.							
2.6.4	Define Barton's fracture.	\mathbf{N}						
2.6.5	Describe the criteria for conservative management of fractures of distal radius.							
2.6.6	Discuss the closed reduction technique of Colle's fracture.							

2.6.7	Discuss the surgical management of fractures of distal radius.				
2.6.8	Describe the complications and its management of fractures of distal radius.				

OR2.7	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of pelvic injuries with emphasis on hemodynamic instability	К	к/кн	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE				
Specific learning objectives:										
2.7.1	Discuss the anatomy of pelvis.									
2.7.2	Describe the mechanism of injury, pathoanatomy and clinical features of pelvic fractures.									

2.7.3	Classify pelvic fractures.				

2.7.4	Discuss the investigations in pelvic fractures.									
2.7.5	Describe the principles of management of pelvic fractures.									
2.7.6	How will you assess and manage a patient with pelvic fracture with haemodynamic instability.									

OR2.8	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of spine injuries with emphasis on mobilization of the patient	к	к/кн	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE			
Specific learning objectives									
2.8.1	Describe the anatomy of spine.								
2.8.2	Discuss the mechanism of injury, clinical features and investigations of a patient with spine injury.								

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2.8.3	Differentiate stable and unstable spine fractures.					
2.8.4	Classify spine fractures.					
2.8.5	Define Hangman's fracture.					
2.8.6	Define whiplash injury.					
2.8.7	Discuss the principles of management of spine fractures.					
2.8.8	Discuss the surgical management of spine fracture with spinal cord injury.					

2.8.9	Discuss how will you rehabilitate quadriplegic and paraplegic patients following spine fractures.				

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OR2.10	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of proximal femur.	к	к/кн	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE				
Specific learning objectives:										
2.10.1	Discuss the blood supply of femoral head.									
2.10.2	Define and classify Intracapsular fractures of neck of femur.									
2.10.3	Discuss the clinical features and investigations of intracapsular fracture neck of femur									
2.10.4	Discuss the management of intracapsular fracture neck of femur in all age groups.									
2.10.5	Enumerate complications of fracture neck of femur and discuss its management.									
2.10.6	Define extracapsular fracture neck of femur									

2.10.7	Classify extracapsular fracture neck of femur.				
2.10.8	Describe the clinical features, investigations and management of extracapsular fracture neck of femur.				
2.10.9	Discuss the management of intertrochanteric fracture.				

OR2.11	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of (a)Fracture patella (b) Fracture distal femur (c) Fractureproximal tibia with special focus on neurovascular injury and compartment syndrome	к	к/кн/ SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE			
Specific learning objectives:									
2.11.1	Discuss the anatomy of extensor mechanism of knee.								
2.11.2	Discuss mechanism of injury and clinical features of patella fracture.								
2.11.3	Interpret radiograph of knee with patella fracture patterns.								
2.11.4	Discuss the general principles of management of fracture patella.	\geq							
2.11.5	Discuss the mechanism of injury in supracondylar and intercondylar fracture femur.								
2.11.6	Discuss general principles of management of distal femur fractures.	\mathcal{I}							

2.11.7	Classify proximal tibia fractures				
2.11.8	Discuss the general principles of management of proximal tibia fractures.				
2.11.9	Enumerate the common complications of proximal tibia fracture.				
2.11.10	Discuss the etiopathogenesis, clinical features, investigation and management of compartment syndrome with proximal tibia fracture.				

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OR2.12	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of Fracture shaft of femur in all age groups and the recognition and management of fat embolism as a complication	К	к/кн	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		
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Specific lear	ning objectives:				
2.12.1	Discuss the etiology of fracture shaft of femur				

2.12.2	Discuss the clinical features and investigations in fracture shaft of femur				
2.12.3	Discuss the management of fracture shaft of femur in children.				
2.12.4	Discuss the management of fracture shaft of femur in adults				
2.12.5	Enumerate the complications of fracture shaft of femur				
2.12.6	Define fat embolism.				
2.12.7	Discuss the clinical features and management of fat embolism.				
2.12.8	Explain the preventive steps to avoid fat embolism in long bone fractures.				

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OR2.13	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of: a) Fracture both bones leg b) Calcaneus c) Small bones of foot	К	к/кн	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE	
Specific lear	ning objectives:				-		
2.13.1	Discuss the mechanism and clinical features of fracture both bones of leg						
2.13.2	Discuss the conservative and surgical management of fracture both bones of leg						
2.13.3	Discuss the management of isolated fibula fracture						
2.13.4	Discuss the fractures caused due to fall from height						

2.13.5	Classify calcaneal fractures.				
2.13.6	Discuss the radiological findings and management of calcaneal fractures.				

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2.13.7	What is Aviator's fracture.					
2.13.8	Define Jones fracture					
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OR2.14	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of ankle fractures	к	к/кн	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE	
Specific lea	rning objectives:				\frown		
2.14.1	Discuss the mechanism of injury of ankle fractures.						
2.14.2	Classify ankle fractures						
2.14.3	Discuss the principles of management of ankle fractures						
2.14.4	Define Cotton's fracture.						

2.14.5	Mention the complications of ankle fractures.						
OR2.15	Plan and interpret the investigations to diagnose complications of fractures like malunion, non-union, infection, compartment syndrome	К	к/к Н	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE	
Specific lear	ning objectives:						
2.15.1	Enumerate immediate, early and late complications of fractures.						
2.15.2	Define malunion						
2.15.3	Define nonunion.						
2.15.4	Define delayed union.						
2.15.5	Discuss the factors affecting fracture healing						
2.15.6	Classify nonunion of long bones.						
2.15.7	List the radiological investigations in nonunion.						

2.15.8	Discuss the investigation to rule out infections following fractures.				
2.15.9	Discuss the management of nonunion.				
2.15.10	Discuss the management of malunion.				
2.15.11	Define compartment syndrome.				
2.15.12	Discuss the clinical features of compartment syndrome.				
2.15.13	Discuss the investigations to rule out compartment syndrome.				
2.15.14	Discuss the indications for fasciotomy.				
2.15.15	Discuss the sequelae of compartment syndrome.				

OR2.16	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of open fractures with focus on secondary infection prevention and management	К	к/кн	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE	
Specific lea	rning objectives:						
2.16.1	Define open fractures.						
2.16.2	Classify open fractures.						
2.16.3	Discuss the etiology in open fractures.						
2.16.4	Discuss the management of open fractures.						

2.16.5	Describe antibiotic prophylaxis in open fractures.				
2.16.6	Discuss wound debridement and role of irrigation in open fractures.				
2.16.7	Enumerate the complications of open fractures.				

2.16.8	Discuss the prophylaxis against tetanus and gas gangrene.				

TOPIC: Mu	sculoskeletal Infection							
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of bone and joint infections. a) Acute Osteomyelitis. b) Subacute osteomyelitis. c) Acute Suppurative arthritis. d) Septic arthritis & HIV infection e) Spirochetal infection	K	к/кн	Y	Lecture, small group discussion, video assisted lecture	Written/ Viva voice/OSCE	Pathology, Microbiology	General Surgery
Specific lear	ning objectives:			20)			
3.1.1	Define osteomyelitis.							
3.1.2	Classify osteomyelitis.							
3.1.3	Discuss the epidemiological aspects of osteomyelitis.							

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3.1.4	Define septic arthritis.				
3.1.5	List the common organisms causing acute osteomyelitis.				
3.1.6	Discuss the routes of infection in osteomyelitis.				
3.1.7	Discuss the risk factors associated with osteomyelitis.				
3.1.8	Describe the clinical features and investigations in acute, subacute and chronic osteomyelitis.				
3.1.9	Enumerate types of sequestrum.				
3.1.10	Describe the principles of management of acute, subacute and chronic osteomyelitis.				

3.1.11	Define saucerization.				
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3.1.12	Enumerate the complications of chronic				
	osteomyelitis.				

3.1.13	Describe the clinical features, investigations and management of septic arthritis.						
3.1.14	Discuss the characteristics and management of septic arthritis in HIV patients.						
OR3.2	Participate as a member in team for aspiration of joints under supervision.	к	K/KH/S H	Y	Small group, Discussion. DOAP session	Viva voice/ OSCE/ Skill assessment.	
Specific lear	ning objectives:						
3.2.1	Define arthrocentesis.						
3.2.2	Discuss indications for arthrocentesis.						
3.2.3	Describe the informed consent procedure before aspirations.						
3.2.4	Perform the procedure of arthrocentesis of knee on a mannequin under supervision.						

3.2.5	Enumerate the complications of arthrocentesis.				

OR3.3	Participate as a member in team for procedure like drainage of abscess , sequestrectomy/ saucerization and arthrotomy.	К	к/кн/s Н	Y	DOAP session, Video demonstration	Viva voice/OSCE/Skills assessment.	General Surgery
Specific lear	ning objectives:						
3.3.1	Define abscess.		-	EN.			
3.3.2	Discuss the indications and contra indications of incision and drainage (I&D).		L				
3.3.3	Describe the procedure of I&D including appropriate anesthesia.						
3.3.4	Discuss the importance of aftercare and patient education about abscess and I&D.			K			
3.3.5	Define arthrotomy.			U.			
3.3.6	Discuss the indications of arthrotomy.						
3.3.7	Discuss the procedure of arthrotomy of knee joint.						
3.3.8	Define sequestrum.						

3.3.9	Discuss the types of sequestrum.								
3.3.10	Enumerate the operative methods in chronic osteomyelitis								
3.3.11	Differentiate involucrum from sequestrum.								
3.3.12	Discuss the procedure of saucerization.								
3.3.13	Mention the prerequisites before doing sequestrectomy.								
Topic : Ske	Topic : Skeletal Tuberculosis								
OR4.1	Describe and discuss the clinical features , investigation and principles of management of tuberculosis affecting major joints (hip, knee) including cold abscess and caries spine.	К	к/кн	Y	Lecture, Small group discussion, Case discussion.	Written /Viva voice/ OSCE	Pathology	General surgery	
Specific lear	ning objectives:								
4.1.1	Discuss the epidemiology of skeletal tuberculosis.								

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4.1.12

4.1.13

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Topic: Rhe	Topic: Rheumatoid Arthritis and associated inflammatory disorders.											
OR5.1	Describe and discuss the aetiopathogenesis , clinical features, investigations and principles of management of various inflammatory disorders of joints.	К	к/кн	Y	Lecture , Small group discussion, Bedside clinic	Written/Viva voice/OSCE		General medicine.				
Specific lear	Specific learning objectives:											
5.1.1	Define poly arthritis.											
5.1.2	Enumerate the causes of poly arthritic joint pain											

5.1.3	Enumerate various causes of inflammatory joint				
	diseases.				

5.1.4	Describe the etiopathogenesis, clinical features and investigations of rheumatoid arthritis.					
5.1.5	Discuss the articular deformities in rheumatoid arthritis					
5.1.6	Discuss the extra articular manifestations in rheumatoid arthritis					
5.1.7	Describe the medical management of rheumatoid arthritis.		7			
5.1.8	Describe the mechanism of action, dosage and side effects of DMARDS.					
5.1.9	Enumerate various causes of seronegative arthritis.					
5.1.10	Discuss ankylosing spondylitis	X				
5.1.11	Describe clinical features, investigations and management of crystalline arthropathies					

			<u>.</u>	-			
Topic: Deg	enerative disorders						
OR6.1	Describe and discuss the clinical features, investigations and principles of management of degenerative condition of spine (cervical Spondylosis, Lumbar Spondylosis, IVDP)	К	к/кн	Y	Lecture , Small group discussion, Case discussion	Written/Viva voice/OSCE	
Specific lear	ning objectives:						
6.1.1	Define degenerative disc disease.						
6.1.2	Discuss the etiopathogenesis and clinical features of intervertebral disc prolapse (IVDP).						
6.1.3	Discuss the general principles of management of IVDP.						
6.1.4	Discuss the differential diagnosis of radicular pain of lower limbs.						
6.1.5	Discuss the differential diagnosis of Low back pain.						

6.1.6	Define cervical spondylosis.				
6.1.7	Discuss the clinical features, radiological findings and management of cervical spondylosis.				

6.1.8	Define lumbar spondylosis.				
6.1.9	Discuss the clinical features, radiological findings and management of lumbar spondylosis				
6.1.10	Define spondylolisthesis.				

			6		Contraction of the local division of the loc				
Topic : Me	tabolic bone disorders								
OR7.1	Describe and discuss the aetiopathogenesis, clinical features , investigations and principles of management of metabolic bone disorders in particular osteoporosis , osteomalacia, rickets , Paget's disease.	к	к/кн	¥	Lecture , Small group discussion, Case discussion	Written /Viva voice/ OSCE			
Specific lear	Specific learning objectives:								
7.1.1	Define rickets and osteomalacia.								
7.1.2	Discuss the etiopathogenesis, clinical features and investigations of rickets.								
7.1.3	Discuss the pathophysiology, clinical features and investigations of osteomalacia.								
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7.1.4	Discuss the medical management of rickets and osteomalacia.				
7.1.5	Discuss the deformities in rickets and its surgical management.				
7.1.6	Define osteoporosis.				
7.1.7	Discuss the etiology and risk factors for osteoporosis.				
7.1.8	Classify osteoporosis.				
7.1.9	Describe the clinical features and investigations in osteoporosis.				
7.1.10	Discuss the general principles of management of osteoporosis.				

7.1.11	Discuss DEXA scan.				

7.1.12	Enumerate the common osteoporotic fractures.				
7.1.13	Discuss the lifestyle measures to prevent osteoporosis and its complications.				

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7.1.14	Define Paget's disease.						
7.1.15	Discuss the clinical features, investigations and management of Paget's disease						
OR7.2	Perform a systematic examination of a patient with deformity of Knee.	к	K/KH/S H	Y	DOAP session, Video demonstration	Viva voice/OSCE/Skills assessment.	General Surgery
Specific lear	ning objectives:						
7.2.1	Take an elaborate history in chorological order						
7.2.2	Perform generalized examination of patient						
7.2.3	Perform localized examination of the affected limb and discuss in terms of inspection, palpation, movements and measurements						
7.2.4	Define Genu Varum and Valgum and discuss etiologies and pathogenesis						
7.2.5	Discuss investigations required to diagnose and plan management of a patient with knee deformity						
7.2.6	Discuss management.						

Topic : Pol	iomyelitis						
OR8.1	Describe and discuss the aetipathogenesis, clinical features, assessment and principles of managing a patient with Post Polio Residual Paralysis.	К	к/кн	Y	Lecture , Small group discussion, Case discussion	Written /Viva voice/OSCE	
Specific le	arning objectives:						
8.1.1	Define poliomyelitis.						
8.1.2	Discuss the etiology, pathogenesis and clinical features of poliomyelitis.						
8.1.3	Discuss the types of poliomyelitis and its complications.						
8.1.4	What is PPRP(Post Polio Residual Paralysis).						

8.1.5	Discuss the signs and symptoms in post polio syndrome.				
8.1.6	How do you recognize the paralysis caused by poliomyelitis.				
8.1.7	Enumerate the common secondary problems following poliomyelitis.				

8.1.8	Mention the common contractures and deformities in PPRP.				
8.1.9	Discuss how do you evaluate a case of PPRP.				
8.1.10	Discuss the general principles of management of PPRP.				

Topic : Cer	ebral Palsy						
OR9.1	Describe and discuss the aetiopathogenesis , clinical features, assessment and principles of management of cerebral palsy patient.	К	к/кн	Y	Lecture , Small group discussion	Written/ Viva voice/ OSCE	
Specific lear	ning objectives:						
9.1.1	Define cerebral palsy.						
9.1.2	Discuss the etiopathogenesis of cerebral palsy.						
9.1.3	Classify cerebral palsy.						

9.1.4	Discuss the clinical features and investigations of cerebral palsy.				
9.1.5	Discuss the general principles of management of cerebral palsy.				
9.1.6	Discuss the common deformities of cerebral palsy.				
9.1.7	Mention common surgical procedures done in cerebral palsy.				

Topic : Bor	ne tumors							
OR10.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of benign and malignant bone tumors and pathological fractures.	К	к/кн	Y	Lecture , Small group discussion , Video assisted interactive lecture	Written/Viva voice/ OSCE	Pathology	General surgery. Radiotherapy

Specific lear	Specific learning objectives:							
10.1.1	Classify bone tumors.							
10.1.2	Enumerate common benign tumors.							

10.1.3	Discuss aetiopathogenisis, clinical features, investigations and management of Osteochondroma.				
10.1.4	List the complications of Osteochondroma.				
10.1.5	Discuss the etiopathogenesis, clinical features, radiological findings and management of Osteoclastoma.				
10.1.6	Discuss Enneking staging of malignant bone tumors.				
10.1.7	Discuss the technique of open bone biopsy in malignant bone tumors.				
10.1.8	Describe the etiopathogenesis, clinical features, investigations and management of osteosarcoma.				
10.1.9	Discuss the etiopathogenesis, clinical features, investigations and management of Ewing's sarcoma.				
10.1.10	Define pathological fracture.				
10.1.11	Enumerate the causes of pathological fracture.				
10.1.12	Discuss the criteria for impending pathological fracture.				
10.1.13	Discuss the general principles of management of pathological fractures.				

OR 10.2	Perform a systematic examination of a patient with bony swelling	К	к/кн/s Н	Y	DOAP session, Video demonstration	Viva voice/OSCE/Skills assessment.	General Surgery
Specific lear	ning objectives:						
10.2.1	Take an elaborate history in chorological order						
10.2.2	Perform generalized examination of patient						
10.2.3	Perform localized examination of the affected limb and discuss in terms of inspection, palpation, movements and measurements						
10.2.4	Discuss differential diagnosis of bony swellings/tumors.						
10.2.5	Discuss investigations required to establish diagnosis and plan management of benign and malignant tumors						

10.2.6	Discuss medical and surgical management of bony				
	swelling.				

Topic: Peripheral nerve injuries.	

OR11.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of peripheral nerve injuries in diseases like foot drop, wrist drop, claw hand, palsies of Radial, Ulnar, Median. Lateral Popliteal and Sciatic Nerves.	к	к/кн	Y	Lecture, Small group discussion, case presentation	Written/ Viva voice/ OSCE	Human anatomy	General medicine. General surgery.
Specific lear	ning objectives:		6					
11.1.1	Classify peripheral nerve injuries.							
11.1.2	Enumerate the causes of peripheral nerve injuries.							
11.1.3	Discuss the investigations to diagnose peripheral nerve injuries.							
11.1.4	Describe the etiology, clinical features, clinical tests and management of radial nerve injury.	\sum						
11.1.5	Describe the etiology, clinical features, clinical tests and management of median nerve injury.							
11.1.6	Describe the etiology, clinical features, clinical tests and management of ulnar nerve injury.							
11.1.7	Enumerate the causes of foot drop.							

11.1.8	Discuss the clinical features, clinical tests and management of foot drop.				
11.1.9	Discuss the etiology, clinical tests and management of sciatic nerve injury.				
11.1.10	Discuss various splints used in peripheral nerve injuries				

Topic: Con	genital lesions							
OR12.1	Describe and discuss the clinical features , investigations and principles of management of Congenital and acquired malformations of deformities of a. limbs and spine – Scoliosis and spinal bifida. b. Developmental Dysplasia of Hip (DDH), Torticollis. c. Congenital Talipes Equino Varus (CTEV).	К	к/к Н	Y	Lecture, Small group discussion.	Written / Viva voice/ OSCE	Human anatomy	
Specific lear	ning objectives:							
12.1.1	Define scoliosis and kyphosis.							
12.1.2	Discuss the causes, clinical features, investigations and management of scoliosis.							
12.1.3	Define spina bifida.							

12.1.4	Discuss the etiology, clinical features, investigations and management of spina bifida.				
12.1.5	Describe the etiology, pathoanatomy, clinical features and investigations of DDH.				
12.1.6	Discuss the general principles of management of DDH.				

12.1.7	Enumerate the causes of Torticollis.				
12.1.8	Discuss the clinical features, investigations and management of Torticollis.				
12.1.9	Describe the etiology, pathoanatomy , clinical features and investigations of CTEV.				
12.1.10	Discuss the general principles of management of CTEV.				

12.1.11	Discuss the correction techniques of CTEV.				
12.1.12	Enumerate the common surgical procedures performed for CTEV.				
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Topic: Procedural Skills	

OR13.1	Participate in a team for procedures in patients and demonstrating the ability to perform on mannequins/ simulated patients in the following: i. Above elbow plaster. ii. Below knee plaster. iii. Above knee plaster. iv. Thomas splint. v. Splinting for long bone fractures. vi. Strapping for shoulder and clavicle trauma.	ĸ	K/KH/SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skill lab sessions	OSCE with Simulation based assessment.	
Specific lear	ning objectives:						
13.1.1	Differentiate cast and slab.						
13.1.2	Discuss the precautions to be followed during and after plaster application.						
13.1.3	Perform under supervision application of above elbow slab for an undisplaced supracondylar fracture.	1	\leq				
13.1.4	Perform under supervision the application of Colle's cast .						
13.1.5	Perform under supervision the application of above knee plaster slab to immobile proximal tibia fracture.						
13.1.6	Identify Thomas splint and enumerate its uses.	1	C.S.				05

13.1.7	Perform under supervision the application of strapping for clavicle Fractures.				
13.1.8	Perform under supervision the application of Thomas splint for fracture shaft femur				

OR13.2	Participate as a member in team for Resuscitation of Polytrauma victim by doing all of the following: (a)I V access central- peripheral (b) Bladder catheterization (c) Endotracheal intubation. (d) Splintage	К	K/KH/ SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching , Skill lab sessions	OSCE with Simulation based assessment	Anesthesiology
Specific lear	rning objectives:	<u>.</u>					
13.2.1	Perform under supervision in getting IV access on a mannequin in a skill lab.						
13.2.2	Perform bladder catheterization under supervision in						

skill lab.

13.2.3	Perform endotracheal intubation under supervision				
	on a mannequin in a skill lab.				

13.2.4	Perform neck immobilization using cervical collar in a polytrauma patient under supervision.				
13.2.5	Perform under supervision the use of Thomas splint to immobilize fracture both bones leg in a polytrauma patient.				
13.2.6	Perform under supervision the use of pelvic binder in a case of pelvic fracture with haemodynamic instability				

Topic : Cou	unselling Skills						
OR14.1	Demonstrate the ability to counsel patients regarding prognosis in patients with various orthopaedic illness like a. fracture with disabilities. b. fracture that requires prolonged bed stay. c. bone tumours d. congenital disabilities.	K/C	K/KH/ SH	Y	Case discussion, Video assisted lecture, Small group discussion, Teaching, Skill lab sessions.	OSCE with Simulation based assessment	AETCOM
Specific lear	rning objectives:						
14.1.1	Demonstrate ability to communicate to patients with fractures, that multiple complications can occur leading to loss of skeletal function, restricted range of motion and neurovascular damage that can severely compromise function and performance.						
14.1.2	Demonstrate ability to communicate to patients with multiple osteoporotic vertebral fractures about the necessity of prolonged bed rest and its complication.						
14.1.3	Demonstrate ability to counsel to patients with bone tumors , the prognosis, or outlook for survival depending on the particular type of bone tumor and extent to which it had spread.						
14.1.4	Demonstrate ability to counsel parents about children with congenital disabilities with respect to function, performance and cosmesis.						72

OR14.2	Demonstrate the ability to counsel patients to obtain consent for various orthopaedic procedures like limb amputation, permanent fixations etc.	K/C	K/KH/ SH	Y	Case discussion, Video assisted lecture , Small group discussion, Teaching, Skills lab sessions	OSCE with Simulation based assessment		AETCOM
Specific lear	Specific learning objectives:							
14.2.1	Demonstrate the ability to counsel a patient with limb amputation for serious trauma (crush or blast), about the advantages, recovery, rehabilitation and functional recovery.							
14.2.2	Demonstrate the ability to obtain informed consent from patient and family in a simulated environment.			\sum				
14.2.3	Communicate diagnostic and therapeutic options to patient and family for fracture fixation to obtain informed consent							

OR14.3	Demonstrate the ability to convince the patient for referral to a higher center in various orthropaedic illness , based on the detection of warning signals and need for sophisticated management.	K/C	к/кнѕ Н	Y	Case discussion, Video assisted lecture , Small group discussion, Teaching, Skills lab sessions	OSCE with Simulation based assessment		AETCOM
Specific lear	Specific learning objectives:							
14.3.1	Enumerate common orthopedic emergencies which needs timely referral to a higher tertiary center .							
14.3.2	Demonstrate the ability to convince about referring patient with fracture proximal tibia associated with vascular injury to higher center.							
14.3.3	Demonstrate the ability to convince about referring patient with traumatic amputation of leg to higher center for replantation.							

14.3.4	Demonstrate the ability to convince about referring a spinal cord injury patient to higher center.				

Model Time table for Phase II MBBS, Phase III Part 1 and Part 2 MBBS

Phase II (2 weeks Clinical Posting)				
	9.00 AM to 12.00 Noon			
Monday	Postings			
Tuesday	Postings			
Wednesday	Postings			
Thursday	Postings			
Friday	Postings			

Saturday	X
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Phase III Part 1 (4 weeks Clinical Posting + 5 SDL + 20hrs SGD/IT+ 15hrs Lectures)				
	9.00 AM to 12.00 Noon	12.01 Pm to 1.00 PM 5 SDL+ 19 SGD/IT	2.00PM to 3.00 PM	
Monday	Postings	SDL/SGD/IT		
Tuesday	Postings	SDL/SGD/IT		
Wednesday	Postings	SDL/SGD/IT	15 Lectures + 1 SGD/IT	

Thursday	Postings	SDL/SGD/IT	
Friday	Postings	SDL/SGD/IT	

Saturday	Postings	SDL/SGD/IT	
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Phase III Part 2 (2 weeks Clinical Posting + 5 SDL+ 25 SGL/IT+ 20 Lectures)					
	9.00 AM to 12.00 Noon	12.01 Pm to 1.00 PM (5 SDL+ 7 SGD/IT)	2.00PM to 3.00 PM		
Monday	Postings	SDL/SGD/IT			
Tuesday	Postings	SDL/SGD/IT			
Wednesday	Postings	SDL/SGD/IT	20 Lectures+ 18 SGD/IT		
Thursday	Postings	SDL/SGD/IT			

Friday	Postings	SDL/SGD/IT	
Saturday	Postings	SDL/SGD/IT	

List of Competencies to cover in each phase of MBBS

Lectures in Phase III Part 1 and Part 2 MBBS					
SI.No	Topics	MBBS Phase III, Part 1 Competencies to be covered	MBBS Phase III, Part 2 Competencies to be covered		
1	Skeletal trauma, poly trauma	OR1.1, 1.2, 1.3, 1.4, 1.5			
2	Fractures	OR 2.1, 2.2, 2.4, 25, 2.6, 2.10, 2.11, 2.12, 2.13, 2.14, 2.15, 2.16	2.7, 2.8		
3	Musculoskeletal Infection		3.1		
4	Skeletal Tuberculosis		4.1		
5	Rheumatoid Arthritis and associated inflammatory disorders		5.1		
6	Degenerative disorders	6.1			
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7	Metabolic bone disorders	7.1			
8	Poliomyelitis	8.1			

9	Cerebral Palsy		9.1
10	Bone Tumors		10.1
11	Peripheral nerve injuries		11.1
12	Congenital lesions		12.1
13	Physical Medicine and Rehabilitation		PM1.2,1.3, 1.4, 5.1, 5.2, 5.3, 5.4, 7.7, 8.1
14	Total Hours	15 hours	20 hours
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Small group discussions (Tutorials / Seminars) in Phase III Part 1 and Part 2 MBBS					
SI.No	Topics	MBBS Phase III, Part 1 Competencies to be covered	MBBS Phase III, Part 2 Competencies to be covered		

1	Skeletal trauma, poly trauma	OR1.1, 1.2, 1.3, 1.4, 1.5, 1.6

2	Fractures	OR 2.3, 2.4, 2.5, 2.10, 2.12, 2.14, 2.16	2.7, 2.8
3	Musculoskeletal Infection		3.2, 3.3
4	Skeletal Tuberculosis		4.1
5	Rheumatoid Arthritis and associated inflammatory disorders		5.1
6	Metabolic bone disorders		7.1
7	Bone Tumors		10.1
8	Peripheral nerve injuries		11.1
9	Congenital lesions		12.1
10	Counseling Skills	14.1,14.2,14.3	
	Total Hours	14 Hours	9 Hours

	Integrated learning in Phase III Part 1 and Part 2 MBBS					
SI.N o	Topics	MBBS Phase III, Part 1 Competencies to be covered	MBBS Phase III, Part 2 Competencies to be covered			
1	Anatomy	AN2.4,2.5,8.4, 8.6, 17.2, 10.12, 17.3, 18.6, 18.7, 11.4, 19.4, 19.6, 19.7				
2	Microbiology		MI 4.2			
3	Forensic medicine		FM3.7, 3.8, 3.9, 3.10, 3.11, 3.12			

4	Pathology	PA33.1, 33.2, 33.2, 33.4
5	General Medicine	IM7.4, 7.6, 7.7, 7.8, 7.9, 7.10, 24.12, 24.13, 24.14. 24.16
6	Physical Medicine and Rehabilitation	PM 5.1, 5.2, 5.3, 5.4 6.3, 6.4, 2.4, 7.4, 7.5

Total Hours	6 hours	16 hours

	Self Directed Learning in Phase III Part 1 and Part 2 MBBS					
SI. No	Topics	MBBS Phase III, Part 1 Competencies to be covered	MBBS Phase III, Part 2 Competencies to be covered			
1	Skeletal trauma, poly trauma	OR 1.5,1.6				
2	Fractures	OR 2.15	OR 2.7, OR 2.8			
3	Musculoskeletal Infection		OR 3.1			
9	Cerebral Palsy					
10	Bone Tumors		OR 10.1			
11	Peripheral nerve injuries		OR 11.1			

13	Physical Medicine and Rehabilitation	PM5.3, PM5.4, PM7.2,	
14	Total Hours	5 Hours	5 Hours

	Time allotment for Competencies in Phase III Part 1 MBBS					
SI.No	Topics	Competency	Type of Learning and Hours			
			Lectures (hours)	Small group discussions (Tutorials / Seminars) /Integrated learning (hours)	Self - Directed Learning (hours)	
1	Skeletal trauma, poly trauma	OR1.1	1	1	1	
		OR1.2	1	1		
		OR13, OR1.4	1	1		
		OR1.5	1	1	1	
		OR 1.6		1		
2	Fractures	OR 2.1, 2.2	1			
		OR 2.3		1		

OR 2.4	1	1	
OR 2.5	1	1	

OR 2.6	1		
OR 2.10	1	1	
OR 2.11	1		
OR2.12	1	1	
OR 2.13	1		
OR 2.14	1		
OR 2.15	1	1	1

		OR 2.16	1	1		
CONTINUED IN NEXT PAGE						
6						

Ti e allotment for Competencies in Phase III Part 1 MBBS					
SI.No	Topics	Competency	Type of Learning and Hours		

			Lectures (hours)	Small group discussions (Tutorials / Seminars) /Integrated learning (hours)	Self - Directed Learning (hours)
3	Counseling Skills	OR 14.1,14.2		1	
		OR 14.3		1	
4	Anatomy (Integrated)	AN 2.4,2.5,8.4		1	
		AN 8.6,17.2		1	
		AN10.12, 17.3		1	
		AN 18.6, 18.7		1	
		AN 11.4, 19.4		1	
		AN 19.6, 19.7		1	
5	Physical medicine and Rehabilitation	PM 5.3,5.4			1
		PM 7.2			1

	Total		15	20	5				
	Time allotment for Competencies in Phase III Part 2 MBBS								
SI.No	Topics	Competency	petency Type of Learning and Hours						
			Lectures (hours)	Small group discussions (Tutorials / Seminars) /Integrated learning (hours)	Self - Directed Learning (hours)				
1	Fractures	OR 2.7	1	1	1				
		OR 2.8	1	1	1				
	Musculoskeletal Infection	OR 3.1	2		1				
2		OR 3.2,3.3		1					

3	Skeletal Tuberculosis	OR 4.1	2	1	
4	Rheumatoid Arthritis and associated inflammatory disorders	OR 5.1	1	1	

5	Degenerative disorders	OR 6.1	1			
6	Metabolic bone disorders	OR 7.1	1	1		
7	Poliomyelitis	OR 8.1	1			
8	Cerebral Palsy	OR 9.1	1			
9	Bone Tumors	OR 10.1	2	1	1	
10	Peripheral nerve injuries	OR 11.1	2	1	1	
11	Congenital lesions	OR 12.1	2	1		
	CONTINUED IN NEXT PAGE					

	Time allotment for Competencies in Phase III Part 2 MBBS						
SI.No	Topics	Competency	Type of Learning and Hours				
			Lectures (hours)	Small group discussions (Tutorials / Seminars) /Integrated learning (hours)	Self - Directed Learning (hours)		
12	Pathology	PA 33.1		1			
		PA 33.2, 33.4		1			
13	Microbiology	MI 4.2		1			
14	Forensic Medicine and Toxicology	FM3.7. 3.8, 3.9, 3.10		1			

		FM 3.11, 3.12	1	
15	General Medicine	IM 7.5, 7.6, 7.7, 7.8, 7.9, 7.10,	2	
		24.12	1	
		24.13, 24.14, 24.16	2	

16	Physical Medicine and Rehabilitation	PM 1.2, 1.3, 1.4	1		
		PM 5.1, 5.2, 5.3, 5.4	1	1	
		PM 6.3		2	
		PM 6.4		1	
		PM 7.4		1	
		PM 7.5		1	
		PM 7.7, 8.1	1		
	TOTAL HOURS		20	25	5

Orthopaedic Competencies in Internship

GOAL

The goal of the internship programme is to train medical students to fulfill their roles as doctors of first contact in the community.

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(A) THERAPEUTIC- An intern must know:

- (a) Splinting (plaster slab) for the purpose of emergency splintage, definitive splintage and post operative splintage and application of Thomas splint;
- (b) Manual reduction of common fractures phalangeal, metacarpal, metatarsal and Colles's fracture;
- (c) Manual reduction of common dislocations interphalangeal, metacarpophalangeal, elbow an shoulder dislocations;
- (d) Plaster cast application for undisplaced fractures of arm, fore arm, leg and ankle;
- (e) Emergency care of a multiple injury patient;
- (f) Precautions about transport and bed care of spinal cord injury patients.

(B) Skill that an intern should be able to perform under supervision:

- (1) Advise about prognosis of poliomyelitis, cerebral palsy, CTEV and CDH;
- (2) Advise about rehabilitation of amputees and mutilating traumatic and leprosy deformities of hand;

(C) An intern must have observed or preferably assisted at the following operations:

- (1) drainage for acute osteomyelitis;
- (2) sequestrectomy in chronic osteomyelitis;
- (3) application of external fixation;
- (4) internal fixation of fractures of long bones.

Physical Medicine and Rehabilitation Competencies in Internship

GOAL

The aim of teaching the undergraduate student in Physical Medicine & Rehabilitation is to impart such knowledge and skills that may enable him to diagnose and treat common rheumatologic, orthopedic and neurologic illnesses requiring physical treatment. He/she shall acquire competence for clinical diagnosis based on history, physical examination and relevant laboratory investigations and institute appropriate line of management.

(A) THERAPEUTIC- An intern must know:

a)Diagnosing and managing with competence clinical diagnosis and management based on detailed history and assessment of common disabling conditions like poliomyelitis, cerebral palsy, hemiplegia, paraplegia, amputations etc.

b) Participation as a team member in total rehabilitation including appropriate follow up of common disabling conditions,c) Procedures of fabrication and repair of artificial limbs and appliances.

(B) An intern must have observed or preferably assisted at the following operations/ procedures: : a)

Use of self-help devices and splints and mobility aids

b) Accessibility problems and home making for disabled

c) Simple exercise therapy in common conditions like prevention of deformity in polio, stump exercise in an amputee etc.d) Therapeutic counseling and follow up

SL NO	Competency	Performed	Assisted	Observed
1	Splinting			
2	Cast Application			
3	Manual Reduction of Common dislocations			
4	Application of External Fixator			

List of Competencies to cover in Internship

5	Internal Fixation of Long Bones		
6	Wound repair and dressing		

7	Drainage of Acute Osteomyelitis	✓	✓	✓
8	Major Operative Procedures		~	✓
9	Minor Operative Procedures		~	✓
10	Case Sheet Writing		\checkmark	

Period Of Training in Internship			
Subject	Period of Posting (Weeks)		
Orthopaedics including PMR	4 weeks		

Certifiable skills in Internship

A Comprehensive list of skills recommended in Orthopedics desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) – Indian Medical Graduate

- **1.** Application of basic splints and slings (I)
- 2. Basic fracture and dislocation management (O)
- 3. Compression bandage (I)

I- Independently performed on patients,

O- Observed in patients or on simulations,

D- Demonstration on patients or simulations and performance under supervision in patients

Assessment in Orthopaedics

Formative Assessment - An assessment conducted during the instruction with primary purpose of providing feedback for improving learning.

Summative Assessment - An assessment conducted at the end of instruction to check how much the student has learnt.

Internal Assessment (IA)- Range of assessments conducted by the teachers teaching a particular subject with the purpose of knowing what is learnt and how it is learnt. Internal assessment can have both formative and summative functions.

Note - Assessment requires specification of measurable and observable entities. This could be in the form of whole tasks that contribute to one or more competencies or assessment of a competency per se. Another approach is to break down the individual competency into learning objectives related to the domains of knowledge, skills, attitudes, communication etc. and then assess them individually

Scheduling of Internal Assessment -

- A. In Phase II MBBS there will be one Internal assessments in practicals.
- B. In Phase III part 1 MBBS there will be one Internal assessment each in theory and practicals.

C. In Phase III part 2 MBBS the test should be prelim or pre-university examination with theory and practicals **Theory can include:**

Theory tests, seminars, quizzes, interest in subject, scientific attitude etc. Written tests should have essay questions, short notes and creative writing experiences.

Practical can include:

Practical tests, Objective Structured Practical Examination (OSPE), Directly Observed Procedural Skills (DOPS), records maintenance and attitudinal assessment.

Log Book Assessment -

- A. Log book should record all activities like seminar, symposia, quizzes and other academic activities.
- B. It should be assessed regularly and submitted to the department.
- C. Up to twenty per cent internal marks can be considered for Log book assessment.

Feedback in Internal Assessment

Feedback should be provided to students throughout the course so that they are aware of their performance and remedial action can be initiated well in time. The feedbacks need to be structured and the faculty and students must be sensitized to giving and receiving feedback.

The results of IA should be displayed on notice board within two weeks of the test and an opportunity provided to the students to discuss the results and get feedback on making their performance better.

It is also recommended that students should sign with date whenever they are shown IA records in token of having seen and discussed the marks.

Internal assessment marks will not be added to University examination marks and will reflect as a separate head of passing at the summative examination. Internal assessment should be based on competencies and skills.

Criteria for appearing in University examination

Students must secure at least 50% marks of the total marks (combined in theory and practical; not less than 40% marks in theory and practical separately) assigned for internal assessment in order to be eligible for appearing at the final University examination

Annexures

A. Teaching Learning Methods

Didactic lectures should be made more interactive by encouraging the more involvement of the students. In the present digital era, student's involvement is more with usage of technology. For examples, many polling sessions, quizzes etc., can be done using google slides and other apps or websites.

- Small group discussion (SGD) should be planned properly and discussed among the faculty members before taking the class. As for as possible, uniformity should be maintained in the SGD by various facilitators. Case based learning (CBL) and problem based learning (PBL) may be used to make the learner understand and learn about the various aspects in order to achieve the particular competency.
- Encourage the students learn themselves through self-directed learning (SDL). SDL sessions may be planned with objectives in order to cover the particular competency. These sessions may be conducted by providing learning material (research articles, public news, videos, etc.) by a teacher and ask the students to search on a particular topic. Students should learn themselves by going through available resources and come back to classes allotted for SDL sessions where teacher able to connect the learning of students in order to achieve the competency.
- Integrated classes should be planned in order to cover the competency involving the topics from different subjects. These classes can be taken using Nesting, Temporal Coordination or Sharing. Case linkers may be used to link the topic/subject area among different subjects/ departments.
- Skills should be taught using the clinical cases at hospital wards/casualty/EMD, simulation in skills labs and/or departmental demonstration rooms.
 Case scenarios may be developed while teaching at skills lab and/or demonstration rooms.

B. Blue Print & Assessment methods - Theory

Number of QPs for Orthopaedics: One Theory marks: 50 This shows the weightage given to each chapter in the summative assessment. This improves the content validity by distributing the assessment of learners in the competencies that are represented by learning objectives under each chapter.

Number of QPs for the subject: One.

Only CORE competencies shall be considered for framing questions. QP should contain the following distribution of questions (as shown in

below table).

Type of Question	Marks Per Question	Number of questions	Total Marks
Long Essay	10	2	20
Short Essays	5	3	15
Short Answers	3	5	15
		Total	50

Each paper should contain Long essays (10 marks x 2), Short essay (5 marks x 3), Short answer (3 marks x 5).

Distribution of marks in suggested blue print

SL NO	Topics	Type of Question		
		Long Essay	Short Essay	Short Answers

1	Skeletal trauma, poly trauma		
2	Fractures		
3	Musculoskeletal Infection		
4	Skeletal Tuberculosis		
5	Rheumatoid Arthritis and associated inflammatory		
	disorders		
6	Degenerative disorders		
7	Metabolic bone disorders		

8	Poliomyelitis		
9	Cerebral Palsy		
10	Bone Tumors		
11	Peripheral nerve injuries		

12	Congenital lesions		
13	Physical Medicine and Rehabilitation		

NOTE: The questions should be framed only from Core competencies (as shown in above table).

C. Blue Print & Assessment methods - Practicals

1. Total Marks: 50

Suggested Marks distribution for Each Case			
SI No	Assessment parameter	Marks	
1	History and case sheet writing	5	
2	Clinical examination	5	
3	Diagnosis/ analysis of case	5	

- I. Clinical Cases: 40 Marks
- I. Viva Voce: 10 Marks

4	Presentation	5

Clinical Cases:

Two short cases (2 X 20 Marks) Viva:

Two Radiographs (5 Marks)

Two Instruments/ Implants (5Marks)
D. Integration Topics

Integration: The integrated the importance of to the practice of teaching should be aligned and horizontally and vertically recognizing orthopaedic conditions as they relate medicine as a whole.

			HUMAN	N ANA [.]	ГОМҮ			
AN2.4	Describe various types of cartilage with its structure & distribution in body	К	КН	Y	Lecture	Written/Vive voice	orthopaedics	
Specific le	arning objectives:							
2.4.1	Define cartilage.							
2.4.2	Enumerate types of cartilage.							
2.4.3	Discuss the components of cartilage.							
2.4.4	Describe structure of various types of cartilage with examples							
2.4.5	Discuss what happens to articular cartilage in osteoarthritis							

AN2.5	Describe various joints with subtypes and examples	к	КН	Y	Lecture	Written/Viva Voce	orthopaedics	
	Specific learning objectives:							

2.5.1	Define a joint.				
2.5.2	Classify joints based on mobility between bones.				
2.5.3	Discuss the components of synovial joints.				
2.5.4	Describe the structure of joint capsule.				
2.5.5	Enumerate the types of synovial joints.				
2.5.6	Describe the supporting structures of synovial joints.				

AN8.4	Demonstrate important muscle attachments on the given bone	K/S	SH	Y	Practical, DOAP session, Small group teaching	Viva voice/ Practicals	orthoapedics				
Specific lea	Specific learning objectives:										
8.4.1	Demonstrate the origin and insertion of Deltoid muscle.										

8.4.2	Demonstrate the origin and insertion of Biceps Brachii.				
8.4.3	Demonstrate the flexor group of muscles of forearm and its attachments.				
8.4.4	Demonstrate the extensor group of muscles of forearm and its attachments.				
8.4.5	Demonstrate the muscle attachment of humerus.				
8.4.6	Demonstrate the muscle attachment of radius and ulna.				
8.4.7	Discuss the muscle attachment of femur.				
8.4.8	Discuss the origin and insertion of quadriceps.				

8.4.9	Describe the muscle attachment of tibia and fibula.				

AN8.6	Describe scaphoid fracture and explain the	К	КН	N	DOAP session	Viva voice	orthopaedics	
	anatomical basis of avascular necrosis							

Specific lear	ning objectives:				
8.6.1	Discuss the anatomy of scaphoid bone.				
8.6.2	Describe the blood supply of scaphoid bone.				
8.6.3	Discuss the mechanism of injury of scaphoid fracture.				
8.6.4	Classify scaphoid fractures.				
8.6.5	Discuss the clinical features and investigations in scaphoid fractures.				
8.6.6	Discuss the principles of management of scaphoid fracture.				
8.6.7	Enumerate complications of scaphoid fracture				
8.6.8	Discuss the causes of avascular necrosis of scaphoid fracture and its management.				

AN10.12	Describe and demonstrate shoulder joint for -type, articular surfaces, capsule , synovial membrane, ligaments, relations, movements, muscle involved, blood supply, nerve supply and applied anatomy.	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session.	Written/Viva voice/Skills assessment	Orthopaedics		
Specific learning objectives:									
10.12.1	Discuss shoulder joint anatomy.								
10.12.2	Describe various supporting structures of shoulder joint.								
10.12.3	Discuss glenoid labrum and its importance.								
10.12.4	Demonstrate the movements of shoulder joint.								
10.12.5	Describe sub acromial bursa and its importance.								
10.12.6	Describe the blood supply of proximal humerus and its applied anatomy.								

10.12.7	Discuss rotator cuff group of muscles							
AN11.4	Describe the anatomical basis of Saturday night paralysis	К	к/кн	Y	Practical ,Lecture	Written/Viva voice	Orthopaedics	

Specific lear	ning objectives:							
11.4.1	Discuss the formation of radial nerve.							
11.4.2	Discuss the anatomy of radial nerve in the arm.							
11.4.3	Define Saturday night paralysis.			\checkmark				
11.4.4	Discuss the mechanism of injury in Saturday night paralysis.							
11.4.5	Discuss the clinical features and investigations of radial nerve injury in the arm.							
11.4.6	Discuss the general principles of management of compression neuropathy.							
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AN17.2	.2 Describe anatomical basis of complications of fracture neck of femur,		к/кн	Ν	Lecture	Written/Viva voice	orthopaedics	
Specific learning objectives:								

17.2.1	Discuss the blood supply of femoral head.							
17.2.2	Enumerate the complications of fracture neck of femur.							
17.2.3	Discuss the reasons for high incidence of nonunion of fracture neck of femur.							
17.2.4	Discuss the reasons for high incidence of avascular necrosis of femoral head							
AN17.3	Describe dislocation of hip joint and surgical hip replacement.	К	к/кн	Ν	Lecture	Written/Viva voice	Orthopaedics	
Specific lear	ning objectives:							
17.3.1	Classify hip dislocations.							

17.3.2	Classify posterior hip dislocation.				
17.3.3	Discuss the mechanism of injury, clinical features and investigations of posterior dislocation.				
17.3.4	Discuss the closed reduction methods for posterior dislocation.				
17.3.5	Enumerate the indications for open reduction of posterior dislocation.				

17.3.6	List the complications of dislocation of hip.				
17.3.7	Differentiate hemiarthroplasty and total hip arthroplasty.				
17.3.8	Differentiate unipolar and Bipolar hemiarthroplasty.				
17.3.9	Enumerate the indications of hemiarthroplasty.				
17.3.10	Enumerate the common indications for total hip arthroplasty				
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AN18.6	Describe knee joint injuries with its applied anatomy.	к	КН	Ν	Lecture	Written//Viva voice	orthopaedics			
Specific learning objectives:										
18.6.1	Enumerate the common knee injuries.									
18.6.2	Describe the anatomy of ligaments of the knee.									
18.6.3	Describe the anatomy of the meniscus.									
18.6.4	Descriptive the mechanism of injury, various tests and investigations in ACL injury.							157		

18.6.5	Discuss the general principles of management of ACL injury.									
10.0.0	Describe the mechanism of injury, various tests and investigations in meniscus injury.									
18.6.7	Discuss the general principles of management of meniscus injury									
AN18.7	Explain anatomical basis of osteoarthritis	К	КН	N	Lecture	Written/Viva voice	Orthopaedics			
Specific lear	Specific learning objectives:									
18.7.1	Define osteoarthritis.									
18.7.2	Classify osteoarthritis.									

18.7.3	Discuss the aetiopathogenisis of primary osteoarthritis.				
18.7.4	Discuss the changes in articular cartilage in primary osteoarthritis.				
18.7.5	Discuss the secondary causes of osteoarthritis				

AN19.4	Explain the anatomical basis of rupture of Achilles tendon	к	КН	N	Lecture	Written/Viva voice	orthopaedics	
Specific lear	ning objectives:							
19.4.1	Discuss the anatomy of Achilles tendon.							
19.4.2	Discuss the pathoanatomy of rupture of Achilles tendon.							
19.4.3	Discuss the mechanism of injury in tear of Achilles tendon.							
AN19.6	Explain the anatomical basis of flat foot & club foot	к	КН	N	Lecture	Written/Viva voice	Orthopaedics	
Specific lear	ning objectives:							
19.6.1	Define flatfoot.							
19.6.2	Discuss the arches of foot.							
19.6.3	Describe the pathoanatomy of flatfoot.							

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19.6.4	Discuss the etiology of flatfoot.				
19.6.5	Define CTEV				
19.6.6	Discuss the pathoanatomy of CTEV				
19.6.7	Discuss the etiology of CTEV				

AN19.7	Explain the anatomical basis of Metatarsalgia & plantar fasciitis	К	КН	Ν	Lecture	Written/Viva voice	Orthopaedics				
Specific lear	Specific learning objectives:										
19.7.1	Define metatarsalgia.										

19.7.2	Classify metatarsalgia.				
19.7.3	Enumerate the causes for metatarsalgia.				
19.7.4	Discuss the risk factors responsible for metatarsalgia.				

19.7.5	Define plantar fasciitis.									
19.7.6	Discuss the structure and function of plantar fascia.									
19.7.7	Discuss the risk factors responsible for plantar fasciitis									

	PATHOLOGY											
PA33.1	Classify and describe the etiology , pathogenesis , manifestation , radiologic and morphologic features and complications of osteomyelitis	K	жн	Y	Lecture, Small group discussion	Written/ Viva voice		Human anatomy Orthopaedics.				
Specific lear	pecific learning objectives:											
33.1.1	Classify osteomyelitis.											
33.1.2	Discuss aetiopathogenisis of acute osteomyelitis.	6										
33.1.3	Discuss the clinical features and investigations in acute osteomyelitis.											

33.1.4	Discuss the clinical features and radiological findings in chronic osteomyelitis.						
33.1.5	Discuss the pathologic morphology in osteomyelitis.						
33.1.6	Enumerate the complications of osteomyelitis						
PA33.2	Classify and describe the etiology , pathogenesis , manifestations, radiologic and morphologic features and complications and metastases of bone tumors.	К	K H	Y	Lecture, Small group discussion	Written/Viva voice	Orthopaedics.
Specific lear	ning objectives:						
33.2.1	Classify skeletal metastasis.						
33.2.2	Describe the mechanism of bone metastasis.						
33.2.3	Describe the clinical features and investigative work up in bone metastasis.						

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33.2.4	Discuss the principles of management of skeletal metastasis.					
33.2.5	Discuss the complication of skeletal metastasis					

PA33.4	Classify and describe the etiology , pathogenesis , manifestations, radiologic and morphogenic features and complications of Paget's disease of the bone.	к	КН	N	Lecture, Small group discussion	Written/Viva voice		Orthopaedics.			
Specific learn	Specific learning objectives:										
33.4.1	Define Paget's disease.			\leq							
33.4.2	Discuss the pathophysiology of Paget's disease.										
33.4.3	Discuss the clinical features, diagnostics and differential diagnosis of Paget's disease.										
33.4.4	Discuss principles of management of Paget's disease.										
33.4.5	Discuss the complications of Paget's disease	X		6							

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	Microbiology										
MI4.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of bone and joint infections.	к	КН	Y	Lecture	Written/Viva voice		Orthopaedics.			
Specific lear	Specific learning objectives:										
4.2.1	Discuss the aetiopathogenisis of acute osteomyelitis.										
4.2.2	Discuss the aetiopathogenisis of acute septic arthritis.										
4.2.3	Discuss the clinic features of acute osteomyelitis.										
4.2.4	Discuss the clinical features of acute septic arthritis.										

4.2.5 Discuss the laboratory diagnosis of acute osteomyelitis, chronic osteomyelitis and acute septic arthritis.							
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			Forensi	c med	icine					
FM3.7	Describe factors influencing infliction of injuries and healing, examination and certification of wounds and wound as a cause of death : primary and secondary.	К	к/кн	Y	Lecture, Small group discussion	Written/ Viva voice		Forensic medicine. Orthopaedics.		
Specific lear	pecific learning objectives:									
3.7.1	Describe the factors influencing the causation of an injury.		2)							
3.7.2	Describe the factors that influence healing of an injury or fracture.									
3.7.3	Discuss the primary and secondary causes of death from a wound.									
FM3.8	Mechanical injuries and wounds: describe and discuss different types of weapons including dangerous weapons and their examination.	К	к/кн	Y	Lecture, Small group discussion	Written/ Viva voice		General surgery. Orthopaedics.		
Specific lear	pecific learning objectives:									
3.8.1	Identify the weapons that cause blunt force and sharp force injuries.									

3.8.2	Define dangerous weapon (S.324 IPC and 326 IPC)				

FM3.9	Firearm injuries: Describe different types of firearms including structure and components, along with description of ammunition propellant charge and mechanism of fire-arms, different types of cartridges and bullets and various terminology in relation of firearm – caliber range, choking.	К	к/кн	Y	Lecture, Small group discussion	Written /Viva voice		General surgery. Orthopaedics.	
Specific learning objectives:									
3.9.1	Define Forensic ballistics, Proximal ballistics, Intermediate ballistics and Terminal ballistics.								
3.9.2	Define firearm								
3.9.3	Classify firearms.								

3.9.4	Enumerate the parts of the basic firearms.				
3.9.5	Explain ' rifling' and 'caliber' of a firearm.				

3.9.6	Explain choking in a firearm and is purpose.				
3.9.7	Enumerate the components of rifled firearm and shotgun and its function .				
3.9.8	Describe the types of gunpowder.				
3.9.9	Discuss on types of bullets and pellets.				

FM3.10	Firearm injuries: Describe and discuss wound ballistics- different types of firearm injuries, blast injuries and their interpretation, preservation and dispatch of trace evidenced in cases of fire arm and blast injuries. Various tests related to confirmation of use of firearms.	К	К/К Н	Y	Lecture , Small group discussion. Bed side clinic DOAP session	Written/Vive voice/OSCE	General orthopaedics.	
Specific lear	ning objectives:							
3.10.1	Define wound ballistics.							
3.10.2	Enumerate the factors affecting gunshot wound production.							
3.10.3	Explain the mechanism of firing and various components of discharge of firing.							
3.10.4	Describe the entry and exit wounds from rifled firearm at various Ranges.							
3.10.5	Describe the entry and exit wounds from a shotgun at various Ranges.							

3.10.6	Discuss on Ricocheting of a bullet and its effect.			
3.10.7	Discuss on tumbling bullet, Yawning bullet, Dumdum bullet, Tandem bullet, Souvenir bullet.			
3.10.8	List the evidentiary materials to be collected and preservation of evidentiary materials in gunshot wounds.			

3.10.9	Describe the method of collection and preservation of evidentiary Materials in gunshot wounds.									
3.10.10	Describe the significance of bullet markings and use of comparison microscope.									
3.10.11	Enumerate the tests done for detection of gunshot residue.									
3.10.12	Describe the injuries caused by bomb blast/explosion .									
3.10.13	Discuss the diagnostic evaluation in blast injury.									
3.10.14	Describe the principles of surgical management of blast extremity injury.				\geq					
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	FM3.11	Regional injuries: Describe and discuss regional injuries to head (Scalp wounds, fracture skull, intracranial hemorrhages, coup and countercoup injuries) neck, chest, abdomen, limbs, genital organs, spinal cord and skeleton.	К	к/кн	Y	Lecture, Small group discussion, Bed side clinic or autopsy , DOAP session	Written/Viva voice/OSCE/OSPE	General surgery. Orthopaedics.

Specific lear	ning objectives:				
3.11.1	Define head injury.				
3.11.2	Discuss the forensic anatomy of scalp and scalp injuries.				
3.11.3	Enumerate the types of skull fracture.				
3.11.4	Describe the intracranial hemorrhages and its medicolegal aspects.				
3.11.5	Describe the cerebral injuries and its medicolegal aspects.				

3.11.6	Explain 'concussion of brain' and 'diffuse axonal injury'.				
3.11.7	Discuss on punch drunk syndrome.				
3.11.8	Describe the mechanism , clinical features and medicolegal aspects Of whiplash injury.				

3.11.9	Discuss on 'railway spine'.				
3.11.10	Discuss on injuries to chest , abdomen and genital organs.				

FM3.12	Reginal injuries: Describe and discuss injuries related to fall from height and vehicular injuries – Primary and Secondary impact, Secondary injuries , crush syndrome , railway spine.	К	к/кн	¥	Lecture, Small group discussion, Bedside clinic or autopsy, DOAP session	Written/ Viva voice/ OSCE/OPSE		General surgery. Orhopaedics.		
Specific lear	Specific learning objectives:									
3.12.1	Describe the injuries sustained to person in a fall from height .									
3.12.2	Describe the injuries to a pedestrian in vehicular accident (primary impact, second impact and secondary injuries)									
3.12.3	Describe the injuries to driver , front seat passenger and back seat passenger of a motor car.									
3.12.4	Discuss on 'Crush syndrome'.									

	General medicine											
IM7.5	Develop a systematic clinical approach to joint pain based on the pathophysiology.	К	К/КН	Y	Lecture, Small group discussion.	Written/Viva voice		Orthopaedics.				
Specific lea	Specific learning objectives:											
7.5.1	Enumerate the common causes of joint pain.											
7.5.2	Discuss the pathophysiology of joint pain.											
7.5.3	List the causes of joint pain structurally arising from within the joint.											
7.5.4	Enumerate the causes of joint pain arising from structures around the joint.											

7.5.5	Enumerate various causes of joint pain because of referred pain.								
7.5.6	Discuss synovitis as a cause for joint pain.								
7.5.7	Discuss enthesitis as a cause for joint pain.								
7.5.8	Discuss crystal deposition as a cause for joint pain								
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IM7.6	Describe and discriminate acute, subacute and chronic causes of joint pain.	K	к/к Н	Y	Lecture, Small group discussion.	Written/Viva voice	Orthopaedics.
Specific learning objectives:							
7.6.1	Enumerate the various causes of acute joint pain.	L.					
7.6.2	Enumerate the various causes of chronic joint pain.						
7.6.3	Differentiate acute joint pain from chronic joint pain.			\leq			
7.6.4	Discuss the differential diagnosis of acute joint pain.						
7.6.5	Discuss the differential diagnosis of chronic joint pain.						
IM7.7	Discriminate, describe and discuss arthralgia from arthritis and mechanical from inflammatory causes of joint pain	K	к/к Н	Y	Lecture, Small group discussion	Written/ Viva voice	Orthopaedics.

Specific lear	Specific learning objectives:											
7.7.1	Define arthritis.											
7.7.2	Define arthralgia.											
7.7.3	Differentiate between arthritis and arthralgia.											
7.7.4	Enumerate the causes of mechanical joint pain with examples.											
7.7.5	Enumerate the causes of inflammatory joint pain with examples.											
7.7.6	Differentiate mechanical joint pain from inflammatory joint pain											

IM7.8	Discriminate , describe and discuss distinguishing articular from periarticular complaints.	К	к/кн	Y	Lecture, Small group discussion	Written/ Viva voice	Orthopaedics.
Specific lear	ning objectives:						

7.8.1	Discuss the clinical features of joint pain arising from intra-articular structures.									
7.8.2	Discuss the clinical features of joint pain arising from periarticular structures.									
7.8.3	Differentiate the articular and periarticular joint pain.									
IM7.9	Determine the potential causes of joint pain based on the presenting features of joint involvement.	К	к/кн	Y	Lecture , Small group discussion	Written/ Viva voice		Orthopaedics.		
Specific lear	Specific learning objectives:									
7.9.1	Enumerate various presenting symptoms of joint pain conditions.									
7.9.2	Differentiate various conditions of joint pain by presenting symptoms.	\mathbf{X}								
IM7.10	Describe the common signs and symptoms of articular and periarticular diseases.	K	к/кн	Y	Lecture, Small group discussion	Written/Viva voice		Orthopaedics.		
Specific lear	Specific learning objectives:									
7.10.1	Discuss the clinical features of various articular conditions.							101		

7.10.2	Discuss the clinical features of periarticular joint conditions				

IM7.13	Perform a systematic examination of all joints, muscle and skin that will establish the diagnosis and severity of disease.	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Orthopaedics.			
Specific learning objectives:											
7.13.1	Perform the clinical examination of Hip joint.										
7.13.2	Perform the clinical examination of Knee joint.										
7.13.3	Perform the clinical examination of Shoulder joint.										
7.13.4	Perform the clinical examination of Elbow joint.										

7.13.5	Perform the clinical examination of Wrist and Hand				
7.13.6	Perform the clinical examination of Foot and Ankle.				

IM7.17	Enumerate the indications for arthrocentesis.	К	К	Y	Lecture , Small group discussion.	Written/ Viva voice		Orthopaedics.				
Specific lear	Specific learning objectives:											
7.17.1	Describe arthrocentesis.											
7.17.2	Describe various indications for arthrocentesis											

IM7.18	Enumerate the indications and interpret plain radiographs of joints.	К	SH	Y	Bedside clinic, Small group discussion.	Skill assessment/Written	Radiodiagno sis	Orthopaedics.			
Specific lear	Specific learning objectives:										
7.18.1	Enumerate the investigations for joint pain.										
7.18.2	Enumerate the indications for radiological examination of joint pain.										
7.18.3	Enumerate various radiological findings in arthritis of a joint.										
7.18.4	Discuss the radiological findings of osteoarthritis knee joint.										
7.18.5	Discuss the radiological findings in tuberculosis knee joint.										
7.18.6	Discuss the radiological findings in tuberculosis of hip joint.										
IM7.21	Select, prescribe and communicate appropriate medications for relief of joint pain.	K/ C	SH	Y	DOAP session	Skill assessment/Written	Pharmacolog y.	Orthopaedics.			

Specific learning objectives:								
7.21.1	Discuss the pathophysiology of joint pain.							
7.21.2	Enumerate the causes of joint pain .							

7.21.3	How do you evaluate join pain.				
7.21.4	Discuss WHO analgesics ladder.				
7.21.5	Describe the role of opioid analgesics used is osteoarthritis				
7.21.6	Enumerate NSAIDS group analgesics used in relief of joint pain.				
7.21.7	Mention parental analgesics used in relief of join pain.				
7.21.8	Discuss the side effects of chronic use of NASIDS n in a osteoarthritic joint pain.				
7.21.9	Name some topical analgesics.				
7.21.10	Discuss the role of intra-articular steroid injections.				
7.21.11	Discuss the role of viscosupplementation in osteoarthritis.				97

IM24.12	Describe and discuss the aetiopathogensis , clinical presentation, identification, functional changes , acute care, stabilization, management and rehabilitation of degenerative joint disease.	К	K	Y	Lecture , Small group discussion.	Written/Viva voice		Orthopaedics.		
Specific lo	Specific learning objectives:									
24.12.1	Define degenerative joint disease.									
24.12.2	Discuss the aetiopathogenesis of degenerative joint disease.									
24.12.3	Describe the clinical features of degenerative joint disease.									
24.12.4	Discuss the loss of functional activity in degenerative joint disease.									
24.12.5	Discuss the management of early osteoarthritis.									

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24.12.6	Discuss the principles of management of degenerative joint disease.				
24.12.7	Discuss the physical therapy and rehabilitation of degenerative Joint pain				

IM24.13	Describe and discuss the aetipathogenesis , clinical presentation, identifications, functional changes , acute care, stabilization, management and rehabilitation of falls in the elderly.	ĸ	K H	Y	Lecture ,Small group discussion.	Written/ Viva voice		Orthopaedics. Physical medicine and rehabilitation.		
Specific lear	Specific learning objectives:									
24.13.1	Discuss the causes of falls in elderly.			and and						
24.13.2	Discuss the common factures in elderly because of falls.									
24.13.3	List the common presentation features following falls in elderly patients.									
24.13.4	Discuss the acute care management of fractures in elderly.	1								
24.13.5	Discuss general principles of management of fractures in elderly.									
24.13.6	Discuss the rehabilitation of elderly fractured patient.									
24.13.7	Describe the preventive steps to avoid falls in elderly									

IM24.16	Describe and discuss the principles of physical and social rehabilitation , functional assessment , role of physiotherapy and occupation therapy in the management of disability in the elderly.	К	КН	Y	Lecture, Small group discussion.	Written/ Viva voice		Orthopaedics. Physical medicine and rehabilitation.			
Specific learning objectives:											
24.16.1	Discuss the common form of disability in elderly.										
24.16.2	Discuss ageing and disability.										
24.16.3	Discuss disability of elderly population in India.										

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24.16.4	Discuss the general principles of physical and social rehabilitation of the disabled elderly.				
24.16.5	Discuss the occupational therapy for a disabled elderly				

	Physical Medicine & Rehabilitation												
PM1.2	Define and describe disability, its cause and magnitude, identification and prevention of disability.	К	к/кн	Y	Lecture, Small group discussion	Written/ Viva voice		General medicine . Orthopaedics.					
Specific lear	Specific learning objectives:												
1.2.1	Define disability.												
1.2.2	Describe the various causes of disabilities.			$\mathbf{\nabla}$									
1.2.3	Classify disability.	(
1.2.4	Define impairment.												
1.2.5	Differentiate temporary and permanent disability.												
1.2.6	Define handicap.												
1.2.7	List various domains of functioning which can be affected by disability.												
1.2.8	Discuss the prevalence of disability in India and worldwide.												

PM1.3	Define and describe the methods to identify and prevent disability	К	к/кн	Y	Lecture, Small group discussion	Written/Viva voice		General medicine Orthopaedics.		
Specific learning objectives:										
1.3.1	Discuss the methods of identification of various disabilities.									
1.3.2	Discuss identification of locomotor disability in a child.									
1.3.3	Discuss the checklist for identification of children with special needs.									
1.3.4	Differentiate primary, secondary and tertiary prevention of disabilities.									
1.3.5	Discuss disability management									

PM1.4	Enumerate the rights and entitlements of differently abled	к	K	Y	Lecture, Small	Written/ Viva voice	General medicine.
	persons				group discussion		Orthopaedics.

Specific lear	ning objectives:	-			
1.4.1	Discuss the rights of differently abled persons.				
1.4.2	Define " persons with benchmark disabilities".				
1.4.3	Discuss the rights and entitlement of differently abled persons.				
1.4.4	Enumerate additional benefits provided for persons with benchmark disabilities and those with high support needs				

PM4.3	Observe in a mannequin or equivalent the administration of an intra-articular injection	S	КН	N	DOAP session	Skill assessment		Orthopaedics		
Specific learning objectives:										
4.3.1	List out the indications for intra-articular injections.									
4.3.2	Demonstrate the sterile precautions to be taken while administering intra-articular injection.									
4.3.3	Enumerate the drugs used to be injected as intraarticular formulations.									
4.3.4	Surface marking of joint line and position of the joint for intra-articular injection to be elicited.									
4.3.5	Depiction of post intra-articular injection care and rehabilitation.									

4.3.6	Recent advances in the modality of intra-articular injection.				
4.3.7	Explain the guided intra-articular injections				

	Ι									
PM4.5	Demonstrate correct assessment of muscle strength and range of movements	S	SH	Y	DOAP session, Bedside clinic	Skill assessment		General medicine Orthopaedics.		
Specific lear	Specific learning objectives:									
4.5.1	List out the MRC grading of muscle power.									
4.5.2	Explain the types of joints.		9							
4.5.3	Demonstrate the movements across each major joint of upper limb.					♥				
4.5.4	Demonstrate the various movements across each major joint of lower limb.									

				X			
PM5.1	Enumerate the indications and describe the principles of amputation.	К	КН	Y	Lecture , Small group discussion.	Written/ Viva voice	Orthopaedics. General Surgery.
Specific lear	ning objectives:						
5.1.1	Define amputation.						

5.1.2	Define disarticulation.										
5.1.3	Enumerate the indications of amputations.										
5.1.4	Discuss the general principles in techniques of amputation and disarticulations.										
5.1.5	Enumerate the complications of amputation.										
PM5.2	Describe the principles of early mobilizations, evaluation of the residual limb, contralateral limb and the influence of co-morbidities.	К	КН	Y	Lecture, Small group discussion.	Written/ Viva voice		Orthopaedics.			
Specific lear	Specific learning objectives:										

5.2.1	Discuss the principles of early mobilization of a amputee patient.				
5.2.2	Discuss ideal stump in an amputated patient.				
5.2.3	Discuss the evaluation of the amputation stump for prosthesis fitting.				
5.2.4	Discuss the rehabilitation following amputation.				

5.2.5	Discuss the factors affecting the rehabilitation of a amputated patient.						
5.2.6	Discuss the influence of co morbidities in an amputated patient.			Jan Star			
			6				
PM5.3	Demonstrate the correct use of crutches in ambulation and postures to correct contractures and deformities	S	SH	Y	DOAP session, Bedside clinic discussion	Skill assessment	Orthopaedics.
Specific lear	ning objectives:						
5.3.1	List the indications for use of crutches.						
5.3.2	Enumerate various types crutches.						
5.3.3	Demonstrate the correct use of crutches while standing, walking, sitting and climbing stairs.						
5.3.4	Define contracture.						
5.3.5	Define deformity.						

5.3.6	Discuss the causes for contractures and deformities.						
5.3.7	Discuss various preventive measures to avoid contractures and deformities.						
5.3.8	Discuss how do you prevent contractures in bedridden patients						
PM5.4	Identify the correct prosthesis for common amputations.	S	SH	Y	DOAP session	Skill assessment/Written	Orthopaedics.
Specific lear	ning objectives:						
5.4.1	Define prosthesis.						
5.4.2	Enumerate various lower limb prostheses.						

5.4.3	Enumerate various upper limb prostheses.				
5.4.4	Identify correct prosthesis for above knee amputation.				
5.4.5	Identify correct prosthesis for below knee amputation.				

5.4.6	Identify upper limb prosthesis with respect to level of amputation.	

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PM6.3	Describe the principles of skin traction, serial casts and surgical treatment including contracture release , tendon transfer , osteotomies and arthrodesis.	К	КН	Y	Lecture, Small group discussion.	Written/ Viva voice	Orthopaedics.
Specific lear	ning objectives:						
6.3.1	Define traction.						
6.3.2	Enumerate types of traction.						
6.3.3	Discuss the conditions in which traction is used.						
6.3.4	List the indications for skin tractions in upper and lower limbs.						
6.3.5	Discuss the technique of skin traction application and its complications.						

6.3.6	Define serial cast technique.				
6.3.7	Enumerate common indications for serial cast technique.				

6.3.8	Discuss the principles of deformity corrections by surgical release.				
6.3.9	List some conditions where surgical release of contracted structures is performed to correct deformity.				
6.3.10	Define tendon transfer				
6.3.11	List the indications for tendon transfers.				
6.3.12	Discuss the principles of tendon transfers.				
6.3.13	Define osteotomy.				
6.3.14	Enumerate common indications for osteotomies.				
6.3.15	Discuss the general principles of osteotomy.				
6.3.16	Define arthrodesis.				211
6.3.17	Enumerate the indications of arthrodesis.				

6.3.18	Discuss the general principles of arthrodesis procedure				
					106

PM6.4	Describe the principles of orthosis for ambulation in PPRP	К	КН	Y	Lecture, Small group discussion.	Written/ Viva voice		Orthopaedics.		
Specific learning objectives:										
6.4.1	Define PPRP.									
6.4.2	Define orthosis.									
6.4.3	Discuss the general principles of orthotic management of PPRP.									
6.4.4	Enumerate the common orthosis used for lower limb, spine and upper limb in PRPP									
PM7.1	Describe and discuss the clinical features , diagnostic work up, work up diagnosis and management of spinal cord injury.	К	КН	Y	Lecture, Small group discussion.	Written/ Viva voice		Orthopaedics.		

Specific lear	Specific learning objectives:								
7.1.1	Define complete spinal cord injury.								

7.1.2	Differentiate complete and incomplete cord injury.										
7.1.3	Discuss spinal shock.										
7.1.4	Discuss the aetiopathogenesis of spinal cord injury.										
7.1.5	Discuss the clinical features of spinal cord injury.										
7.1.6	Discuss the evaluation and diagnosis of spinal cord injuries.										
7.1.7	Discuss the management of spinal cord injury.										
7.1.8	Discuss the prognosis of spinal cord injury.										

PM7.2	Describe and demonstrate process of transfer, applications of collar restraints while maintaining airway and prevention of secondary injury in a mannequin/model.	S	SH	Y	DOAP session, Small group discussion.	Skill assessment.		Orthopaedics.	
Specific learning objectives:									
7.2.1	Demonstrate the transfer process of polytrauma patient.							214	

7.2.2	Differentiate primary and secondary transport.						
7.2.3	Discuss the risks associated during transportation.						
7.2.4	Discuss the safety of patient transport.						
PM7.3	Perform and demonstrate a correct neurological examination in a patient with spinal injury and determine the neurologic level of injury.	S	SH	Y	Bedside clinic.	Skill assessment	Orthipaedics.
Specific le	arning objectives:	•					
7.3.1	Perform neurological examination in Quadriplegia patient.						
7.3.2	Perform neurological examination in paraplegia patient.						

7.3.3	Perform neurological examination in paraparesis				
	patient.				

PM7.4	Assess bowel and bladder function and identify common	S	КН	Y	Small group	Written/Viva voice	General medicine.
	patterns of bladder dysfunction				discussion		Orthopaedics.
Specific learning objectives:							
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7.4.1	Enumerate the causes of bowel and bladder dysfunction.						
7.4.2	Describe the nerve supply of bladder						
7.4.3	Explain the types of bladder in spinal cord injury (SCI).						
PM7.5	Enumerate the indications and identify the common mobility aids and appliances , wheel chairs.	S	S	Υ.	DOAP session	Skill assessment/ Viva voice	Orthopaedics.
Specific lear	ning objectives:						
7.5.1	Name the common mobility aids.			1			
7.5.2	Explain walking stick and walking frame						
7.5.3	Role of wheel chairs in orthopedics and neurology						
PM7.7	Enumerate and describe common life threatening complications following SCI like Deep vein thrombosis , Aspiration Pneumonia , Autonomic dysreflexia.	к	КН	Y.	Lecture, Small group discussion.	Written/ Viva voice	General medicine. Orthopaedics.
Specific learning objectives:							

7.7.1	Describe the pathophysiology, investigations and management of deep vein thrombosis (DVT) and preventive measures in DVT in follow up case of SCI.				
7.7.2	Discuss the pathophysiology, investigations ^{and} management of aspiration pneumonia				
7.7.3	Enumerate the pathophysiology, investigations, management and preventive measures in autonomic dysreflexia in follow up case of SCI.				

PM8.1	Describe the clinical features , evaluation , diagnosis and management of disability following traumatic brain injury.	К	КН	Y	Lecture , Small group discussion.	Written/ Viva voice		General medicine. Orthopaedics. General surgery .
Specific learning objectives:								

ſ	7.8.1	Discuss the clinical features of traumatic brain injury (TBI).				

7.8.2	Discuss the neurological status of traumatic brain injury .				
7.8.3	Evaluate the diagnostic modality of traumatic brain injury				
7.8.3	Discuss t the management of disability of traumatic brain injury				

E. SELF DIRECTED LEARNING (10 Hours)

SL NO	MBBS PHASE III Part 1	MBBS PHASE III Part 2
1	OR1.1- Polytrauma, ATLS	OR 2.7- Pelvic Injury and Shock
2	OR 1.6- Dislocations	OR 2.8- Spinal cord injury

3	OR 2.15- Compartment Syndrome	OR 3.1- Osteomyelitis
4	PM 5.3- Crutches, Mobility Aids	OR 10.1- Malignant Bone Tumor
5	PM 5.4- Amputation , Prosthesis	OR 11.1- Peripheral Nerve injury

SDL EXAMPLE 1: Case Scenario:- Polytrauma

A 35-year-old man is brought to the emergency department following a motorcycle accident. He is breathing spontaneously and has a systolic blood pressure of 80 mm Hg, a pulse rate of 120/min, and a temperature of 98.6° F (37° C). Examination suggests an unstable pelvic fracture. Ultrasound evaluation of the abdomen is negative. Despite administration of 4 L of normal saline solution, he still has a systolic pressure of 90 mm Hg and a pulse rate of 110. Urine output has been about 20 mL since arrival 35 minutes ago. Discuss Management of this patient

Learning objectives

- A. Classify a polytrauma patient to one of the four groups (stable, borderline, unstable, extremis) based on the physiology
- B. Learn which injury pattern and physiologic parameters can lead to ARDS and MODS in the polytrauma patient

- C. Outline the latest advances in resuscitation (ATLS)
- D. Define the role of orthopedic surgery in saving life and limb after major trauma
- E. Identify patients that can safely have early total care

Consider the suitability of damage control surgery

G. Set priorities for management of injuries - Long bone vs Pelvic Ring

SDL EXAMPLE 2: Case Scenario:- Compartment Syndrome

20 year old male patient was treated conservatively with a cast for fracture of right radius and ulna. He comes to ER 24 hours later with severe pain ion his forearm. What is the most likely diagnosis?

Learning objectives

- A. What is compartment syndrome?
- B. What are clinical signs of compartment syndrome?

F.

- C. What is the pathophysiology behind compartment syndrome?
- D. How do you measure compartment pressure?
- E. What would have prevented this complication?
- F. How do you manage this patient?- Investigations, medication, surgery
- G. What are the complications of compartment syndrome?

F. Topics for Electives

- 1. Trauma and fractures
- 2. Paediatric Orthopaedics
- 3. Orthopaedic adult reconstruction/ Joint Replacement

4. Orthopaedic spine

5. Orthopaedic sports medicine

6. Geriatric orthopaedics

7. Musculoskeletal Oncology

G. Clinical Postings

Learner - Doctor programme (Clinical) – As per GMER 2019					
Year of Curriculum	Focus of Learner - Doctor programme				
Phase I	Introduction to hospital environment, early clinical exposure, understanding perspectives of illness				
Phase II	History taking, physical examination, assessment of change in clinical status, communication and patient education				
Phase III Part 1	All of the above and choice of investigations, basic procedures and continuity of care				
Phase III Part 2	All of the above and decision making, management and outcomes				

	MBBS Phase II	MBBS Phase III Part I	MBBS Phase III Part 2	Total weeks
Orthopedics including Trauma and PMR	2 weeks	4 weeks	2 weeks	8 weeks

List of Competencies to be considered in clinical Postings

Bed Side Clinics	Case discussion	Demonstrations
OR1.5: Dislocation of joints	OR 3.4: Osteomyelitis/Septic Arthritis	AN8.4: Demonstrate important muscle attachment on the given bone
OR 2.1 to OR 2.16: Fractures	OR4.1: Tuberculosis of joints/spine	AN 10.12: Describe and demonstrate Shoulder joint for– type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, muscles involved, blood supply, nerve supply and applied anatomy
OR5,1: Inflammatory disorders of joints	OR6.1: Degenerative conditions of spine	OR13.1: Casts and Plasters
IM7.13: Perform a systematic examination of all joints, muscle and skin that will establish the diagnosis and severity of disease	OR7.1,7.2: Metabolic Bone Disordersosteoporosis, osteomalacia, rickets, Paget's disease	OR13.2: Splints and tractions
IM7.18: Enumerate the indications and interpret plain radiographs of joints	OR8.1: PPRP	PM5.3: Demonstrate the correct use of
	OR 11.1- Peripheral Nerve injuries	correct contractures and deformities

PM 4.5: Demonstrate correct assessment of muscle strength and range of movements	OR 12.1: Congenital - CTEV	
PM7.3: Perform and demonstrate a correct neurological examination in a patient with spinal injury and determine the neurologic level of injury	OR 10.1, 10.2: Tumors, swellings	

Model Time table for MBBS Phase II Clinical Postings						
Day		Week 1	Week 2			
Monday	Clinical case Discussion	History Taking and Basic Orthopaedic Examination (IM 7.5)	History and Examination of Shoulder Joint (IM 7.13.3)			

Tuesday	Clinical case Discussion	History and Examination of bone and joint infection (PA33.1)	History and Examination of Elbow Joint (IM 7.13.4)
Wednesday	Clinical case Discussion	History and Examination of Knee Joint (IM 7.13.2)	History and Examination of Wrist Joint and Hand (IM 7.13.5)

Thursday	Clinical case Discussion	History and Examination of Ankle and Foot (IM 7.13.6)	History and Examination of Hip Joint (IM 7.13.1)
Friday	Clinical case Discussion	History taking and examination of deformed limb (OR 7.2)	History and Examination of Bone swelling/tumor (OR 10.2)
Saturday	x	x	x

Model Time table for MBBS Phase III, Part 1 Clinical Postings					
Day		Week 1	Week 2	Week 3	Week 4
Monday	Clinical case Discussion	Infections –1 Osteomyelitis of long bones (PA33.1))	Osteoarthritis KNEE (IM 7.13.2, OR 2.3)	Malunion – Upper limb(OR 2.15)	Examination of Bone Tumor (OR 10.2)
Tuesday	Clinical case Discussion	Rickets/deformities (OR 7.1,7.2)	Nerve injuries – Foot drop (OR11.1)	Frozen Shoulder/ Shoulder Impingement (IM 7.13.3)	Malunion – lower limb(OR 2.15)

Wednesday	Clinical case Discussion	Rheumatoid Arthritis/ Ankylosing spondylitis (OR 5.1)	TB Hip/Knee (OR4.1)	Nerve injuries – Wrist drop/Claw Hand (OR11.1)	Septic Arthritis (OR3.4)
Thursday	Clinical case Discussion	Non- union (OR 2.15)	Ligamentous Injuries of Knee (OR1.3, AN18.6)	Hip DeformityAbnormal Gait (IM 7.13.1)	Examination of Patient with claudication pain (OR 6.1)
Friday	Skill lab	Below and above elbow slab/cast (OR13.1)	Below and above Knee slab/cast(OR 13.1)	Reduction and cast application for Colle's Fracture. (OR 13.1) Strapping of Clavicle Fracture (OR 2.1)	ATLS – Basics (OR 1.1)
Saturday	Operating procedures/ Skill Lab	Hand wash, Donning surgical gown and gloves, preparation of parts	Suturing Methods	Debridement of Osteomyelitis/ Saucerization	Tendon Repair 118

Model Time table for MBBS Phase III, Part 2 Clinical Postings

Day		Week 1	Week 2	
Monday	Clinical case Discussion	Infections –2 Infected Non Union/ Ilizarov/external fixator (PA33.1))	CTEV (AN19,6. OR 12.1)	
Tuesday	Clinical case Discussion	Quadriplegia/Paraplegia (PM 7.3)	Examination of Bone Tumor (OR 10.2)	
Wednesday	Clinical case Discussion	Recurrent Shoulder Dislocation (IM 7.13.3)	Elbow- Deformity (OR7.2)	
Thursday	Instruments/Specimens/X-rays	X-rays and Specimens	Instruments, Implants, orthosis and prosthesis,	
Friday	Skill lab	Skin traction and Thomas splint application (OR13.1)	Shoulder dislocation reduction Techniques (OR1.6)	
Saturday	Operating procedures/ Video Assisted Teaching	Intramedullary nailing	Plate Osteosynthesis	

H. LOG BOOK FORMAT

I. Model Question Papers Example 1

Time: 1 hour 30 minutes

Total Marks: 50

Long Essays- 10 Marks Each (2X10=20 Marks)

1. A 6 year old kid was brought to emergency department with pain swelling and in left elbow with difficulty on moving the elbow. Parents give a history of fall from height directly on elbow while playing.

1. What is the most common pediatric elbow/distal humerus

fracture?

- 2. Mechanism of injury and classification
- 3. Management
- 4. Complications- acute and chronic
- (1+3+3+3= 10Marks) 2. A 65 year old obese individual has come to the hospital

with complaints f pain in both knees. Discuss

1. Clinical Examination 2. Investigations

3. Various treatment modalities of Osteoarthritis of knee. (3+3+4= 10 marks)

Short Essay- 5 marks each

(3X5=15 Marks)

- 1. Osteoclastoma definition, Histology, management
- 2. Colle's fracture- definition, classification, management
- 3. Tuberculosis of Spine Pathogenesis, Classification and Management

Short Answers- 3 marks each

(5X3=15 Marks)

- 6. Thomas Splint
- 7. Saturday Night Palsy
- 8. Deformities in CTEV
- 9. Bennett's Fracture
- 10. Stages of Fracture Healing

Example 2

Total Marks: 50

Time: 1 hour 30 minutes

Long Essay- 10Marks Each (2X10=20Marks)

1. A new born was brought to the hospital with CTEV of both feet. Discuss

1.	Etiology	
2.	Deformities	
3.	Management	
4.	(3+3+4= 10Marks)	
 с I.С .		 <u> </u>

2. **A** 11 year old boy was referred from a primary care center with osteosarcoma of femur. Discuss

1.	Clinical features	
2.	Radiological and histolo	ogical findings
3.	Management	(3+3+4= 10 marks

Short Essay- 5 marks each

(3X5=15 Marks)

- 1. Monteggia Fracture Dislocation
- 2. Claw hand
- 3. Nutritional Rickets

Short Answers- 3 marks each

(5X3=15 Marks)

- 6. Dennis Brown splint
- 7. Skeletal Traction
- 8. List DMARD's
- 9. Anterior Drawer's Test
- 10. Mallet Finger

J. Recommended Text Books

- 1. Natarajan's Textbook of Orthopaedics and Traumatology. 8th Edition
- 2. Maheshwari, Essential Orthopaedics. 6th Edition
- 3. Crawford Adams, Outline of Orthopaedics Fractures and dislocation. 14th Edition
- 4. Apley & Solomon's System Of Orthopaedics And Trauma. 10th edition
- 5. Das S, A Manual On Clinical Surgery. 14th Edition
- 6. McRae, Clinical Orthopaedic Examination. 6th Edition