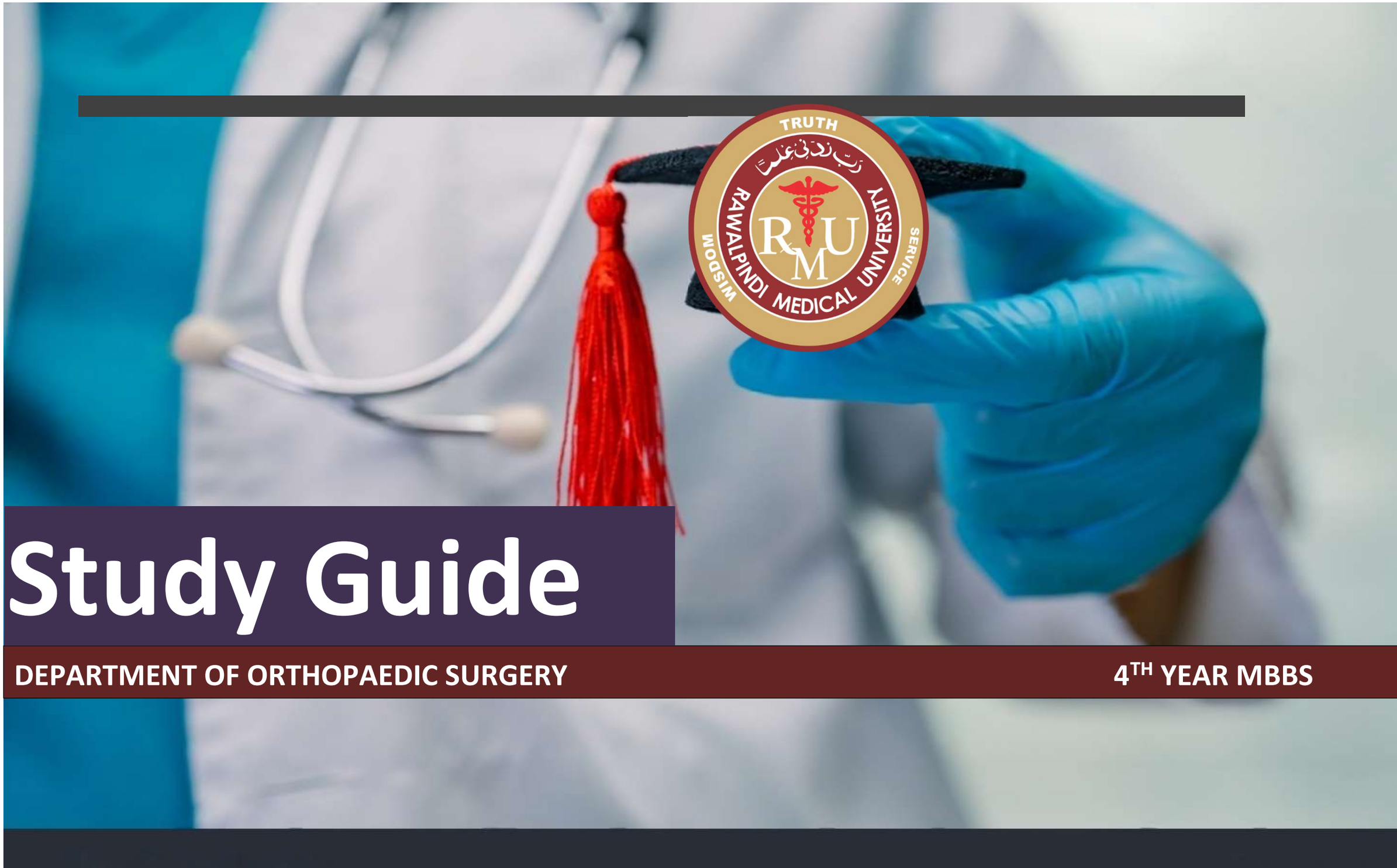


Study Guide

DEPARTMENT OF ORTHOPAEDIC SURGERY

4TH YEAR MBBS

Message of Vice Chancellor, Rawalpindi Medical University

The four year MBBS year is a crucial bridge between classroom learning and clinical practice. Our curriculum emphasizes a blend of interactive sessions (LGIS), diverse clinical placements, and ongoing assessments to nurture competent and compassionate future physicians.

Teaching hours, learning components, and assessment methods are detailed within this document. Faculty are dedicated mentors, while students are expected to be active, engaged learners. Continuous internal assessments and the Pre-Annual Assessment ensure readiness for the fourth year Professional Assessment.

Together, we have a shared responsibility to uphold the highest standards of medical education. Let us collaborate to ensure our

graduates are well-prepared to excel as junior doctors and make a positive impact on the communities they serve

Professor Muhammad Umar
(Hilal-a-e-Imtiaz & Sitar-a-e-Imtiaz)

Message

Dear Students,

As you begin your journey through the study guide for **Orthopaedic Surgery** in your 4th year, it is important to recognize the vital role this specialty plays in modern medicine. Orthopaedics is not just about managing fractures or correcting deformities—it is about restoring movement, function, and independence to individuals across all stages of life.

Musculoskeletal conditions affect millions worldwide and are a leading cause of disability. As future physicians, you will frequently encounter patients who rely on your knowledge and skills to regain the quality of life they have lost due to injury, disease, or age-related degeneration.

This study guide has been thoughtfully prepared to introduce you to the foundational principles and essential clinical practices in Orthopaedic Surgery. But remember, acquiring knowledge is only the first step. Your growth into a competent and compassionate doctor depends on your curiosity, hands-on learning, and a strong commitment to patient-centered care.

This academic effort aligns with the forward-looking vision of **Prof. Dr. Muhammad Umar**, Vice Chancellor of Rawalpindi Medical University, whose commitment to integrated and innovative medical education continues to shape our future leaders in healthcare.

I encourage you to make the most of this learning experience. Approach every case with empathy, every concept with enthusiasm, and every challenge with determination. Your dedication will not only prepare you to manage complex orthopaedic cases but also inspire confidence and trust in your future patients.

Wishing you success and growth on this journey.

Warm regards,

Department of Orthopaedic Surgery
Rawalpindi Medical University

Mission Statement University

"To impart evidence-based research-oriented health professional education in order to provide best possible patient care and inculcate the values of mutual respect, ethical practice of healthcare and social accountability".

DERMATOLOGY DEPARTMENT

VISION

"Our aim is to become a Globally Recognized leader in dermatology and aesthetic medicine education and services of Pakistan."

Mission

"To expand our evidence based knowledge and relieve human suffering related to skin disorders through creative research, outstanding innovative patient care and achieve excellence in education at local , national and international levels".

Preamble

This curriculum is according to the standards set by following organizations.

1. Foundation for Advancement of International Medical Education and Research (FAIMER)
2. Accreditation Council for Graduate Medical Education (ACGME)
3. World Federation for Medical Education (WFME)
4. Undergraduate Education Policy 2023 from Higher Education Commission (HEC)
5. Pakistan Medical and Dental Council (PMDC) guidelines for undergraduate Medical Education Curriculum (MBBS) 2022
   It is based on **SPICES** model of educational strategies which is student centered, problem based, integrated, community oriented and systematic.*

Teacher centered	⍰	Student centered	S
Information oriented	⍰	Problem based	P
Discipline based	⍰	Integrated	I
Hospital based	⍰	Community based	C
Standardized curriculum	⍰	Elective programs	E
Opportunistic	⍰	Systematic	S

*Harden, R. M., Sowden, S., & Dunn, W. R. (1984). Educational strategies in curriculum development: The SPICES model. Medical Education, 18, 284-297. http://dx.doi.org/10.1111/j.1365- 2923.1984.tb01024.

According to Pakistan Medical and Dental Council (PMDC) guidelines for undergraduate Medical Education Curriculum

Seven star doctor

- Skillful
- Knowledgeable
- Community health promoter
- Critical thinker Professional
- Scholar Leader and role model

Skillful (Clinical, Cognitive and Patient Care Skills)

Takes a focused history Perform physical and psychological examination Formulates a provisional diagnosis Orders appropriate investigations

Performs various common procedures Debates, formulates management plans Manages time and prioritizes tasks Ensures patient safety.

Advises and counsels, educates, recognizes and takes in to consideration issues of equality Describes and debates the reasons for the success or failures of various approaches

Knowledgeable (Scientific Knowledge for Good Medical Practice)

Differentiates, relates, applies and ensures knowledge is gained.

Community Health Promoter (Knowledge of Population Health and Healthcare Systems)

Understands their role and be able to take appropriate action Determinants of health impact on the community Takes appropriate action for infectious non-communicable disease and injury prevention Evaluates national and global trends in morbidity and mortality Works as an effective member of health care team Adopts a multidisciplinary approach for health promotion Applies the basics of health systems Makes decisions for health care.

Critical thinker (Problem Solving and Reflective Practice)

Use of information Critical data evaluation Dealing effectively with complexity, uncertainty and probability Regular reflection on their practice Initiating participating in or adopting to change, flexibility and problem solving approach Commitment to quality assurance, Raising concerns about public risks and patient safety.

Professional (Behavior and Professionalism)

a. Life long, self-directed learner

b. Demonstrates continuous learning
c. Seeks peer feedback

d. Manages information effectively

e. Provides evidence of continuing career advancement

f. Functions effectively as a mentor and a trainer, responds positively to appraisals and feedback
Altruistic and empathetic
g. Ethical, Collaborator, Communicator.

Scholar and Researcher

a. Identifies a researchable problem and critically reviews the literature
b. Phrases succinct research questions and formulates hypotheses
c. Identifies the appropriate research design(s) in epidemiology and analytical tests in biostatistics to answer the research question.
d. Collects, analyzes and evaluates data, and presents results.
e. Demonstrates ethics in conducting research and in ownership of intellectual property.

Leader and Role Model

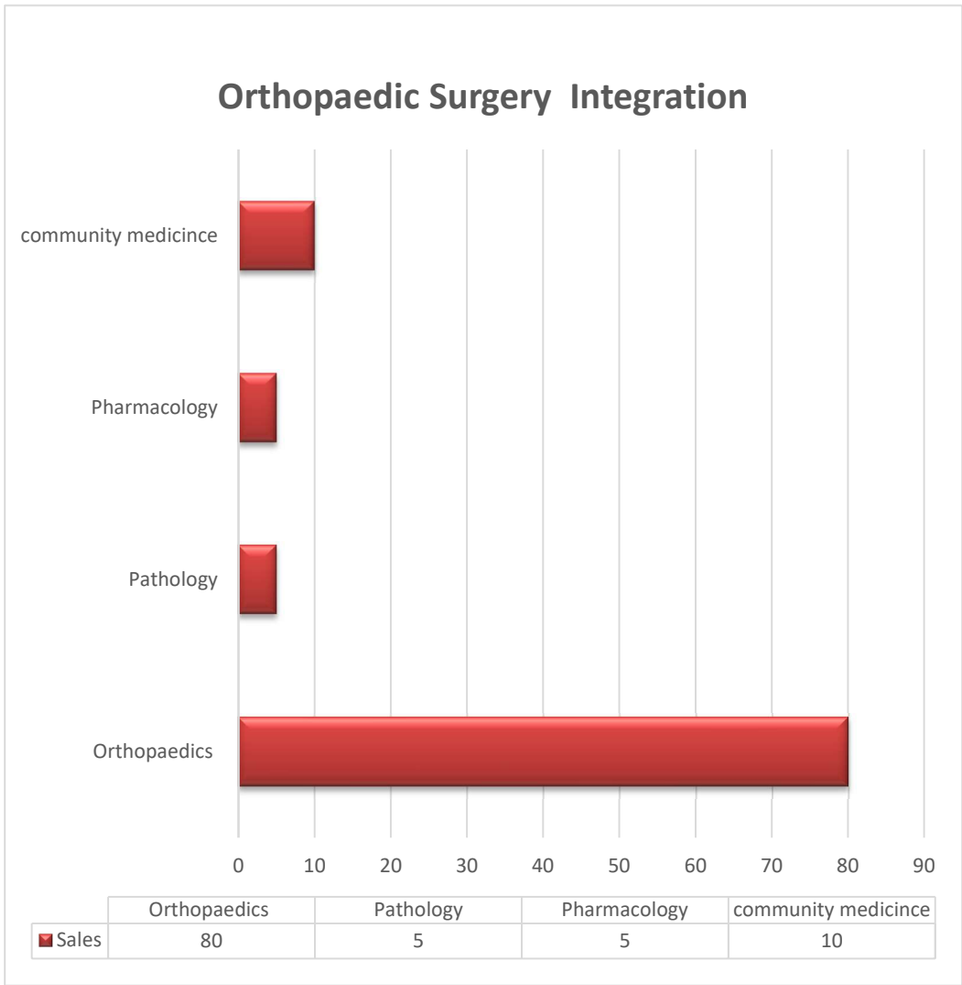
Demonstrates exemplary conduct and leadership potential in

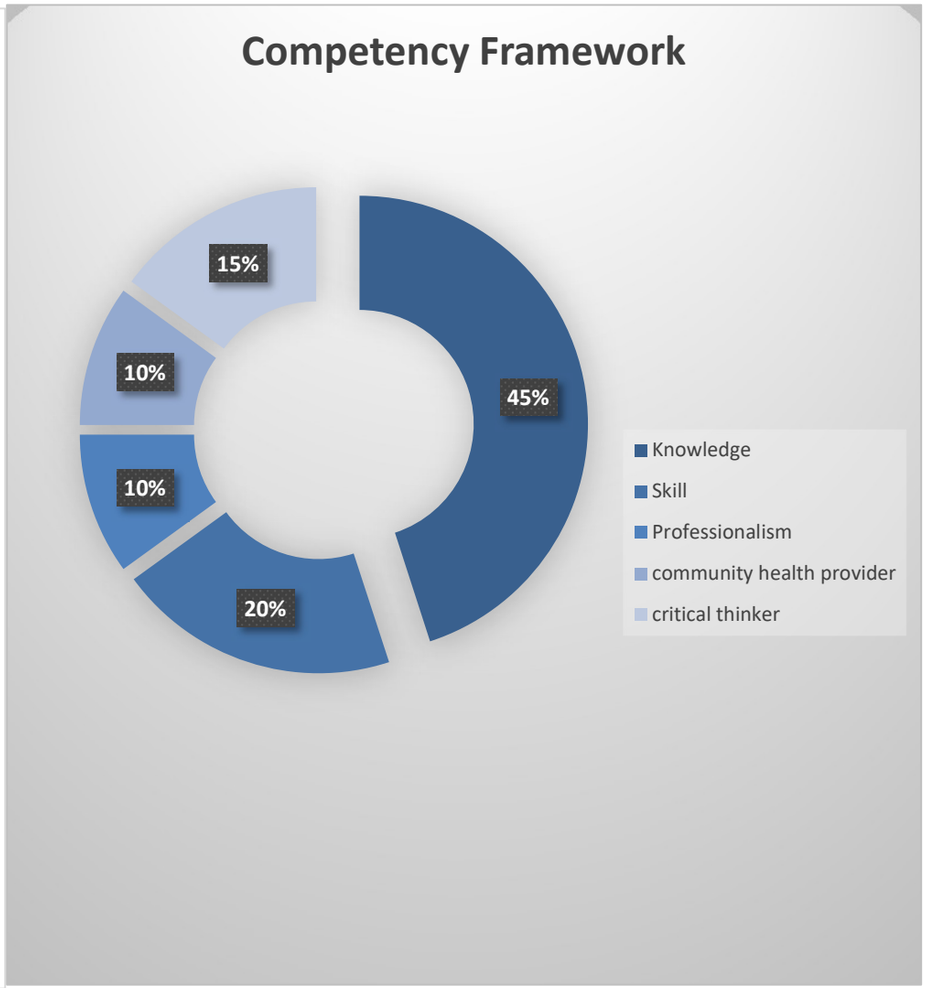
a. advancing healthcare
b. enhancing medical education
c. initiating, participating in and adapting to change, using scientific evidence and approaches
d. Enhancing the trust of the public in the medical profession by being exceptional role model at work and also when away

e. accepting leadership roles f. Providing leadership in issues concerning society.

- Appreciate concepts & importance of
    - **Research**
    - **Biomedical ethics**
    - **Family medicine**
    - **Artificial Intelligence**

This module will run in 6 weeks duration. The content will be covered through introduction of topics. Instructional strategies are given in the time table and learning objectives are given in the study guides. Study guides will be uploaded on the university website.


Orthopaedic Surgery Integration
community medicince
Pharmacology
Pathology
Orthopaedics
0
10
20
30
40
50
60
70
80
90
Orthopaedics
Pathology
Pharmacology
community medicince
Sales
80
5
5
10


Competency Framework
15%
10%
45%
10%
20%
Knowledge
Skill
Professionalism
community health provider
critical thinker

Contents

Tables & Figures

Domains of learning according to Blooms Taxonomy

Sr.#	Abbreviation	Domains of learning
1.	C	Cognitive Domain: **knowledge and mental skills.**
	• C1	**Remembering**
	• C2	**Understanding**
	• C3	**Applying**
	• C4	**Analyzing**
	• C5	**Evaluating**
	• C6	**Creating**
2.	P	Psychomotor Domain: **motor skills.**
	• P1	**Imitation**
	• P2	**Manipulation**
	• P3	**Precision**
	• P4	**Articulation**
	• P5	**Naturalization**
3.	A	Affective Domain: **feelings, values, dispositions, attitudes, etc**
	• A1	**Receive**
	• A2	**Respond**
	• A3	**Value**
	• A4	**Organize**
	• **A5**	**Internalize**

Teaching and Learning Methodologies / Strategies
Large Group Interactive Session (LGIS)

The large group interactive session is structured format of Prof Umar Model of Integrated lecture. It will be followed for delivery of all LGIS. Lecturer will introduce a topic or common clinical condition and explain the underlying phenomena through questions, pictures, videos of patients, interviews and exercises, etc. Students are actively involved in thelearning process.

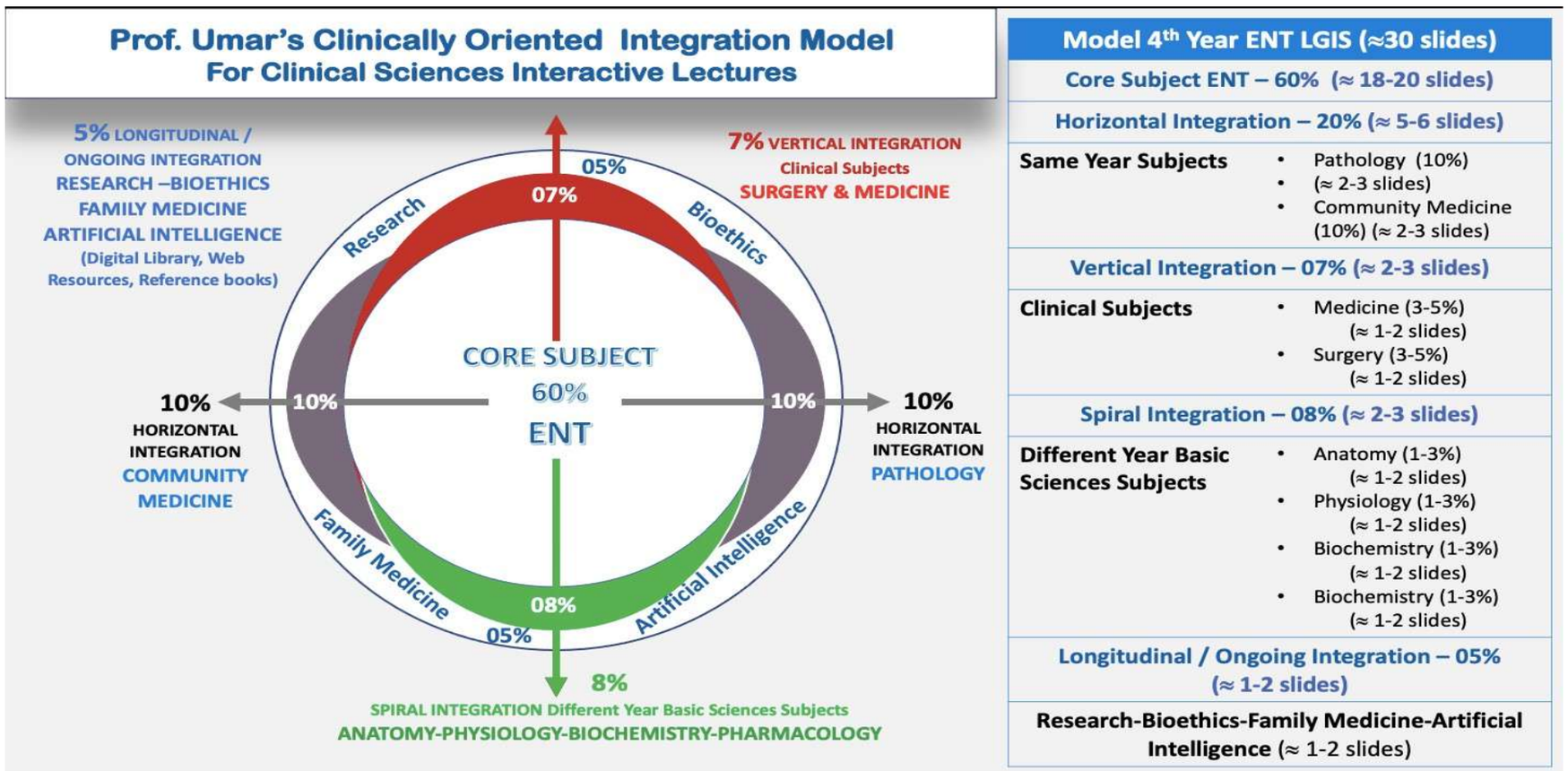


Figure 1. Prof Umar's Model of Integrated Lecture

Small Group Discussion (SGD)

This format helps students to clarify concepts acquire skills and attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics or power point presentations. Students exchange opinions and apply knowledge gained from lectures, SGDs and self-study. The facilitator role is to ask probing questions, summarize and helps to clarify the concepts.

Table

Table 2. Standardization of teaching content in Small Group Discussions

S.No	Topics	Approximate %
1	Title Of SGD	
2	Learning Objectives from Study Guides	
3	Horizontal Integration	**5%+5% = 10%**
4	Core Concepts of the topic	**70%**
5	Vertical Integration	**10%**
6	Related Advance Research points	**3%**
7	Biomedical Ethical points	**2%**
8	**Spiral integration**	**5%**

3. Steps of taking Small Group Discussions

Step 1 Minutes	Sharing of Learning objectives by using students Study guides	First 5
Step 2	Asking students pre-planned questions from previous teaching session to develop co-relation (these questions will be standardized)	**5minutes**
Step 3	Students divided into groups of three and allocation of learning objectives	**5minutes**
Step 4	ACTIVITY: Students will discuss the learning objectives among themselves	**15 minutes**
Step 5	Each group of students will present its learning objectives	**20 min**
Step 6	Discussion of learning content in the main group	**30min**
Step 7	Clarification of concept by the facilitator by asking structured questions from learning content	**15 min**
Step 8	Questions on core concepts	
Step 9	Questions on horizontal integration	
Step 10	Questions on vertical integration	
Step 11	Questions on related research article	
Step 12	Qauestions on related ethics content	
Step 13	Students Assessment on online MS teams (5 MCQs)	**5 min**
Step 14	Summarization of main points by the facilitator	**5 min**
Step 15	Students feedback on the SGD and entry into log book	**5 min**
Step 16	**Ending remarks**	

Self-Directed Learning (SDL)

- Self- directed learning is a process where students take primary charge of planning, continuing and evaluating their learning experiences.
- Time home assignment
- Learning objectives will be defined
- Learning resources will be given to students = Text book (page no), web site
- Assessment:
- Online on LMS (Mid module/ end of Module)
    - OSPE station

Case Based Learning (CBL)

- It's a learner centered model which engages students in discussion of specific scenarios that resemble typically are real world examples.
- Case scenario will be given to the students
- Will engage students in discussion of specific scenarios that resemble or typically are real-world examples.
- Learning objectives will be given to the students and will be based on:

- To provide students with a relevant opportunity to see theory in practice
- Require students to analyze data in order to reach a conclusion.
- Develop analytic, communicative and collaborative skills along with content knowledge.

Learning Objectives, Teaching Strategies & Assessments

- **Contents**

    - Introduction to RMU and Disciplines
    - Medical Education and Integrated Disciplines
    - Horizontally Integrated Basic Sciences (Anatomy, Physiology, Pharmacology, Pathology, Community Medicine)

- **Large Group Interactive Session**:
    - **Dermatology (LGIS)**

- **Small Group Discussions**
    - **Dermatology (SGD)**

- **Self-Directed Topic, Learning Objectives & References**
    - **Dermatology (SDL)**

- **Ward, Procedure room (CBL)**

Study guide: Learning Objectives / Small Group Discussion (SGDs) (LGIS)

DEPARTMENT OF ORTHOPAEDIC SURGERY

STUDY GUIDE OF DEPARTMENT OF ORTHOPAEDIC SURGERY
4TH YEAR MBBS

DATE / DAY	10:00pm - 02:00pm			Assessment					
	Clinical Clerkship	Case based discussion / Small Group Discussion	Facilitator	MCQ			SEQ	SAQ	OSCE
				C1	C2	C3			
Monday	**Fracture Classifications**	• Identify fracture types and their general classification • Understand early as well as late complications of open and close fracture.	***Dr. Rahman Rasool (Assistant Professor)***	*03*	07	10	*03*	03	***05***
Tuesday	**Arthroplasty**	• Recognize the Indications of Arthroplasty • Understand the Types of Arthroplasty • Identify the Complications of Arthroplasty	***Dr. Rahman Rasool (Assistant Professor)***						
Wednesday	**Epiphyseal injuries/ upper limb trauma:**	• Identify classify epiphyseal injuries • Interpret upper limb fracture & their management • Understand shoulder and elbow dislocations & their management	***Dr. Rahman Rasool (Assistant Professor)***						
Thursday	**LOWER LIMB TRAUMA:**	• Identity classify limb fractures & their management. • Understand Hip dislocation and its management • Recall Post traumatic AVN of Head of Femur.	**Dr. *Muhammad Sajid* (Senior Registrar)**						

DATE / DAY	10:00pm - 02:00pm	Assessment

	Clinical Clerkship	Case based discussion / Small Group Discussion	Facilitator	MCQ			SEQ	SAQ	OSCE
				C1	C2	C3			
Monday	**Basic Orthopedics & Principles**	• Understand the foundational concepts of orthopedics, including anatomy, biomechanics, and physiology of the musculoskeletal system. • Identify common orthopedic conditions and their clinical presentations. • Learn the principles of fracture management, including reduction, immobilization, and rehabilitation. • Gain an introduction to diagnostic tools such as X-rays and MRIs in orthopedic practice.	***Dr. Rahman Rasool (Assistant Professor)***	*03*	07	10	*03*	03	*05*
Tuesday	**Metabolic Disorders: Osteoporosis, Rickets, & Osteomalacia**	• Recognize the pathophysiology, risk factors, and clinical manifestations of osteoporosis, rickets, and osteomalacia. • Understand the diagnostic criteria, including biochemical markers and radiological findings. • Learn the management strategies, including pharmacological and non-pharmacological treatments. • Discuss preventive measures and lifestyle modifications for metabolic bone disorders.	***Dr. Rahman Rasool (Assistant Professor)***						
Wednesday	*Infections/Tumors*	• *Differentiate between benign and malignant tumors of the musculoskeletal system.* • *Understand the role of infections in musculoskeletal diseases and their impact on patient health.* • *Learn diagnostic techniques for musculoskeletal infections and tumors, including biopsy and advanced imaging.* • *Discuss the principles of treatment, including chemotherapy, radiation therapy, and surgical interventions.*	***Dr. Rahman Rasool (Assistant Professor)***						
Thursdays	***WARD TEST***		**Dr. *Muhammad Sajid* (Senior Registrar)**						

Orthopaedic Surgery Small Group Discussions (SGDs) – MBBS 4th Year

S. No.	Topic	Learning Objectives (Students Should Be Able To):	Learning Domains	Assessment Tools
1	Approach to a patient with Fracture	• Definition• Types of fractures• Clinical evaluation and diagnosis	C2, P	MCQ, SAQ, OSPE
2	Approach to a patient with Dislocation	• Definition• Common sites• Clinical features and basic management	C2, P	MCQ, SAQ, OSPE
3	Compartment Syndrome	• Pathophysiology• Clinical diagnosis• Emergency management	C3	MCQ, SAQ, OSPE
4	Osteomyelitis	• Acute vs chronic types• Clinical presentation• Diagnosis and treatment	C3	MCQ, SAQ, OSPE
5	Bone Tumors (Benign and Malignant)	• Classification• Clinical signs• Diagnostic approach	C2	MCQ, SAQ, OSPE
6	Back Pain and Disc Prolapse	• Causes• Clinical assessment• Red flags	C2	MCQ, SAQ, OSPE
7	Approach to a patient with Joint Pain / Arthritis	• Common causes (OA, RA)• Clinical differentiation• Diagnostic workup	C3	MCQ, SAQ, OSPE
8	Pediatric Orthopaedic Conditions	• Common conditions (DDH, clubfoot)• Clinical recognition and initial steps of management	C2	MCQ, SAQ, OSPE
9	Orthopaedic Emergencies	• Examples (open fractures, neurovascular compromise)• Initial steps in management	C3	MCQ, SAQ, OSPE

Orthopaedic Surgery – Self Directed Learning (SDL)

MBBS 4th Year

Sr. No.	Topics of SDL	Learning Objectives	Learning Resources
1	**Functional Anatomy of Bone and Joints**	• Structure and function of bone and cartilage • Types of joints • Growth and remodeling of bone	*Snell's Clinical Anatomy*, *Turek's Orthopaedics*, *Apley's System of Orthopaedics*
2	**Principles of Fracture Management**	• Classification of fractures • Stages of bone healing • Conservative vs surgical management	*Apley's System of OrthopaedicsTurek's Orthopaedics*
3	**Musculoskeletal Infections**	• Types (osteomyelitis, septic arthritis) • Pathophysiology • Clinical features • Management options	*Davidson's Medicine*, *Apley's Orthopaedics*, *Turek's Orthopaedics*
4	**Bone Tumors**	• Classification • Clinical presentation • Diagnostic workup • Principles of treatment	*Apley's System of OrthopaedicsTurek's Orthopaedics*
5	**Degenerative Joint Diseases**	• Osteoarthritis: risk factors, pathology, clinical features, management	*Davidson's Medicine*, *Apley's Orthopaedics*
6	**Spine Disorders**	• Common conditions (disc prolapse, scoliosis) • Red flags • Diagnostic approach	*Apley's System of OrthopaedicsTurek's Orthopaedics*

7	**Paediatric Orthopaedic Conditions**	• Clubfoot, Developmental Dysplasia of Hip (DDH), Rickets • Early diagnosis and management strategies	*Turek's OrthopaedicsApley's Orthopaedics*
8	**Orthopaedic Emergencies**	• Open fractures • Compartment syndrome • Neurovascular compromise	*Apley's OrthopaedicsEmergency Medicine Handbooks*

Week - 6

RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI NEW TEACHING BLOCK TENTATIVE TIME TABLE 4th YEAR MBBS – OTORHINOLARYNGOLOGY MODULE-2- 2025

Block-1 Module-2

DATE / DAY	
Monday 25-03-24	End Module-2 – Theory MCQ+EMQ+SEQ+SAQ 08.30 am to 11.30 am AV OSPE – 11.30 am to 01 pm
Tuesday 26-03-24	Community Medicine Theory and AV-OSPE
Wednesday 27-03-24	End Block -1 OSCE and OSVE (BBH+HFH)
Thursday 28-03-24	End Block -1 OSCE and OSVE (BBH+HFH)
Friday 29-03-24	End Block -1 OSCE and OSVE (BBH+HFH)
Saturday 30-03-24	END BLOCK MCQ (LMS)

END BLOCK FOURTH YEAR (MEDICINE AND ALLIED SPECIALITIES)

- 25 MCQs of respective specialties will be added to the main End Block Modules.
- Date of first End Block Examination to be finalized after approval by Dean of Medicine and respected HODs.

Written examination

- It will consist of 25 MCQs based questions
- Core concept of MCQs will be to assess knowledge of students regarding basic concepts of history taking and clinical examination.
- Time allocation will be 25 minutes

Table Table of Specification (Themes/Topics/Learning outcomes/Educational Strategies/ Weightings)

TOS For Ward Test 4th Year (60 Marks)

(Theory Paper 60 Marks)
OSCE – 40 Marks)

Component	Number	Marks Each	Total Marks	Weightage (%)	Cognitive Levels
MCQs	20	1	20	20.0%	C2, C3
SEQs	4	5	20	20.0%	C2, C3
SAQs	4	5	20	20.0%	C2, C3
OSCE	4	10	40	40.0%	C3
Total (Theory)	27		100	100%	

Weightage by Topics for Theory (60 Marks)

Topics	Study Hours	MCQs (Marks)	SEQs (Marks)	SAQs (Marks)	EMQ (Marks)
Fracture classifications	04	3(3)	1 (5)	1 (5)	1 (10)
Arthroplasty	04	2(2)	1 (5)	1 (5)	-
Epiphyseal injuries/ upper limb trauma	04	3(3)	1 (5)	-	-
Lower limb trauma:	04	3(3)	-	1 (5)	-
Basic orthopedics & principles	04	4(2)			
Metabolic disorders: osteoporosis, rickets, & Osteomalacia	04	3(3)			
Infections/tumors	04	2(2)			
	28 Hours	20 (20)	3 (15)	3 (15)	1 (10)

Topic	Subtopics / Focus Areas	Learning Objectives	Assessment Methods
1. Fracture Classifications	Open/closed, displaced, comminuted, pathological, Salter-Harris, AO classification	• Classify different types of fractures • Apply classification to clinical decision-making • Correlate fracture types with complications and prognosis	MCQ / SEQ / SAQ / OSCE
2. Arthroplasty	Total Hip Replacement, Total Knee Replacement, Indications, complications, implant types	• Identify indications/contraindications • Understand procedure steps and implant types • Manage complications post-operatively	MCQ / SEQ / SAQ / OSCE
3. Epiphyseal Injuries & Upper Limb Trauma	Supracondylar, lateral condyle, Monteggia, Galeazzi, clavicle fractures, shoulder dislocation	• Classify epiphyseal injuries (Salter-Harris) • Recognize signs and symptoms • Plan emergency and definitive management	MCQ / SEQ / SAQ / OSCE
4. Lower Limb Trauma	Neck of femur, shaft of femur, tibial fractures, ankle fractures, pelvic trauma	• Interpret clinical and radiological findings • Identify life-threatening injuries • Formulate treatment plan including surgical options	MCQ / SEQ / SAQ / OSCE
5. Basic Orthopaedics & Principles	Bone healing, types of fixation, traction, biomechanics, splints/plasters	• Explain bone healing process • Differentiate internal vs external fixation • Demonstrate application of immobilization techniques	MCQ / SEQ / SAQ / OSCE
6. Metabolic Bone Disorders	Osteoporosis, Rickets, Osteomalacia	• Describe pathophysiology• Identify radiographic findings• Outline treatment and prevention strategies	MCQ / SEQ / SAQ / OSCE
7. Infections & Tumors	Osteomyelitis, Septic arthritis, benign and malignant bone tumors	• Differentiate types of infections and tumors• Identify clinical signs• Outline diagnostic workup and treatment strategies	MCQ / SEQ / SAQ / OSCE

TOS for OSCE (40 Marks)

Total Stations: 8, (5 marks each)**.**

Observed Stations: 5

AV OSCE stations: 3

2 stations for history taking and 3 for clinical examination.

Summary of Assessment

Component	Marks	Weightage (%)
Theory Paper	60	60%
OSCE	40	40%
Total	100	100%