



RMU – 12

Integrated Modular

MBBS Curriculum 2026

Isolation to **Beyond Boundaries**

Study Guide

Foundation Module-I

Department of Medical Education

**20
26**

First Year MBBS

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SECTION – I

RMU – 12 Integrated Modular MBBS Curriculum 2026

Isolation to *Beyond Boundaries*

Preamble

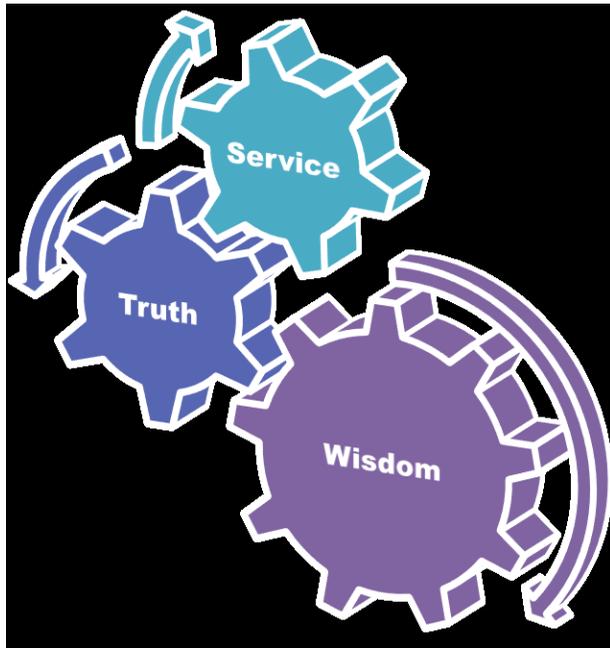
Medical education is undergoing a fundamental transformation globally, shifting from discipline-based, fragmented teaching toward integrated, competency-based, and clinically oriented learning systems that prepare graduates for real-world healthcare practice. In response to these evolving educational paradigms, national regulatory expectations, and the healthcare needs of society, Rawalpindi Medical University has adopted Clinically Oriented Integrated Modular RMU 12 MBBS Curriculum the envisioned under the guiding philosophy of “Isolation to Beyond Boundaries.”. This curriculum represents a structured, longitudinal, and outcome-driven educational continuum, progressing from foundational sciences to advanced clinical practice with a fully embedded internship. It is designed to ensure the gradual and coherent development of knowledge, clinical skills, professional attitudes, and Entrustable Professional Activities (EPAs), enabling graduates to emerge as practice-ready, safe, and competent medical professionals.

The Clinically Oriented Integrated Modular Curriculum transcends traditional disciplinary silos by promoting horizontal and vertical integration across basic, para-clinical, and clinical sciences. Learning experiences are contextualized around clinical problems and patient-centered care, fostering early clinical exposure, spiral learning, and progressive responsibility. This approach aligns with contemporary integration models, workplace-based assessment strategies, and competency-based medical education principles.

Anchored in national standards and international best practices, the curriculum ensures alignment with PM&DC, WFME and HEC requirements, while addressing local healthcare priorities. By embedding internship within the undergraduate framework and mapping outcomes to clearly defined competencies and Entrustable professional activities (EPAs), the curriculum ensures continuity, accountability, and seamless transition from undergraduate training to independent clinical practice.

Through this clinically oriented and integrated approach, Rawalpindi Medical University aims to produce graduates who are not only clinically proficient but also ethical, reflective, socially accountable, and equipped for lifelong learning moving decisively from isolated learning to integrated, boundary-transcending medical education.

University Moto, Vision, Values & Goals



Vision and Values

Highly recognized and accredited center of excellence in Medical Education, using evidence-based training techniques for the development of highly competent health professionals, practice-ready for contemporary healthcare, who are critical thinkers, experiential self-directed lifelong learners, and socially accountable.

Mission Statement

To deliver evidence-based, research oriented, and clinically integrated health professional education that produces practice-ready graduates capable of providing safe, effective, patient-centered care, while upholding the values of mutual respect, ethical medical practice, professionalism, and social accountability.

Goals of the Undergraduate Integrated Modular Curriculum

The RMU-12 Model transforms medical education from isolated knowledge acquisition to embedded clinical practice, producing competent, ethical, and practice-ready physicians.

The RMU-12 Undergraduate Medical Program is designed to:

- Provide thorough grounding in the basic theoretical concepts underpinning the practice of medicine.
- Develop and polish the skills required for providing medical services at all levels of the Health care delivery system.
- Help you attain and maintain the highest possible levels of ethical and professional conduct in your future life.
- Kindle a spirit of inquiry and acquisition of knowledge to help you attain personal and professional growth & excellence.

RMU – 12 Integrated Modular MBBS Curriculum 2026

Isolation to Beyond Boundaries

Competency Framework

Competency



Figure 1

References

Harden RM. The integration ladder: a tool for curriculum planning and evaluation. *Medical education*. 2000 Jul 1;34(7).
 Ten Cate O. Nuts and bolts of entrustable professional activities. *Journal of graduate medical education*. 2013 Mar 1;5(1):157-8.
 Pakistan Medical & Dental Council Guidelines for Undergraduate Medical Education (MBBS) Curriculum – 2024

PMDC

RMU – 12 Structured Framework of Integrated Modular MBBS Curriculum 2026 Isolation to **Beyond Boundaries**

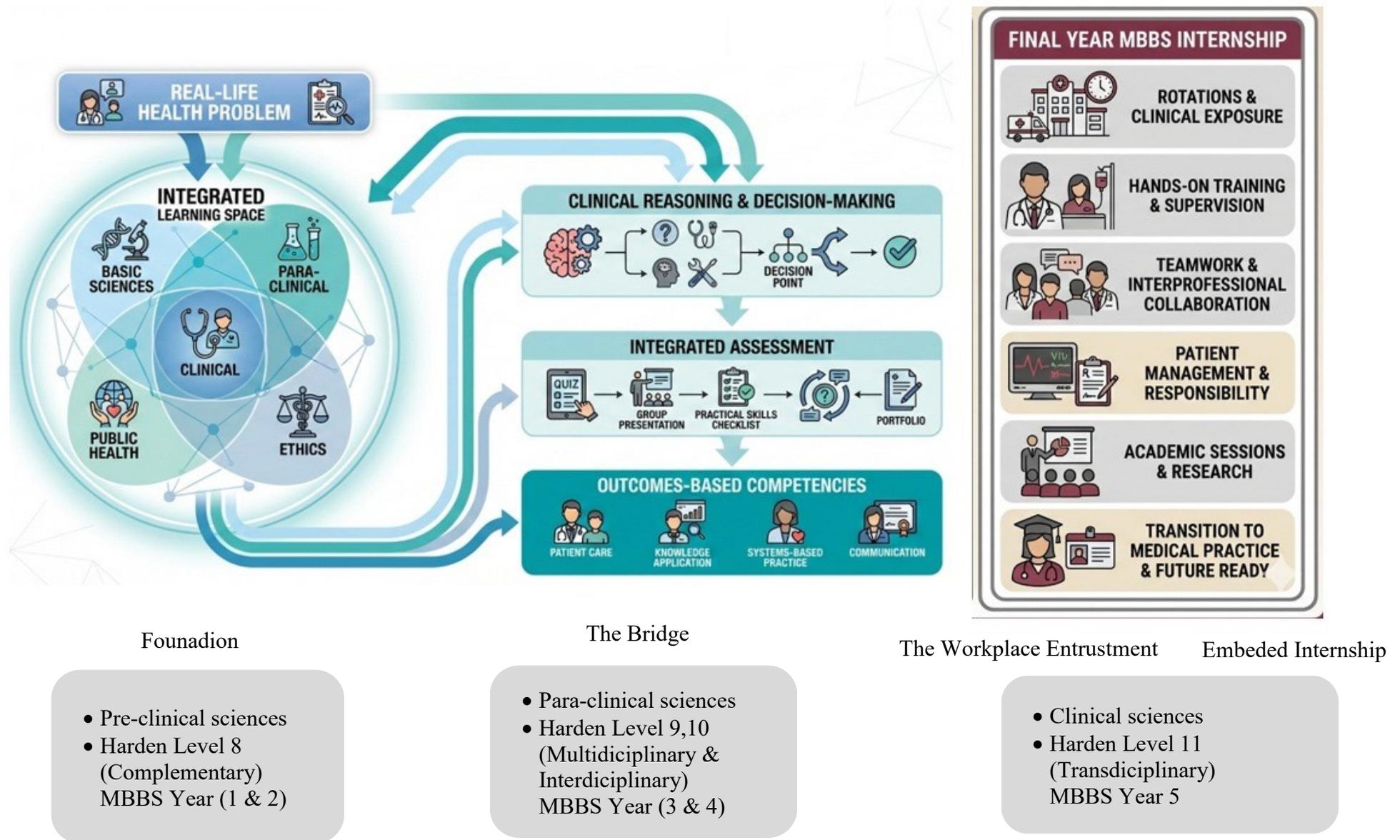


Figure 2

RMU – 12 Structured Framework of Integrated Modular MBBS Curriculum 2026
Isolation to Beyond Boundaries

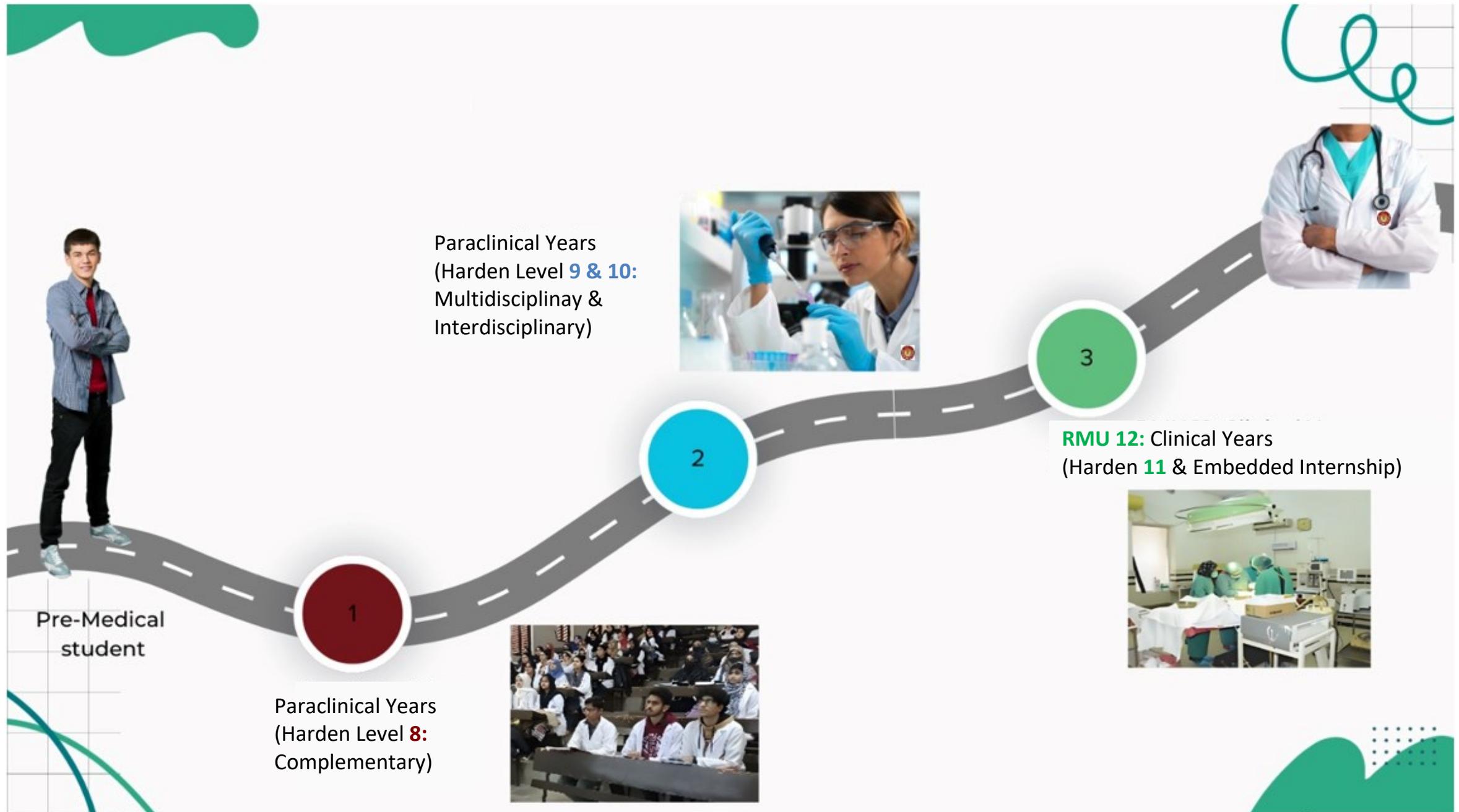


Figure 3

RMU – 12 Assessment Framework of Integrated Modular MBBS Curriculum 2026
Isolation to Beyond Boundaries

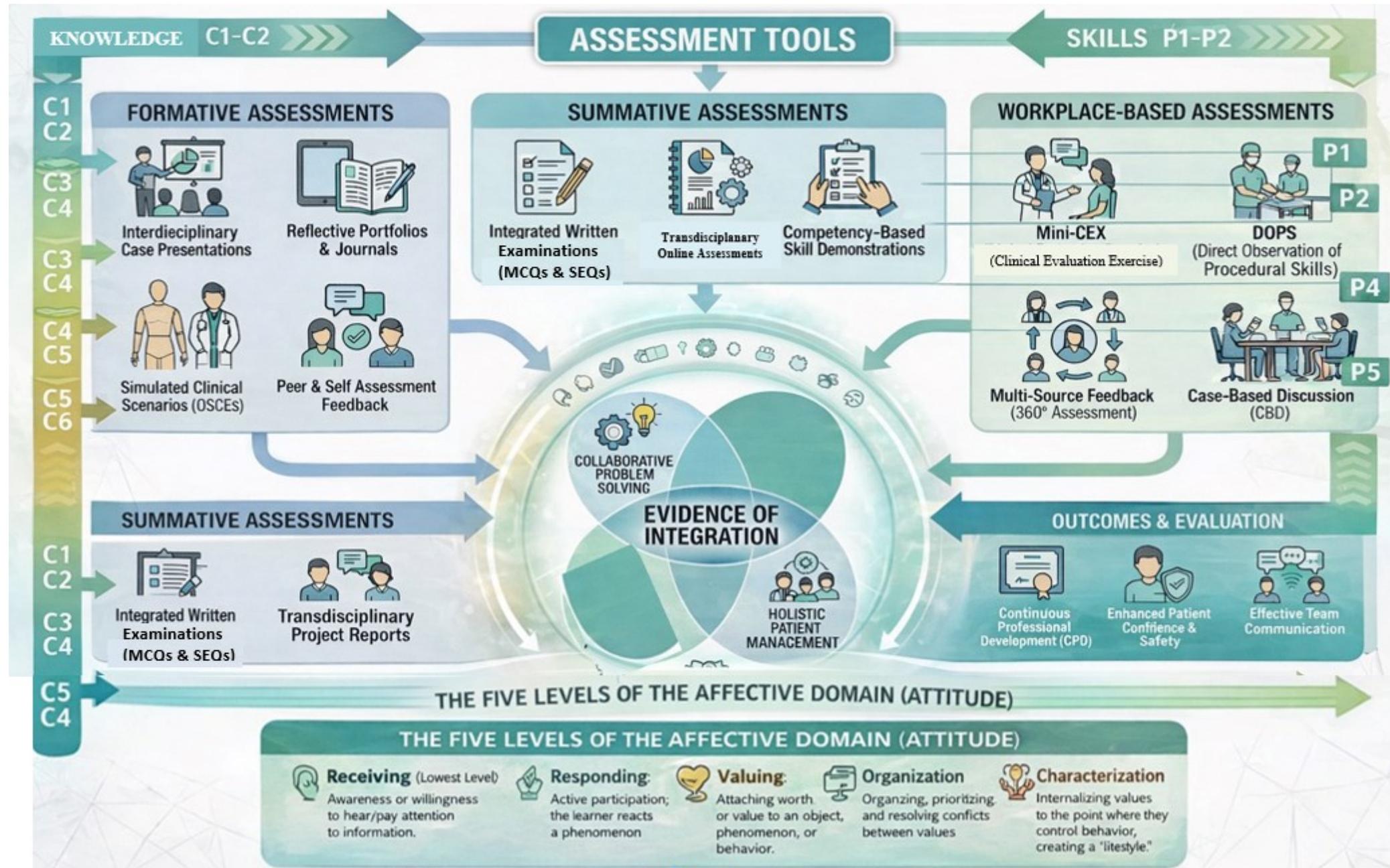


Figure 4

RMU – 12 Structured Framework of Integrated Modular MBBS Curriculum 2026
Isolation to Beyond Boundaries

| | | | |
|--|--|---|--|
|  | Phase | Curricular Highlights |  |
| | Pre House-job Internship | <p>Undergraduate Internship The Pre House-Job Internship is a structured, supervised transition phase that consolidates clinical skills and professional readiness before the statutory house job. Learning is workplace-based and centred on clearly defined Entrustable Professional Activities aligned with international standards. Assessment relies on programmatic workplace-based tools and entrustment decisions to ensure safe, consistent performance and smoother transition into supervised clinical practice.</p> | |
| | Clinical Sciences The Workplace Entrustment | <p>Transdisciplinary Clinical education is embedded within real patient care and organised around EPAs and graded responsibility. Students learn as supervised members of clinical teams. Assessment is workplace-based and progression is guided by entrustment decisions supported by portfolios.</p> | |
| | Paraclinical Sciences The Bridge | <p>Multidisciplinary and Interdisciplinary Pre-clinical sciences are organised around clinical problems and system themes with interdisciplinary learning outcomes and team-based teaching. Instruction uses case-based learning, simulation and integrated laboratories to promote cross-disciplinary reasoning, while advanced units introduce task-based competencies and EPAs using a spiral design. Assessment emphasises integrated performance through OSCEs, workplace-linked tools and portfolios, with progression informed by aggregated evidence rather than single examinations.</p> | |
| Pre-Clinical The Foundation | <p>Complementary Basic Medical Sciences are organized into system and theme-based modules with coordinated teaching across disciplines. Subject teaching is aligned through module-level outcomes and planned integrated sessions that reinforce related concepts. Assessments include items to test applied understanding, supported by interdisciplinary planning to ensure coherence.</p> | | |

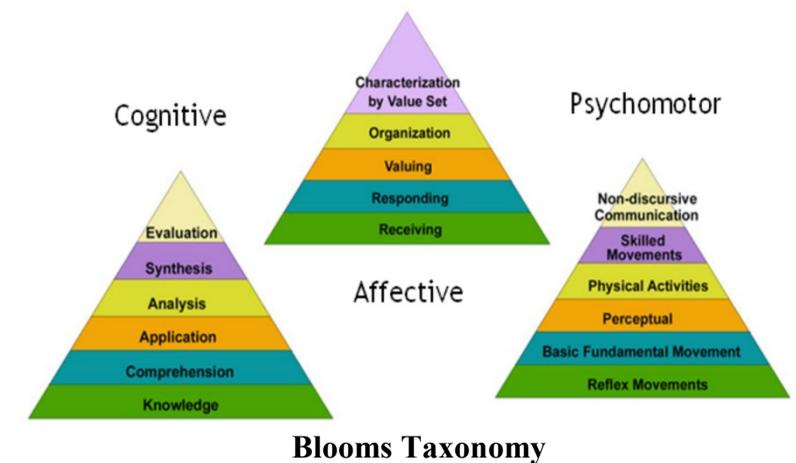
Rawalpindi Medical University has adopted a staged curricular framework that reflects a progressive movement along Harden’s integration ladder, culminating in going beyond the ladder to **RMU 12**. The curriculum is designed to ensure that knowledge acquired in the early years is not isolated or terminal, but is progressively contextualized, applied and transformed into professional competence. This progression is achieved by aligning curricular structure, teaching approaches and assessment strategies so that students move from conceptual understanding to integrated reasoning and finally to authentic clinical performance with graded responsibility.

Phase 1- The Foundation

In the early phase, basic sciences are organised using a complementary approach. The curriculum is structured into system- and theme-based modules rather than isolated subject courses, allowing Anatomy, Physiology, Biochemistry and related disciplines to retain their academic identity while contributing in a coordinated and mutually reinforcing manner. Learning outcomes are written at the module level and are intentionally framed to reflect conceptual understanding of systems rather than discipline-specific factual recall alone. Teaching is primarily discipline-led, but content delivery is carefully sequenced so that related concepts across subjects are taught in close temporal proximity. This sequencing is reinforced through planned integrated **multidisciplinary** activities such as problem-based learning, case-based learning and **clinico concept connect sessions** that require students to draw connections across disciplines. Teaching methods extend beyond lectures to include small-group discussions with structured clinical problem triggers that encourage early application of knowledge. Assessment in this phase is knowledge-focused, but incorporates integrated items and short clinical vignettes to test applied understanding (**C4 level**) across disciplines. These integrated assessment elements are deliberately introduced to prepare students for more complex synthesis (**C6 level**) in later phases, while maintaining the reliability. Regular interdisciplinary planning meetings and module coordination ensure coherence, avoid unnecessary duplication and maintain alignment between teaching and assessment.

Phase 2- The Bridge

As students enter the pre-clinical phase, the curriculum transitions into a multidisciplinary and subsequently interdisciplinary design. At this stage, curricular organisation shifts more clearly towards clinical systems and patient presentations, and learning outcomes emphasise the integration of knowledge, skills and reasoning across disciplines. Rather than subjects contributing independently, departments collaborate in the design and delivery of modules, and students encounter learning experiences that require simultaneous application of concepts from multiple domains. Teaching is increasingly delivered through team-based and co-facilitated sessions, with clinicians and basic scientists jointly guiding learning activities. Case-based learning, integrated practical sessions and simulation-based teaching become central modalities, allowing students to engage with clinically meaningful problems while still grounded in scientific principles.



The curriculum adopts a spiral structure in which key concepts are revisited at increasing levels of complexity, enabling deeper understanding and clinical relevance. In advanced pre-clinical components, the curriculum becomes explicitly task-oriented, focusing on common clinical presentations and professional activities rather than disciplinary content. At this stage, portfolios are introduced to support longitudinal documentation of learning, and early forms of workplace-linked assessment and entrustable activities are incorporated to familiarise students with performance-based expectations. Assessment strategies emphasise synthesis and reasoning, using integrated written examinations, complex case vignettes, OSCEs and structured simulation assessments. Decisions about student progress increasingly rely on aggregated evidence from multiple assessment tools and research projects.

Phase 3- The Workplace Entrustment

In the clinical phase, the curriculum becomes fully transdisciplinary, with learning embedded within authentic patient care and professional practice. Educational activities are organised around real clinical tasks, patient care pathways and **Entrustable Professional Activities** that reflect the core responsibilities of a graduating doctor. Students are integrated into clinical teams and participate in patient care under supervision, progressively assuming greater responsibility as competence is demonstrated. Teaching is predominantly workplace-based, supported by bedside teaching, coaching, reflective practice and targeted simulation for complex or high-risk activities. The distinction between disciplines becomes secondary to the holistic management of patients, as students are expected to integrate biomedical knowledge, clinical skills, communication, professionalism and teamwork in real settings. Assessment is programmatic and centred on performance in the workplace, using tools such as mini-CEX, DOPS, case-based discussions and multisource feedback. Evidence from these assessments is collected longitudinally within



Miller's Pyramid of Clinical Competence

portfolios and reviewed by entrustment or competence committees to make informed decisions about progression and readiness for practice. Summative judgment is therefore based on sustained performance over time. Faculty roles evolve from subject teachers to supervisors, assessors and coaches, with explicit responsibility for observation, feedback and entrustment decisions. Diverse clinical exposure in tertiary public sector hospitals and community settings ensure adequate exposure, supervision and assessment opportunities, while quality assurance processes focus on the validity and consistency of entrustment decisions and learning experiences.

Phase 4- The Undergraduate Internship

The Undergraduate Internship is a structured, supervised transition phase designed to consolidate clinical competence and ensure readiness for the statutory house job. It provides learners with protected, workplace-based exposure focused on authentic patient care tasks, guided by clearly defined Entrustable Professional Activities aligned with international standards. Teaching emphasises supervised clinical practice, simulation for high-risk scenarios, and interprofessional teamwork, while assessment uses programmatic

workplace-based tools, portfolios and entrustment decisions to judge safe, consistent performance. This level strengthens patient safety, reduces transition shock, and ensures that graduates enter the house job with demonstrable, documented readiness for independent supervised practice.

Across all phases, the curriculum is underpinned by faculty development and continuous quality assurance. The staged movement from complementary through multidisciplinary and interdisciplinary learning to transdisciplinary clinical practice ensures that graduates are not only knowledgeable, but also capable of applying their learning effectively and safely in real clinical environments. This integrated and progressive design reflects contemporary best practices in medical education and aligns the educational experience with the expectations of modern healthcare systems.

Key Highlights

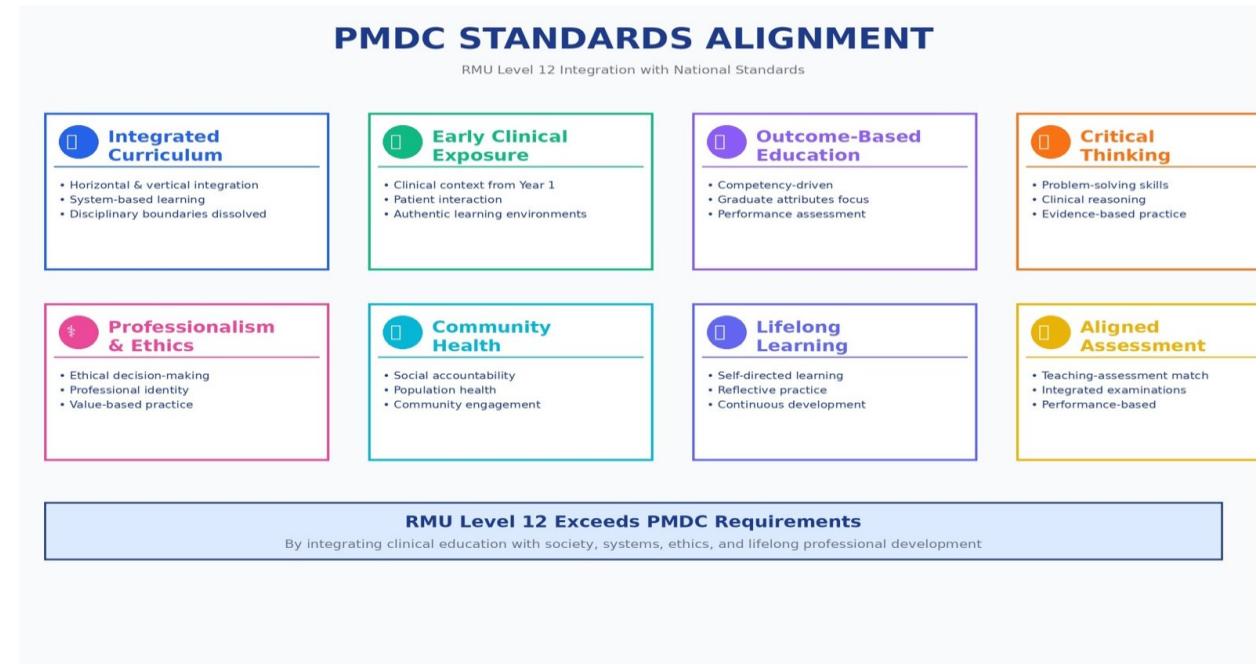
- Transcends Harden's Level 11 through integration with society, systems, ethics, and lifelong learning
- Fully aligned with PMDC undergraduate medical education standards
- Emphasizes higher-order thinking: Analysis, Evaluation, and Creation (Bloom's Taxonomy)
- Produces socially accountable, adaptive physicians prepared for 21st-century healthcare challenges

1. Foundations of Integration

1.1 PMDC Standards for Medical Education

The Pakistan Medical and Dental Council mandates a transformative approach to undergraduate medical education characterized by:

- **Integrated Curriculum:** Horizontal integration (across disciplines) and vertical integration (across years)
- **Early Clinical Relevance:** Clinical context introduced from initial years
- **Outcome-Based Education:** Focus on graduate competencies rather than content coverage
- **Critical Thinking & Problem-Solving:** Development of analytical and evaluative skills
- **Professionalism & Ethics:** Embedded throughout the curriculum, not as isolated modules
- **Alignment of Teaching, Learning, and Assessment:** Constructive alignment with graduate outcomes



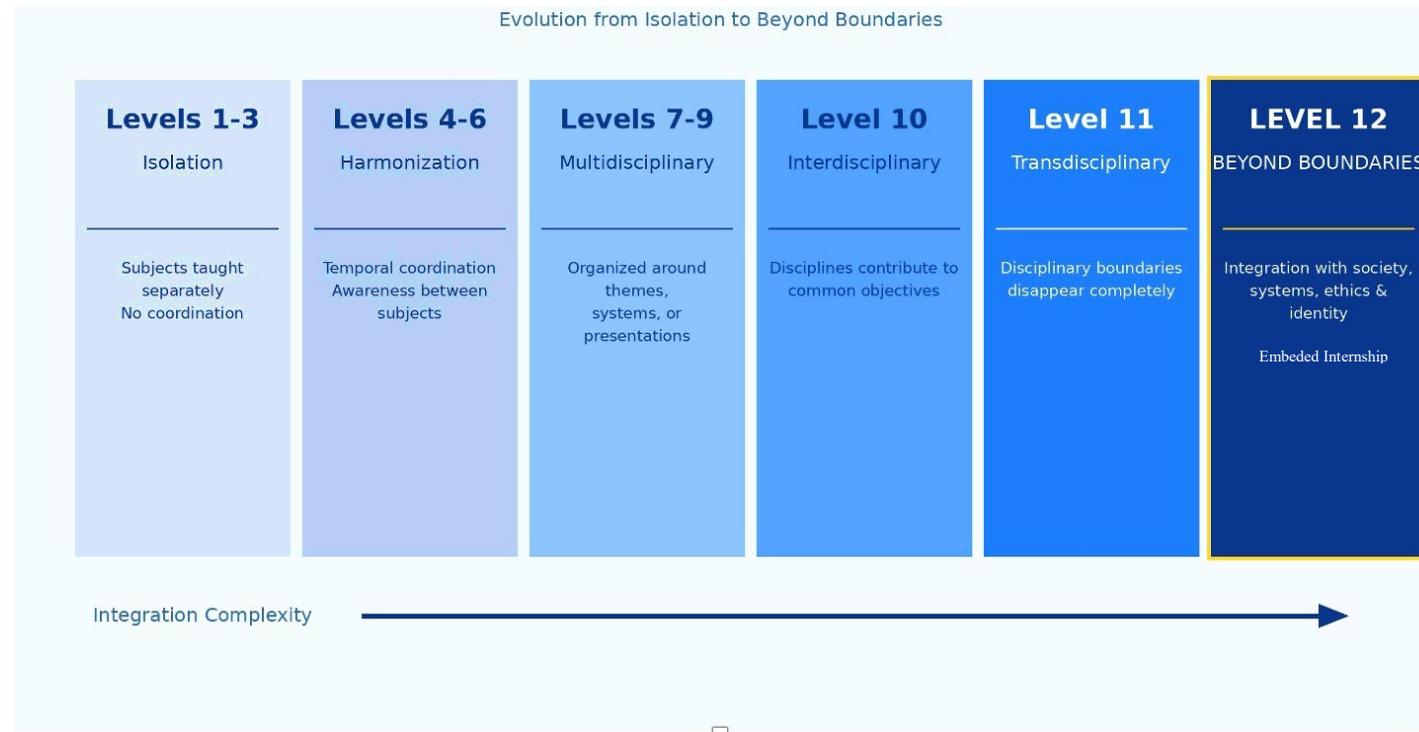
1.2 Harden's Integration Ladder: Overview

Harden's Integration Ladder provides a systematic framework for evaluating curricular integration, progressing through 11 levels:

Harden's Integration Ladder



RMU – 12 Beyond Boundaries



2. RMU Level 12 - Beyond Boundaries

2.1 Conceptual Definition

RMU Level 12: Beyond Boundaries Integration

A curriculum in which learning is organized not merely around disciplines or clinical problems, but around real-world health systems, societal needs, ethical complexity, population health challenges, and professional identity formation—producing graduates who can adapt, lead, and innovate across contexts.

2.2 Why Level 12 Exists

While Harden's Integration Ladder culminates at Level 11 (Transdisciplinary Integration), contemporary medical education—particularly as mandated by PMDC—requires graduates who can function beyond the clinical encounter. RMU operates beyond transdisciplinary clinical integration by:

- Shifting the unit of integration from the patient alone to the patient embedded within society, systems, ethics, and professional identity
- Addressing health systems, governance, and resource allocation as integral learning domains
- Embedding knowledge creation and research literacy, not just knowledge synthesis
- Structuring lifelong learning and adaptive professionalism as explicit outcomes

2.3 Five Pillars of Level 12 Integration

A. Societal Integration: Patient-in-Society Problems

Level 11: Patient-centered clinical problems

RMU Level 12: Patient-in-society problems

RMU Implementation:

- Community-based medical education

- Analysis of social determinants of health
- Preventive and promotive healthcare strategies
- Health equity considerations in clinical decision-making

Students don't merely diagnose disease they analyze population patterns and design interventions, requiring evaluation and creation (Bloom's highest levels).

B. Value-Based Integration: Contextual Ethics

Level 11: Ethics integrated within cases

RMU Level 12: Ethics embedded longitudinally in real decisions

RMU Implementation:

- Ethical dilemmas arising from real patient encounters, not hypothetical scenarios
- Continuous professional identity formation throughout the curriculum
- Assessment of reflective practice and ethical reasoning

Students must weigh competing values, manage uncertainty, and justify actions—hallmarks of evaluation-level cognition.

C. System-Level Integration: Healthcare Systems & Leadership

Level 11: Focus on individual patient care

RMU Level 12: Focus on healthcare systems and governance

RMU Implementation:

- Exposure to health systems functioning and policy implications
- Understanding resource allocation realities
- Leadership and teamwork competencies



Students evaluate trade-offs between individual benefit and population good something no single discipline or clinical problem can teach.

D. Knowledge Creation: Beyond Synthesis

Level 11: Knowledge synthesis **RMU Level 12:** Knowledge generation

RMU Implementation:

- Research literacy and critical appraisal skills
- Clinical audits and community health projects
- Evidence-based practice and innovation

Students formulate research questions, design solutions, and create outputs—aligning with the creation level of Bloom's Taxonomy.

E. Temporal Integration: Lifelong Professional Identity

Level 11: Competent graduate **RMU Level 12:** Adaptive professional

RMU Implementation:

- Reflective portfolios documenting professional growth
- Self-directed learning plans
- Feedback-driven continuous improvement

Graduates leave with the ability to identify learning needs and adapt to new contexts—temporal integration across undergraduate education and professional life.

| LEVEL 11 vs LEVEL 12 The Evolution Beyond Transdisciplinary Integration | |
|---|--|
| LEVEL 11 Transdisciplinary | LEVEL 12 Beyond Boundaries |
| Unit of Integration Patient problem | Unit of Integration Patient within society, systems, and ethics |
| Primary Focus Clinical problem-solving | Primary Focus Clinical + population health + systems thinking |
| Scope Individual patient care | Scope Individual care + community + healthcare systems |
| Ethics Approach Integrated within cases | Ethics Approach Longitudinally embedded in real decisions |
| Knowledge Type Knowledge synthesis | Knowledge Type Knowledge creation & generation |
| Learning Organization Around clinical problems | Learning Organization Around health challenges & society |
| Disciplinary Boundaries Dissolved in teaching | Disciplinary Boundaries Extended to societal integration |
| Graduate Outcome Competent clinician | Graduate Outcome Adaptive, socially accountable professional |
| Bloom's Taxonomy Primarily Analysis | Bloom's Taxonomy Analysis → Evaluation → Creation |

3. Alignment with PMDC Standards

The following table demonstrates explicit mapping between PMDC graduate competencies, RMU curriculum implementation, and justification for Level 12 integration:

| PMDC Competency | RMU Implementation | Level 12 Justification |
|---|--|--|
| Medical Knowledge | Integrated system-based modules combining anatomy, physiology, pathology, pharmacology, radiology, and clinical medicine | Knowledge constructed through real patient problems; subject boundaries dissolved |
| Clinical Skills & Patient Care | Early clinical exposure, bedside teaching, skills labs, OSCEs | Skills and knowledge learned simultaneously in authentic clinical contexts |
| Clinical Reasoning | Case-based learning, problem-based tutorials, integrated examinations | Learning organized around clinical problems requiring synthesis beyond single disciplines |
| Communication Skills | Longitudinal communication training embedded in OSCEs and ward teaching | Communication competencies embedded within patient encounters, not isolated modules |
| Professionalism & Ethics | Longitudinal professionalism themes, ethics discussions during clinical rotations | Ethical reasoning contextualized within patient care—extends to value-based integration |
| Community & Preventive Health | Community-based medical education, public health projects, outreach programs | Integrates clinical medicine with population health and social determinants— societal integration |
| Lifelong Learning | Reflective practice, research literacy, self-directed learning tasks | Students identify learning needs from clinical encounters—temporal integration |

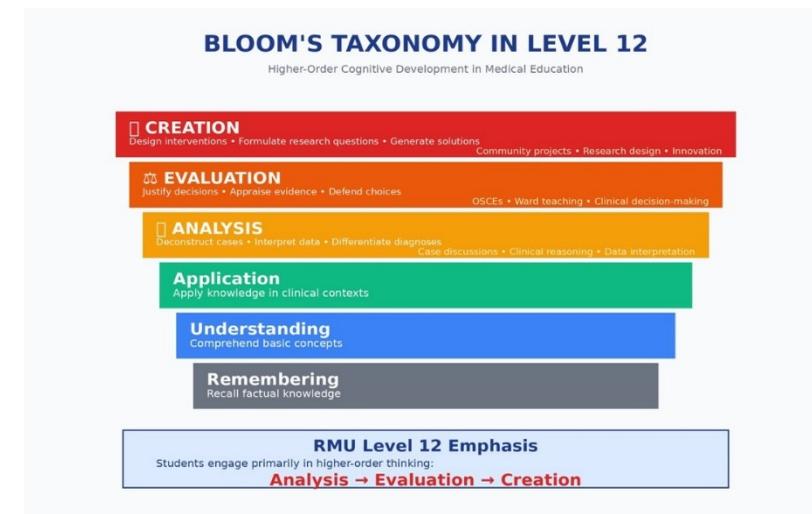
4. Bloom's Taxonomy & Higher-Order Thinking

RMU's curriculum explicitly targets higher-order cognitive domains of Bloom's Taxonomy:

- **Analysis:** Breaking down complex clinical cases, interpreting investigations, differentiating diagnoses
- **Evaluation:** Appraising evidence, justifying management decisions, defending clinical choices
- **Creation:** Designing interventions, formulating research questions, developing solution

4.1 Learning Activities Mapped to Bloom's Levels

| Learning Activity | Bloom's Level | Justification |
|-------------------------------------|------------------------------|--|
| Integrated case-based discussions | Analysis | Students deconstruct complex cases, interpret investigations, differentiate diagnoses |
| Ward-based clinical teaching | Analysis → Evaluation | Learners appraise patient data and justify management decisions in real time |
| OSCEs and scenario-based stations | Evaluation | Students defend clinical decisions, prioritize care, demonstrate judgment under pressure |
| Community health projects | Evaluation → Creation | Learners assess community needs and design context-specific preventive interventions |
| Research projects & clinical audits | Creation | Students formulate questions, design studies, generate new knowledge |



GRADUATE OUTCOMES

Level 12 Integration Produces Adaptive Professionals

CORE COMPETENCIES

✔ Clinical Excellence

Evidence-based practice
Diagnostic reasoning
Patient safety

✔ Professionalism

Ethical decision-making
Patient-centered care
Accountability

✔ Communication

Effective patient interaction
Interprofessional collaboration
Cultural competence

✔ Population Health

Community engagement
Preventive focus
Health promotion

ADAPTIVE CAPABILITIES

▢ Systems Thinking

Health systems understanding
Policy awareness
Resource management

▢ Research Literacy

Critical appraisal
Knowledge generation
Evidence synthesis

▢ Lifelong Learning

Self-directed growth
Reflective practice
Adaptive expertise

▢ Leadership

Innovation
Change management
Team development

**ADAPTIVE, SOCIALLY ACCOUNTABLE
PROFESSIONAL**

RMU LEVEL 12 FRAMEWORK

Complete Conceptual Flow

FOUNDATIONS

PMDC Standards

- Integrated curriculum
- Outcome-based education

Harden's Level 11

- Transdisciplinary
- Clinical problems focus

LEVEL 12: BEYOND BOUNDARIES

1

Societal
Integration

2

Value-Based
Integration

3

System-Level
Integration

4

Knowledge Creation
Integration

5

Temporal
Integration

Teaching

Strategies

Assessment

Strategies

Integration

Strategies

ADAPTIVE, SOCIALLY ACCOUNTABLE PROFESSIONAL

Analysis → Evaluation → Creation

Conclusion

Rawalpindi Medical University's curriculum exemplifies a transformational approach to medical education that extends beyond traditional disciplinary integration. By achieving **Level 12: Beyond Boundaries Integration**, RMU demonstrates that modern medical education must prepare graduates not only as competent clinicians but as adaptive, reflective, socially accountable professionals capable of navigating complex health systems, ethical dilemmas, and evolving healthcare landscapes.

This framework, fully aligned with PMDC standards and grounded in Bloom's higher-order cognitive domains, positions RMU as an innovator in outcome-based, student-centered medical education that produces physicians prepared for 21st-century healthcare challenges.

The Five Pillars of Level 12—Societal Integration, Value-Based Integration, System-Level Integration, Knowledge Creation, and Temporal Integration—collectively represent a holistic vision for medical education that transcends disciplinary boundaries and prepares graduates for lifelong professional excellence.

Key Takeaways for Educators

- Level 12 integration is achievable through deliberate curriculum design aligned with regulatory standards
- Higher-order thinking (Analysis, Evaluation, Creation) must be explicitly embedded in learning activities
- Integration extends beyond clinical problems to encompass society, systems, ethics, and professional identity
- Assessment strategies must align with transdisciplinary learning objectives
- The ultimate goal is producing adaptive professionals, not merely competent graduates

Clinico - Concept Connect Session (C³6)

Introduction:

A Clinico -Concept Connect Session is a **case-based, concept-driven educational encounter** in which a carefully designed clinical scenario is used as the central anchor to explore and integrate relevant concepts from basic and clinical sciences. This **Session** is an integrated teaching–learning activity designed to bridge the gap between **foundational biomedical concepts** and their **real-world clinical application**. It serves as a structured platform where students actively connect basic science principles with clinical reasoning, patient presentation, and professional decision-making, thereby promoting deeper understanding and long-term retention of knowledge.

This session moves beyond traditional discipline-based teaching by fostering **conceptual integration, contextual learning, and early clinical exposure**, enabling students to appreciate the relevance of basic sciences in patient care from the outset of their medical training.

Rather than teaching facts in isolation, the session emphasizes:

- Understanding **why** a concept matters clinically
- Applying **core principles** to explain patient findings
- Developing **clinical reasoning skills** in a guided, safe learning environment

The focus remains on **conceptual clarity, clinical correlation, and professional competence**, rather than diagnosis-driven or management-heavy discussions.

Structure of the Clinico -Concept Connect Session

The session is structured into clearly defined phases to ensure alignment with learning outcomes and progressive student engagement:

1. Clinical Trigger (Case Introduction)

- A concise, authentic clinical scenario is presented.
- The case is selected to naturally elicit key underlying concepts.
- Information is disclosed in a focused manner to stimulate curiosity and inquiry.

2. Concept Mapping and Exploration

- Relevant foundational concepts (e.g., physiological mechanisms, biochemical pathways, structural–functional relationships) are identified.
- Students are guided to link clinical signs, symptoms, and investigations to these concepts.

C3: Clinico Concept Connect

C6: Bloom's Level C6 (Creation / Synthesis)

Learners integrate knowledge from basic, para-clinical, and clinical sciences to formulate differential diagnoses, management plans, or clinical reasoning pathways, demonstrating higher-order thinking and decision-making.

Reference: Anderson, L. W., & Krathwohl, D. R. (2001). A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives.

- Emphasis is placed on **mechanisms**, not memorization.

3. Integrated Discussion

- Faculty from relevant disciplines facilitate discussion collaboratively.
- Concepts are reinforced through clinical correlation and guided questioning.
- Students actively participate in explaining findings using scientific reasoning.

4. Application and Reflection

- Learners reflect on how conceptual understanding informs clinical thinking.
- Key take-home messages are summarized.
- Opportunities for self-directed learning and further exploration are highlighted.

Implementation Strategy

The Clinico -Concept Connect Session is implemented as a **planned, scheduled activity** within the integrated curriculum and follows these principles:

- **Faculty Collaboration:** Basic science and clinical faculty jointly design and facilitate sessions to ensure coherence and relevance.
- **Curriculum Alignment:** Each session is mapped to predefined learning outcomes, competencies, and entrustable professional activities.
- **Active Learning:** Small-group discussions, guided questioning, and concept linking are emphasized over didactic teaching.
- **Progressive Complexity:** Early sessions focus on core concepts, with increasing clinical depth as students advance.
- **Feedback and Reflection:** Structured feedback is provided to reinforce learning and improve reasoning skills.

Educational Value

Through its integrated design, the Clinico -Concept Connect Session:

- Strengthens **conceptual understanding**
- Enhances **clinical reasoning and analytical skills**
- Encourages **horizontal and vertical integration**
- Promotes **student engagement and ownership of learning**
- Prepares learners to become **practice-ready, concept-driven clinicians**

**Harden Level 11
Transdisciplinary**

Example of Clinico - Concept Connect (C³6) Session

Theme Title from Molecules to Medicine: Clinical Applications of Molecular Biology and Genetics

Clinico -Concept Connect (C³6) Session

Clinical Case Scenario: A lady with progressive fatigue

A 22-year-old woman presents to the outpatient clinic with progressive fatigue, muscle weakness, and episodes of dizziness, particularly after prolonged fasting. She reports poor exercise tolerance and occasional nausea. There is no history of infection or chronic illness. A sibling has a similar condition.

On examination, she appears thin but alert. Vital signs are stable. Mild proximal muscle weakness is noted.

There is no organomegaly.

Laboratory and Molecular Findings

- Fasting blood glucose: Low
- Serum electrolytes: Normal
- Enzyme activity assay: Reduced activity of a glucose-metabolizing enzyme
- Genetic analysis: Point mutation in enzyme-encoding gene
- Family screening: Similar mutation identified

This case exemplifies how a **single molecular defect** leads to systemic clinical manifestations, reinforcing the transition from molecular mechanisms to patient-centered medicine

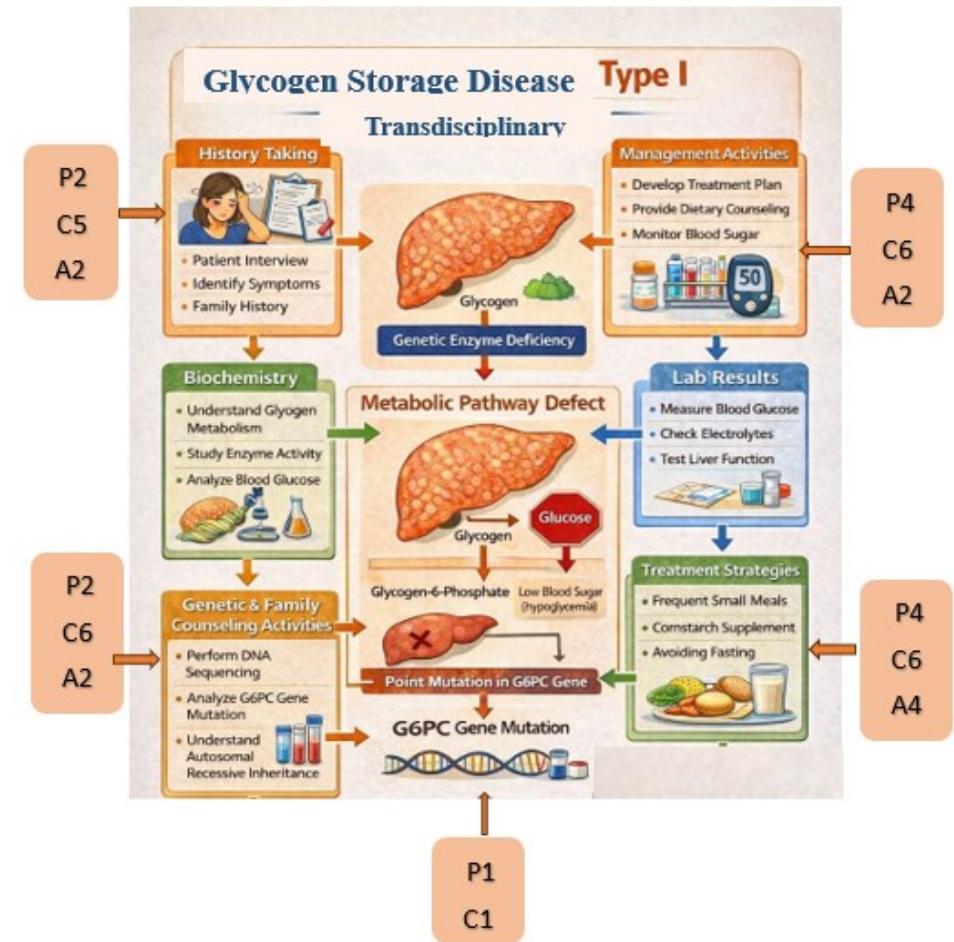
Educational Relevance to Theme

This case allows learners to trace disease progression:

Gene mutation → Altered protein structure → Enzyme dysfunction → Metabolic failure →

Clinical presentation

It reinforces:



**Clinico-Concept Connect (C³6) Sessions
Transdisciplinary Integration (Harden Level 11)**

| Domains of Learning According to Blooms Taxonomy | | | | | |
|--|---------------|---------------------------------------|----------------|--|-------------|
| Cognitive Domain: knowledge and mental skills. (C) | | Psychomotor Domain: Motor skills. (P) | | Affective Domain: feelings, values, dispositions, attitudes, etc (A) | |
| • C1 | Remembering | P1 | Imitation | A1 | Receive |
| • C2 | Understanding | P2 | Manipulation | A2 | Respond |
| • C3 | Applying | P3 | Precision | A3 | Value |
| • C4 | Analyzing | P4 | Articulation | A4 | Organize |
| • C5 | Evaluating | P5 | Naturalization | A5 | Internalize |
| • C6 | Creating | | | | |

- Gene expression and mutation
- Enzyme kinetics and regulation
- Metabolic adaptation during fasting
- Familial inheritance patterns
- Role of molecular diagnostics in clinical practice

Learning Objectives

By the end of this theme, the student will be able to:

- Explain the molecular basis of gene expression, including transcription, translation, and regulation of enzymes.
- Describe the role of enzymes, cofactors, and inhibitors in normal metabolic processes and disease states.
- Correlate molecular and genetic abnormalities with common clinical conditions such as metabolic disorders, infertility, and cancer.
- Understand basic molecular mechanisms underlying inherited and acquired genetic diseases.
- Apply principles of molecular biology and genetics to interpret simple clinical and laboratory scenarios.

Appreciate the relevance of molecular medicine in diagnosis, prognosis, and therapeutic decision-making.

Integration Framework

Harden Level 9 – Multidisciplinary Integration

This C³6 session operates at **Harden Level 9**, where multiple disciplines address the *same clinical problem* in parallel, maintaining disciplinary identity while reinforcing conceptual alignment.

Disciplines Involved

- **Anatomy**
 - Liver and skeletal muscle structure involved in glucose metabolism
 - Anatomical basis of muscle weakness and exercise intolerance
- **Biochemistry**
 - Enzyme kinetics, regulation, and metabolic pathways

- Impact of genetic mutations on enzyme activity
- **Medicine**
 - Clinical evaluation of fasting hypoglycemia
 - Diagnostic reasoning in inherited metabolic disorders
- **Surgery**
 - Peri-procedural metabolic considerations
 - Role in diagnostic evaluation where indicated

Each discipline contributes **complementary insights** without content fusion, fulfilling the criteria of multidisciplinary integration

Explicit EPA Mapping

EPA-1: Interpret Clinical and Laboratory Data

Entrustment Level: 1–2

Students interpret fasting glucose levels and enzyme assays under supervision.

EPA-2: Apply Basic Science to Clinical Reasoning

Entrustment Level: 1

Students explain how molecular mutations produce clinical disease.

EPA-3: Communicate Findings in a Structured Manner

Entrustment Level: 1–2

Students present the case during group discussions.

EPA-4: Demonstrate Professionalism and Teamwork

Entrustment Level: 1

Students engage respectfully in multidisciplinary learning.

Mapping to Harden Levels

- **Level 8 (Complementary):**
Coordinated teaching of genetics, biochemistry, and anatomy around a shared theme

- **Level 9 (Multidisciplinary):**
Parallel disciplinary analysis of the same clinical case
- **Level 10 (Interdisciplinary):**
Early synthesis of molecular, biochemical, and clinical data into a unified explanation

Teaching–Learning Strategy

- Case-based discussion
- Facilitated multidisciplinary dialogue
- Guided molecular-to-clinical reasoning
- Early clinical exposure emphasis

Assessment Alignment

- MCQs (conceptual and application-based)
- SAQs focusing on molecular–clinical correlation
- OSPE/OSVE elements where applicable

Summary Statement

Theme Five exemplifies RMU-12’s philosophy of “From Isolation to Beyond Boundaries” by translating molecular biology and genetics into meaningful clinical understanding through a structured Clinico -Concept Connect session. Operating at Harden Level 9 and aligned with early EPAs, this theme prepares students for progressive entrustment, clinical reasoning, and future practice-ready learning in molecular and precision medicine.

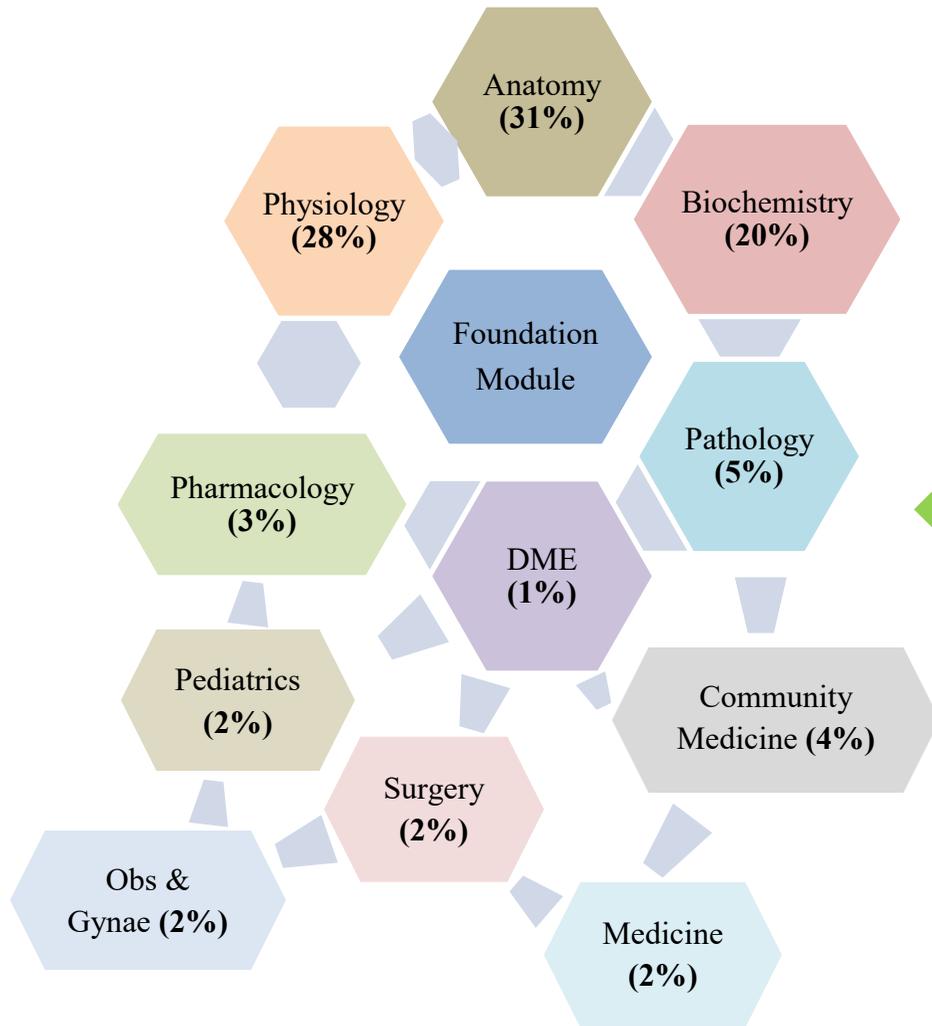
RMU – 12 Integrated Modular MBBS Curriculum 2026

Isolation to *Beyond Boundaries*

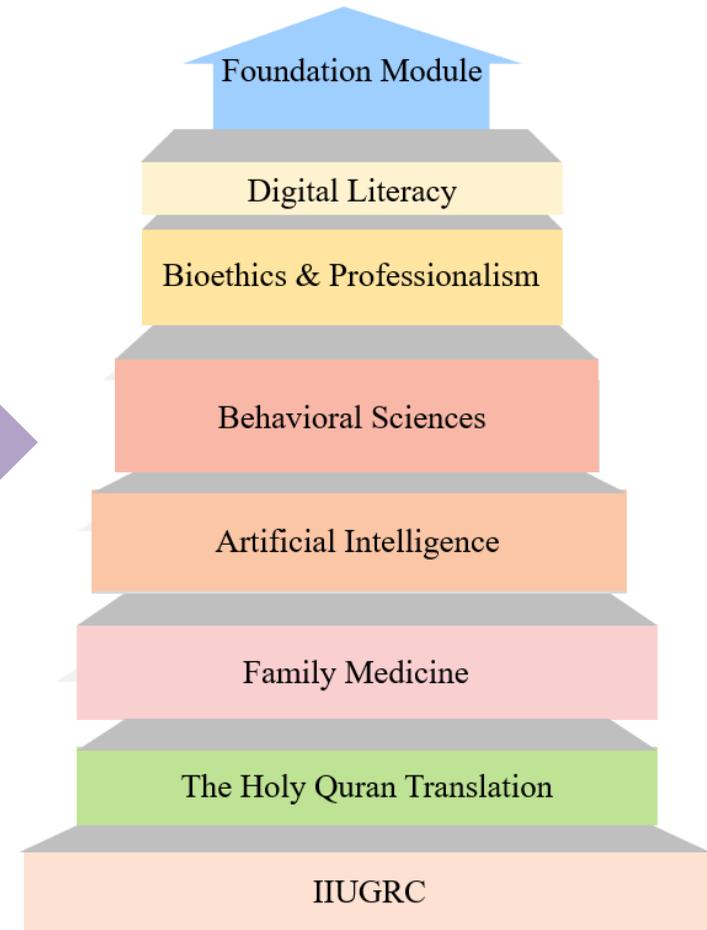
Study Guide

Foundation Module - I

Multi Disciplinary Integration



Disciplines in Foundation Module - I



Spiral / General Education Cluster Courses (5%)

Discipline Wise Details of Modular Content

| Integration | | | | | |
|--------------------|--|---|--|--|--|
| Block | Module | General Anatomy | Embryology | Histology | Gross Anatomy |
| I | <ul style="list-style-type: none"> Anatomy | Introduction to General Anatomy | General Embryology <ul style="list-style-type: none"> Introduction to Human Development Oogenesis Spermatogenesis Female Reproductive Cycles Ovulation and Fertilization Cleavage and Blastocyst Formation Development of Mammary Gland | General Histology <ul style="list-style-type: none"> Types of Epithelium Specialization of Apical Cell Surface Intercellular Junctions and Adhesions Glandular Epithelium Mammary Gland | <ul style="list-style-type: none"> Anatomicomedical Terminologies I (position & planes) Anatomicomedical Terminologies II (Anatomical Terms and Axis of Movements) Anatomicomedical Terminologies III (Cell and Tissues) Anatomicomedical Terminologies IV (Skin & Body Systems) Clavicle Scapula Humerus Anterior Axioappendicular Muscles Posterior Axioappendicular Muscles Axilla Brachial Plexus Brachial Plexus Injuries Breast Sternoclavicular and Acromioclavicular Joints Radiograph and Surface Anatomy of Axioappendicular Region |
| | <ul style="list-style-type: none"> Biochemistry | <ul style="list-style-type: none"> Cell and Cell Organelles, Cell Membrane and Transport Across Cell Membrane, Physicochemical Properties, Enzymes, Cancer, Nucleic Acid Chemistry, Genetics | | | |
| | <ul style="list-style-type: none"> Physiology | <ul style="list-style-type: none"> Functional Organization of The Human Body and Control of the “Internal Environment The Cell and Its Functions Genetic Control of Protein Synthesis, Cell Function, And Cell Reproduction Transport of Substances Through the Cell Membrane | | | |
| | Orientation Sessions | | | | |

| | |
|--|--|
| <ul style="list-style-type: none"> • Welcome Address by VC, Introduction to RMU • Introduction to Department of Medical Education & Integrated Modular System. • Assessment Model of RMU And Continuous Internal Assessment • Research Model of RMU (IUGRC), Biomedical Ethics, & Family Medicine • Introduction to Digital Services RMU • Introduction to Anatomy Department • Introduction to Physiology Department • Introduction to Biochemistry • Introduction to Behavioral Sciences • Introduction to Pharmacology • Introduction to Pathology • Introduction to Community Medicine & Research Model of RMU | |
| Spiral Courses | |
| <ul style="list-style-type: none"> • Bioethics & Professionalism | <ul style="list-style-type: none"> • Introduction to history of medical ethics • Leadership Professionalism (DME) |
| <ul style="list-style-type: none"> • Family Medicine | <ul style="list-style-type: none"> • Introduction to Family Medicine & its application in health care system |
| <ul style="list-style-type: none"> • Integrated Under Graduate Research Innovation (IUGRC) | <ul style="list-style-type: none"> • Research I Introduction of health research process • Research II characteristic of research process • Research III Basis of ethics in health research • Research IV Basics of ethics in medical research |
| <ul style="list-style-type: none"> • Behavioral Sciences & Communication Skills | <ul style="list-style-type: none"> • Introduction to Behavioral Sciences • Stress in Medical Students & its Management |
| <ul style="list-style-type: none"> • Information Technology (IT) | <ul style="list-style-type: none"> • How to use Higher Education Commission (HEC) digital library. |
| <ul style="list-style-type: none"> • Community Medicine (Life Style and Prevention) | <ul style="list-style-type: none"> • Healthy Lifestyle: A Foundation for Medical Professionals |
| Vertical Integration | |
| <ul style="list-style-type: none"> • Pathology | <p>Clinically content relevant to Foundation Module - I</p> <ul style="list-style-type: none"> • Introduction to Pathology • Cellular Responses to Injury • Intracellular Accumulations • Pigments • Free Radicals/ Reactive Oxygen Species (Ros). • Oxidative Stress Irreversible Injury. • Necrosis Apoptosis (Irreversible Injury) |

| | | |
|--------------------------------------|---|---|
| | | <ul style="list-style-type: none"> Genetic Disorders |
| | <ul style="list-style-type: none"> Pharmacology | <ul style="list-style-type: none"> Introduction to Pharmacology Pharmacokinetic processes Receptors and signal transduction processes |
| | <ul style="list-style-type: none"> Community Medicine/Prevented Medicine | <ul style="list-style-type: none"> Introduction to Community Medicine & Research Model of RMU Immunization & Vaccination Health Determinants & Indicators Life Style Medicine Health Education & Communication |
| | <ul style="list-style-type: none"> Medicine | <ul style="list-style-type: none"> Introduction to Medicine and History of Medicine Chromosomal Aberrations Evidence based medicine |
| | <ul style="list-style-type: none"> Surgery | <ul style="list-style-type: none"> History taking & its importance CA Breast |
| | <ul style="list-style-type: none"> Obstetrics & Gynaecology | <ul style="list-style-type: none"> Infertility In vitro Fertilization |
| | <ul style="list-style-type: none"> Pediatrics | <ul style="list-style-type: none"> Medical Genetics & Dysmorphology |
| Early Clinical Exposure (ECE) | | |
| | Departments | Skill - 1: Hand Washing |
| | <ul style="list-style-type: none"> Medicine & Allied | Skill – 2: Wearing Gloves |
| | <ul style="list-style-type: none"> Surgery and Trauma | Skill – 3: Providing Basic Life Support in Adults |
| | <ul style="list-style-type: none"> Emergency Department | Skill – 4: Scrubbing for Operation Theatre |
| Clinical Relevance | | |
| | <ul style="list-style-type: none"> Medical Ethics Genetic Disorders Understanding cellular and molecular mechanisms in disease (e.g., cancer and diabetes) Importance of homeostasis in maintaining normal physiological function (e.g., dehydration and acid-base imbalances) Application of medical ethics in real-life scenarios, such as patient confidentiality Effective doctor-patient communication in history-taking and empathy | |

Foundation Module - I Team

| | | |
|--------------------|---|-----------------------|
| Module Name | : | Foundation Module - I |
| Duration of module | : | 06 Weeks |
| Coordinator | : | Dr. Tayyaba Qureshi |
| Co-coordinator | : | Dr. Zeneera Saqib |
| Reviewed by | : | Module Committee |

| Module Committee | | | Module Task Force Team | | |
|-------------------------|--|--------------------------------|--------------------------------|--|---|
| 1. | Vice Chancellor RMU | Prof. Dr. Muhammad Umar | 1. | Coordinator | Dr. Tayyaba Qureshi (Assistant Professor of Anatomy) |
| 2. | Director DME & Dean Basic Sciences | Prof. Dr. Ifra Saeed | 2. | DME Focal Person | Dr. Farzana Fatima |
| 3. | Additional Director (Assessment) DME | Dr. Arsalan Manzoor Mughal | 3. | Co-coordinator | Dr. Zenera Saqib (Senior Demonstrator of Anatomy) |
| 4. | Chairperson Physiology | Prof. Dr. Samia Sarwar | 4. | Co-Coordinator | Dr. Uzma Kiyani (Senior Demonstrator of Physiology) |
| 5. | Chairperson Anatomy | Prof. Dr. Ayesha Yousaf | 5. | Co-coordinator | Dr. Raja Khalid Yaqoob (Demonstrator of Biochemistry) |
| 6. | Chairperson Biochemistry | Dr. Aneela Jamil | | | |
| 7. | Focal Person Anatomy 1 st Year MBBS | Asso. Prof. Dr. Mohtashim Hina | | | |
| 8. | Focal Person Physiology | Dr. Sidra Hamid | DME Implementation Team | | |
| 9. | Focal Person Pharmacology | Dr. Zunera Hakim | 1. | Director DME | Prof. Dr. Ifra Saeed |
| 10. | Focal Person Pathology | Dr. Asiya Niazi | 2. | Implementation Incharge 1st & 2 nd Year MBBS | Dr. Arsalan Manzoor Mughal |
| 11. | Focal Person Behavioral Sciences | Dr. Saadia Yasir | | | Dr. Farzana Fatima |
| 12. | Focal Person Community Medicine | Dr. Afifa Kulsoom | 3. | Assistant Director DME | Dr. Farzana Fatima |
| 13. | Focal Person Quran Translation Lectures | Dr. Uzma Zafar | 4. | Editor | Muhammad Arslan Aslam |
| 14. | Focal Person Family Medicine | Dr. Sadia Khan | | | |

Module I - Foundation Module - I

Introduction: In the Foundation Module - I students will develop understanding of the basic concepts of cell Physiology, Biochemistry, Anatomy, Pathology, Pharmacology, Community medicine and study skills through an integrated course.

Rationale: The Foundation Module - I is designed to impart basic knowledge about the normal structure, organization, functions and development of human body. This knowledge will serve as a base on which the student will construct further knowledge about the etiology, pathogenesis and prevention of diseases; the principles of their therapeutics and management.

Module Outcomes

Each student will be able to:

Knowledge

- Acquire the basic science knowledge and terminology necessary to understand the development and functioning of normal structures of human body starting from biochemical level to organ system level, as well as the concepts of diseases in the community and drug dynamics.
Use technology based medical education including
- **Artificial Intelligence.**
Appreciate concepts & importance of:
- **Family Medicine**
- **Biomedical Ethics**
- **Research.**
- **Enterpreneurship**

Skills

- Identify different anatomical planes and correlate the importance of these with clinical medicine.
- Identify various apparatus used in lab.
- Preparation and identification of microscopic slides.
- Preparation of solutions of various strengths.
- **Basic Life Support (BLS)**
- **Early Clinical Exposure (ECE)**

Attitude

- Demonstrate **professional attitude, team-building spirit** and **good communication skills.**

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

Terms & Abbreviations

Contents

- Domains of Learning
- Teaching and Learning Methodologies/Strategies
 - Large Group Interactive Session (LGIS)
 - Small Group Discussion (SGD)
 - Self-Directed Learning (SDL)
 - Case Based Learning (CBL)
 - Problem- Based Learning (PBL)
 - Skill Labs/Practicals (SKL)

Tables & Figures

- Table1. Domains of learning according to Blooms Taxonomy
- Figure 1. Prof Umar's Model of Integrated Lecture
- Table2. Standardization of teaching content in Small Group Discussions
- Table 3. Steps of taking Small Group Discussions
- Figure 2. PBL 7 Jumps Model

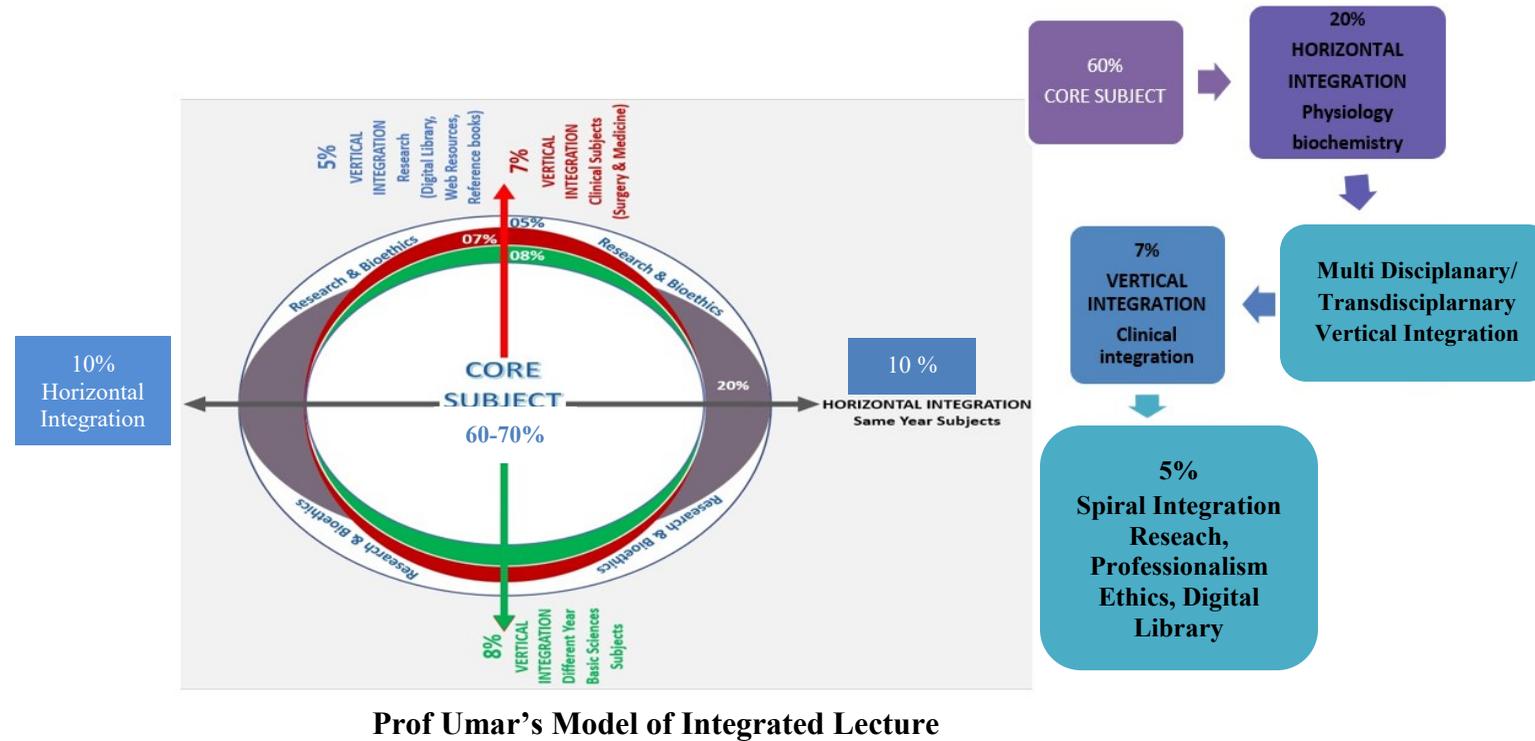
Table 1. Domains of Learning According to Blooms Taxonomy

| 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. The 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 the learning process.



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 help to clarify the concepts.

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 | Core Concepts of the topic | 60% |
| 4 | Horizontal Integration | 24% |
| 5 | Vertical Integration | 08% |
| 6 | Related Advance Research points | 08% |
| 7 | Related Ethical points | |
| 8 | Artificial Intelligence | |
| 9 | Family Medicine | |

Table 3. Steps of Implementaion of Small Group Discussions

| | | |
|----------------|--|-----------------|
| Step 1 | Case presentation and sharing of learning objectives by using students study guides | First 5 minutes |
| 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 | Questions 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 multi disciplinary/transdisciplinary and interdisciplinary.
- Learning resources will be given to students = Textbook (page no), web site
- Assessment:
 - i Will be online on LMS (Mid module/ end of Module)
 - ii.OSPE station

Case Based Learning (CBL)

- It's a learner centered model which engages students in discussion of specific case scenarios that typically resemble real world examples.
- Case Scenarios must be multi disciplinary/transdisciplinary and interdisciplinary
- 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
 - i. To provide students with a relevant opportunity to see theory in practice
 - ii. Require students to analyze data in order to reach a conclusion.
 - iii. Develop analytic, communicative, and collaborative skills along with content knowledge.

Problem Based Learning (PBL)

- Problem-based learning (PBL) is a student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem.
- This problem is what drives the motivation and the learning.

| The 7- Jump-Format of PBL (Maastricht Medical School) | | Learning Domain |
|--|--|------------------------|
| Step 7 | Synthese & Report | C6 |
| Step 6 | Collect Information from outside | C6 |
| Step 5 | Generate learning Issues | C6 |
| Step 4 | Discuss and Organise Ideas | C4 |
| Step 3 | Brainstorming to Identify Explanations | C3 |
| Step 2 | Define the Problem | C1 |
| Step 1 | Clarify the Terms and Concepts of the Problem Scenario | C1 |
| Problem- Scenario | | |

Figure 2. PBL 7 Jumps Model

Practical Sessions/Skill Lab (SKL)

| Practical Session/ Skill Lab (SKL) | |
|---|---------------|
| Demonstration/ power point presentation 4-5 slide and relevant clinical videos where required | 10-15 minutes |
| Practical work | 25-30 minutes |
| Write/ draw and get it checked by teacher | 20-25 minutes |
| 05 mcqs at the end of the practical | 10 minutes |
| At the end of module practical copy will be signed by head of department | |
| At the end of block the practical copy will be signed by | |
| Head of Department | |
| Dean | |
| Medical education department | |
| QEC | |

SECTION – III

Themes, Learning Objectives, Teaching Strategies & Tool of Assessments

Contents

- **Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)**
- **Large Group Interactive Session:**
 - Anatomy (LGIS)
 - Physiology (LGIS)
 - Biochemistry (LGIS)
- **Small Group Discussions**
 - Anatomy (SGD)
 - Physiology (SGD)
 - Biochemistry (SGD)
- **Self-Directed Topic, Learning Objectives & References**
 - Anatomy (SDL)
 - Physiology (SDL)
 - Biochemistry (SDL)
- **Skill Laboratory**
 - Anatomy
 - Physiology
 - Biochemistry
- **Learning Management System (LMS)**
 - Anatomy (LMS)
 - Physiology (LMS)
 - Biochemistry (LMS)

Foundation – I Module – First Year MBBS

Duration of Module (Five Weeks)

| Sr No. | Themes | Duration |
|---------------|---|----------------------|
| 1. | Orientation | 1 st Week |
| 2. | The Cell Structure & Function | 2 nd Week |
| 3. | Control Systems and Communication in the Human Body | 3 rd Week |
| 4. | Genetics, Cell Division, and Human Development | 4 th Week |
| 5. | From Molecules to Medicine: Clinical Applications of Molecular Biology and Genetics | 5 th Week |

Theme 1: Orientation (1st Week)

| Themes | Rationale | General learning Objectives |
|-------------|---|--|
| Orientation | <p>The first week of the Orientation theme is designed to introduce first-year MBBS students to the academic environment, institutional structure, and educational philosophy of Rawalpindi Medical University. It familiarizes students with the integrated modular curriculum, assessment system, continuous internal assessment, and digital learning platforms to ensure clarity of expectations from the outset. Departmental introductions provide an overview of core basic science disciplines and promote early interdisciplinary understanding. Sessions on biomedical ethics, professionalism, family medicine, and community medicine support professional identity formation. Behavioral sciences and stress-management sessions facilitate psychological adjustment to medical education. Introductory exposure to basic scientific concepts and clinical relevance prepares students for structured learning ahead. Overall, this week ensures a smooth transition into medical education and lays a strong foundation for subsequent modules.</p> | <ul style="list-style-type: none"> • By the end of the first week, the student will be able to: • Describe the vision, mission, organizational structure, and allied teaching hospitals of Rawalpindi Medical University. • Explain the integrated modular curriculum, assessment model, and continuous internal assessment system of the MBBS program. • Demonstrate basic familiarity with RMU digital learning platforms, including LMS, CMS, and MS Teams. • Identify the scope and role of core basic science and clinical disciplines introduced during the orientation week. • Recognize the importance of professionalism, biomedical ethics, and effective communication in medical practice. • Appreciate the role of research, community medicine, and family medicine in undergraduate medical education and healthcare delivery. |
| Sub Theme | Academic Council | <ul style="list-style-type: none"> • By the end of this session, students will be able to understand the role, composition, and functions of the Academic Council and how it supports curriculum planning, assessment, and student welfare throughout the MBBS program. https://rmur.edu.pk/ |
| | Infrastructure | <ul style="list-style-type: none"> • By the end of this session, students will be able to identify and describe the key educational and clinical infrastructures (e.g., lecture halls, laboratories, libraries, simulation labs, hospitals/clinics) available at their institution and explain how to access and utilize these resources to support their learning and professional development. https://rmur.edu.pk/ |

| | | |
|--|----------------------|--|
| | Faculty | <ul style="list-style-type: none"> By the end of this session, students will be able to identify key faculty members and describe their roles, teaching responsibilities, and how to interact with them as academic and professional mentors throughout the MBBS program. https://rmur.edu.pk/ |
| | Roles and Regulation | <ul style="list-style-type: none"> By the end of this session, students will be able to understand key roles, responsibilities, and academic regulations governing their conduct, attendance, assessment requirements, and professional behaviour in the MBBS programme, and explain how adhering to these rules supports their success and professional development. https://rmur.edu.pk/ |

Specific Learning Objectives

| Theory | | | | | | | |
|---|--------------|---|---|--------------------------|----------------------------|------------------------------|----------------------------|
| Subject | Code | Topic | Learning Objectives At the End of One Hour the Lecture the Student Should Be Able To | Calgary Gauge | Learning Domain | Teaching Strategy | Assessment Tool |
| Anatomy (General Anatomy) | M1-FM-A-001 | Introduction to General Anatomy | • Define the term Anatomy and its various branches | Should Know | C1 | LGIS | MCQ SAQ OSVE OSPE |
| | | | • Define different terminologies related to Anatomy | Should Know | C1 | | |
| | | | • Describe different Anatomical planes and directions in relation to anatomical position | Must Know | C2 | | |
| | | | • Elaborate different phases in life span of man | Nice to Know | C2 | | |
| | | | • Define basic tissues of human body | Should Know | C1 | | |
| | | | • Compare the formation and functioning of basic tissues of the body | Must Know | C4 | | |
| | | | • Describe formation of different systems of body | Should Know | C2 | | |
| | | | • Understand the curative and preventive health care measures. | Nice to Know | C3 | | |
| | | | • Practice the principles of bioethics | Nice to Know | C3 | | |
| | | | • Apply the strategic use of artificial intelligence in healthcare | Nice to know | C3 | | |
| | | | • Read relevant research article | Nice to know | C3 | | |
| • Use HEC digital library | Nice to know | C3 | | | | | |
| Anatomy (Embryology) | M1-FM-A-002 | Introduction to Human Development | • Discuss significance and importance of studying Embryology. | Should Know | C2 | LGIS | MCQ SAQ OSVE OSPE |
| | | | • Define different terminologies to describe developmental stages. | Must Know | C1 | | |
| | | | • Describe series of critical events that take place during embryonic development. | Must Know | C2 | | |
| | | | • Appreciate difference between embryonic and fetal period. | Must Know | C2 | | |
| | | | • Analyze common chromosomal abnormalities. | Should Know | C4 | | |
| | | | • Understand the curative and preventive health care measures. | Nice to know | C3 | | |
| • Apply the strategic use of artificial intelligence in | Nice to know | C3 | | | | | |

| | | | | | | | |
|--|--------------|---|--|--------------|----|-----|----------------------------|
| | | | healthcare. | | | | |
| | | | • Practice principles of bioethics | Nice to know | C3 | | |
| | | | • Use HEC digital library. | Nice to know | C3 | | |
| | | | • Read relevant research article. | Nice to know | C3 | | |
| Anatomy (SGD) | M1-FM-A-0014 | Anatomicomedical Terminology I (Anatomical Position and Planes) | • Describe different anatomical planes of human body and correlate with radiological anatomy | Must Know | C2 | SGD | MCQ SAQ OSVE OSPE |
| | | | • Demonstrate anatomical position of human body | Nice to know | C3 | | |
| | | | • Apply the strategic use of artificial intelligence in healthcare | Nice to know | P | | |
| | | | • Practice principles of bioethics | Nice to know | C3 | | |
| | | | • Read a relevant research article | Nice to know | C3 | | |
| | M1-FM-A-0015 | Anatomicomedical Terminology -II (Anatomical Terms and Axis of Movements) | • Define different terms related to body parts | Must Know | C1 | SGD | MCQ SAQ OSVE OSPE |
| | | | • Describe axis of movement | Must Know | C2 | | |
| | | | • Demonstrate axis of movement | Must Know | P | | |
| | | | • Strategic use of artificial intelligence in healthcare | Nice to know | C3 | | |
| | | | • Focus on provision of curative and preventive health care services | Nice to Know | C3 | | |
| | | | • Practice principles of bioethics | Nice to know | C3 | | |
| | | | • Apply the strategic use of artificial intelligence in healthcare | Nice to know | C3 | | |
| | | | • Understand the curative and preventive health care measures. | Nice to know | C3 | | |
| | | | • Read a relevant research article | Nice to know | C3 | | |
| | | | • Use HEC digital library | Nice to know | C3 | | |
| | M1-FM-A-0016 | Anatomicomedical Terminology -III (Cell and Tissues) | • Define cell | Must Know | C1 | SGD | MCQ SAQ OSVE OSPE |
| | | | • Define tissue | Must Know | C1 | | |
| | | | • Differentiate between basic tissues of human body | Must Know | C4 | | |
| • Practice principles of bioethics | | | Nice to know | C3 | | | |
| • Apply the strategic use of artificial intelligence in healthcare | | | Nice to know | C3 | | | |
| • Understand the curative and preventive health care services | | | Nice to know | C3 | | | |
| | | | • Read a relevant research article | Nice to know | C3 | | |

| | | | | | | | | |
|------------------------|--------------|--|---|--|----|----|-------------|--------------------|
| | | | <ul style="list-style-type: none"> • Use digital library | Nice to know | C3 | | | |
| Physiology (LGIS, SGD) | M1-FM-P-001 | Introduction to Physiology & Physiology Department | <ul style="list-style-type: none"> • Introduce faculty members | Must Know | A | C1 | LGIS SGD | SAQ MCQ VIVA |
| | | | <ul style="list-style-type: none"> • Define physiology | Must Know | A | C2 | | |
| | | | <ul style="list-style-type: none"> • Categorize different branches of physiology | Should Know | B | C4 | | |
| | | | <ul style="list-style-type: none"> • Explain the importance of physiology in medical and clinical sciences | Nice to Know | C | C1 | | |
| | M1-FM-P-002 | Cell physiology & Homeostasis | <ul style="list-style-type: none"> • Understand functional organization of human body from cell to systems | Must Know | A | C2 | LGIS SGD | SAQ MCQ VIVA |
| | | | <ul style="list-style-type: none"> • Differentiate between prokaryotes and eukaryotes. | Nice to Know | C | C4 | | |
| | | | <ul style="list-style-type: none"> • Discuss salient features of cell theory | Must Know | A | C2 | | |
| | | | <ul style="list-style-type: none"> • Define homeostasis | Must Know | A | C1 | | |
| | M1-FM-P-003 | Concept of Body Fluid and Internal Environment | <ul style="list-style-type: none"> • Describe distribution of total body water | Must Know | A | C1 | LGIS SGD | SAQ MCQ VIVA |
| | | | <ul style="list-style-type: none"> • Enlist the proportion of intra cellular and extra cellular fluids. | Must Know | A | C1 | | |
| | | | <ul style="list-style-type: none"> • Differentiate between ECF & ICF | Must Know | A | C4 | | |
| | | | <ul style="list-style-type: none"> • Recall Physical characteristics of normal ECF constituents | Must Know | A | C1 | | |
| | | | <ul style="list-style-type: none"> • Understand the concept of internal environment (which student can differentiate for unicellular and multi cellular organisms.) | Must Know | A | C2 | | |
| | M1-FM-P-0015 | Cell and homeostasis | <ul style="list-style-type: none"> • Understand functional organization of human body | Must Know | A | C2 | SGD | MCQ SAQ VIVA |
| | | | <ul style="list-style-type: none"> • Discuss homeostasis/control systems of the body | Must know | A | C2 | | |
| Physiology (SDL) | M1-FM-P-0019 | Concept of body fluids & internal environment. | <ul style="list-style-type: none"> • Introduction • Concept of extracellular and intracellular fluid • Homeostasis • Examples of control system | <ul style="list-style-type: none"> ❖ Ganong's Review of Medical Physiology. 25TH Edition, General principles and Energy production in Medical Physiology (chapter 01, Page 03) ❖ Human Physiology by Dee Unglaub Silverthorn. 8TH Edition. Introduction to physiology, control systems and homeostasis, chapter no. 1, page no. 40-49 ❖ Physiology by Linda S. Costanzo 6th Edition. Cellular physiology, chapter 01. Page 1 ❖ Textbook of Medical Physiology by Guyton & Hall. 14th Edition Introduction to Physiology. (Section 01, Chapter 1, page 03). | | | | |
| | | | <ul style="list-style-type: none"> • Identification of different parts especially | Must know | A | C1 | Skill Lab | OSPE |

| | | | | | | | |
|------------------------|--------------|--------------------------------|--|--------------|----|------|---------------------------|
| Physiology (SKL) | M1-FM-P-0027 | Introduction to Microscope | focusing lenses and their uses | | | | |
| | | | <ul style="list-style-type: none"> Focusing technique of different blood slides e.g Neubauer's chamber TLC & DLC slides | Should know | B | P | |
| Biochemistry (LGIS) | M1-FM-B-001 | Cell and cell organelle-I | <ul style="list-style-type: none"> Explain composition of normal cell | Must Know | C2 | LGIS | MCQ SAQ SEQ VIVA |
| | | | <ul style="list-style-type: none"> Describe methods to separate different organelles of cell | Should Know | C2 | | |
| | | | <ul style="list-style-type: none"> Describe structure, functions and marker enzymes of mitochondria and Nucleus | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> Analyze the relationship between defects in cell organelles and the resulting clinical conditions or congenital disorder | Should Know | C4 | | |
| | | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare Practice principles of bioethics Understand the curative and preventive health care measure Read relevant research articles Use HEC digital library | Nice to know | C3 | | |
| | M1-FM-B-002 | Cell membrane | <ul style="list-style-type: none"> Explain composition of cell membrane | Must Know | C2 | LGIS | MCQ SAQ SEQ VIVA |
| | | | <ul style="list-style-type: none"> Understand fluid mosaic model | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> Describe functions performed by each component | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare Practice principles of bioethics Understand the curative and preventive health care measure Read relevant research articles Use HEC digital library | Nice to know | C3 | | |
| | M1-FM-B-003 | Functions of cell membranes | <ul style="list-style-type: none"> Discuss functions & importance of cell membrane | Should Know | C2 | LGIS | MCQ SAQ SEQ VIVA |

| | | | | | | | |
|--------------|---------------------|---|--|--|-------------|------|--|
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Nice to know | C3 | | |
| Pharmacology | M1-FM-VI(Pharm)-001 | Introduction to Pharmacology | • Define pharmacology | C1 | LGIS | MCQs | |
| | | | • Discuss main branches of Pharmacology | C2 | | | |
| | | | • Define drug according to WHO | C1 | | | |
| | | | • Describe drug nomenclature | C1 | | | |
| | | | • Cite important drug references | C1 | | | |
| | | | • Describe the sources of drug | C2 | | | |
| | M1-FM-VI(Pharm)-002 | Pharmacokinetic processes | • Identify the four key processes of pharmacokinetics | C1 | LGIS | MCQs | |
| | | | • Define absorption, distribution, metabolism and excretion of drug | C1 | | | |
| | | | • Recognize the clinical importance of these pharmacokinetic processes | C1 | | | |
| | | | • Briefly discuss the factors affecting these processes | C2 | | | |
| | M1-FM-VI(Pharm)-003 | Receptors and signal transduction processes | • Define receptors and ligand | C1 | LGIS | MCQs | |
| | | | • Classify different types of receptors | C2 | | | |
| | | | • Explain the mechanism of signal transduction | C2 | | | |
| | | | • Describe the concept of receptor affinity and specificity | C2 | | | |
| | | | | • Define the properties of agonists, antagonists and inverse agonist | C1 | | |
| Pathology | M1-FM-VI(Path)-001 | Introduction to Pathology | Define the following terms: <ul style="list-style-type: none"> • Etiology • Pathogenesis • Morphology | C1 | LGIS SGD | MCQ | |

Spiral Courses (1st Week)

Biomedical Ethics & Professionalism

| Theory | | | | | |
|------------------|---|--|------------------------|--------------------------|------------------------|
| Code | Topic | Learning Objectives At the end of the lecture the student should be able to | Learning Domain | Teaching Strategy | Assessment Tool |
| M1-FM-SI(BE)-001 | Introduction to History of Medical Ethics | <ul style="list-style-type: none"> • To appraise the historical perspective of Hippocratic oath • Understanding the beginnings of contemporary bioethics to address ethical dilemmas | C2 C2 | LGIS | MCQs |

Behavioral Sciences & Communication Skills

| Theory | | | | | |
|------------------|---|---|------------------------|--------------------------|------------------------|
| Code | Topic | Learning Objectives At the end of the lecture the student should be able to | Learning Domain | Teaching Strategy | Assessment Tool |
| M1-FM-SI(BS)-001 | Introduction to Behavioral Sciences | <ul style="list-style-type: none"> • To describe Holistic and Traditional Allopathic medicine. | C1 | LGIS | MCQs |
| M1-FM-SI(BS)-002 | Stress in Medical Students & its Management | <ul style="list-style-type: none"> • Define stress and its types of stress • Enlist causes of stress among medical student of effectively | C1 | | |

Family Medicine

| Theory | | | | | |
|--------------------|---|--|------------------------|--------------------------|------------------------|
| Code | Topic | Learning Objectives At the end of the lecture the student should be able to | Learning Domain | Teaching Strategy | Assessment Tool |
| M1-FM-SI(FMed)-001 | Introduction to Family Medicine & its application in health care system | <ul style="list-style-type: none"> • Describe presenting complaints of patients with body aches | C3 | LGIS-1 | MCQs |
| | | <ul style="list-style-type: none"> • Discuss complications of body aches | | | |
| | | <ul style="list-style-type: none"> • Describe initial treatment of patients with body aches | | | |
| | | <ul style="list-style-type: none"> • Know when to refer patient to consultant/ Hospital | | | |

Community Medicine/Prevented Medicine

| Theory | | | | | |
|------------------|--|---|--|--------------------------|------------------------|
| Code | Topic | Learning Objectives At the end of the lecture the student should be able to | Learning Domain | Teaching Strategy | Assessment Tool |
| M1-FM-VI(CM)-001 | Introduction Community Medicine & Research Model of RMU | <ul style="list-style-type: none"> • Define community medicine • Define preventive medicine • Differentiate public health and community medicine • Understand IUGRC implementation in RMU | C1 C1 C2 C1 | LGIS | MCQs |
| M1-FM-VI(CM)-002 | Immunization & Vaccination | <ul style="list-style-type: none"> • Understand immunizing agents and vaccine • Differentiate between functions of different types of immunoglobins • Understand the concepts of cold chain • Describe common minor vaccine reactions • Understand and memorize EPI program | C1 C1 C2 C1 C1 | LGIS | MCQs |
| M1-FM-VI(CM)-003 | Health Determinants & Indicators | <ul style="list-style-type: none"> • Explain dimensions and determinants of health and their role in achieving positive health • Discuss concept of health and wellbeing • Describe the importance of health indicators • Classify health indicators • Calculate Morbidity and Mortality • Describe Disability indicators • Compare indicators among countries | C1 C2 C1 C1 C3 C2 C2 | LGIS | MCQs |
| M1-FM-VI(CM)-004 | Health Education & Communication | <ul style="list-style-type: none"> • Define health communication and understand its types. • Explain role of sender, receiver, feedback and content of health message • Appreciate communication barriers • Explain various functions of health Communication • Understand the scope /contents of health education • Explain different approaches of health education • Community awareness programs under the umbrella of CHC (Centre for Health Communication) | C1 C2 C2 C2 C1 C2 | LGIS | MCQs |

Integrated Undergraduate Research Curriculum (IUGRC)

| Theory | | | | | |
|---------------------|--|--|----------------------------|--------------------------|------------------------|
| Code | Topic | Learning Objectives At the end of the lecture the student should be able to | Learning Domain | Teaching Strategy | Assessment Tool |
| M1-FM-SI(IUGRC)-001 | IUGRC (Research 1) Introduction to Health Research Process and Researcher | <ul style="list-style-type: none"> • Define health research & concepts of health research methods • Discuss the value of research in health and human development • Elaborate fundamental types of health research • Conceptualize the drivers of research • Describe meanings of health research & health research methods • Differentiate among various types of health research | C1 C2 C2 C2 C2 | LGIS | MCQs |

Information Technology (IT)

| Theory | | | | |
|-----------------|------------------|--|--------------------------|------------------------|
| Code | Topic | Learning Objectives At the end of the lecture the student should be able to | Teaching Strategy | Assessment Tool |
| M1-FM-SI(IT)001 | RMU Goes digital | <ul style="list-style-type: none"> • Introduction to LMS, CMS and MS Teams. • Introduction to RMU website • How to use HEC digital library • How to use up to date website | LGIS | MCQs |

Theme 2: The Cell: Structure, Function, and Homeostasis (2nd Week)

| Themes | Rationale | General learning Objectives |
|-------------------------------|---|--|
| The Cell Structure & Function | Theme 2 builds upon the orientation week by introducing students to the cell as the fundamental structural and functional unit of the human body, forming the scientific basis of all subsequent learning in medicine. The integration of anatomy, histology, physiology, biochemistry, pathology, and community medicine enables students to understand normal cellular structure, membrane dynamics, organelle function, and mechanisms of transport in a coordinated manner. Emphasis on homeostasis and cellular control mechanisms provides insight into how normal physiological balance is maintained and how its disruption leads to disease. Early exposure to cellular responses to injury and basic pathological processes establishes a bridge between normal structure and disease. Practical sessions, SGDs, and CBL promote active learning and reinforce conceptual understanding. Overall, this theme lays a strong foundation for system-based learning by linking molecular and cellular processes to clinical relevance | <ul style="list-style-type: none"> • By the end of this theme, the student will be able to: • Describe the structure and function of the cell membrane, cell organelles, and intracellular components. • Explain mechanisms of transport across the cell membrane and their physiological significance. • Discuss the concept of homeostasis and cellular control systems involved in maintaining the internal environment. • Correlate basic cellular structure and function with histological features and physiological processes. • Recognize common cellular responses to injury and their relevance to disease processes. • Apply foundational cellular concepts to simple clinical and pathological scenarios. |

Case based discussion for Multi-Disciplinary Clinico concept connect Session C³⁶ (Physiology, Biochemistry, Medicine, Family Medicine & Community Medicine)

Case 1: “When Cells Lose Balance: A Case of Dehydration and Disrupted Homeostasis”

A 19-year-old male medical student presents to the emergency department after prolonged exposure to hot weather and inadequate fluid intake. He complains of excessive thirst, dizziness, generalized weakness, and muscle cramps. On examination, he appears dehydrated, with dry mucous membranes, tachycardia, and reduced urine output. There is no significant past medical history.

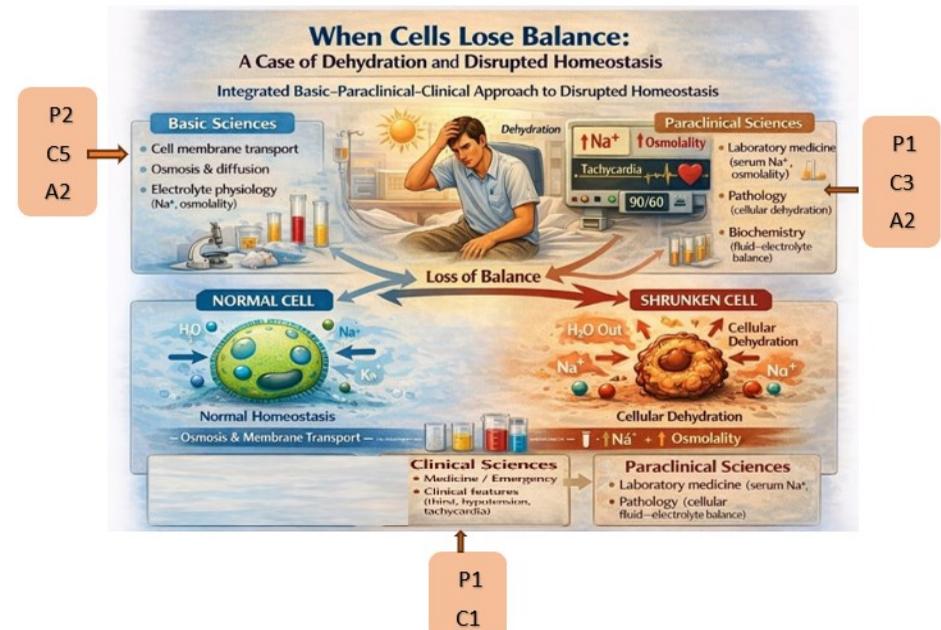
Laboratory Investigations

- Serum Sodium: Increased
- Plasma Osmolality: Elevated
- Serum Potassium: Normal to Mildly decreased
- Blood Urea Nitrogen (BUN): Mildly increased
- Serum Creatinine: Normal
- Urine Osmolality: Increased
- Urine Specific Gravity: High
- Urine Volume: Decreased

Educational relevance to theme

- Cell membrane structure and permeability

Theme 2 Clinico Concept Connect Session C³⁶



Harden Level 9 Multidisciplinary

- Osmosis and transmembrane water movement
- Body fluid compartments and cellular dehydration
- Homeostatic regulation of internal environment
- Early cellular responses to stress and injury

1. Multidisciplinary Integration (Harden Level 9)

Scenario 1: When Cells Lose Balance – Dehydration and Disrupted Homeostasis

How this case fits

At the multidisciplinary level, multiple disciplines contribute in parallel, with each discipline addressing the same patient problem (dehydration and loss of homeostasis) from its own disciplinary perspective, while reinforcing shared concepts such as osmosis, fluid balance, and compensatory mechanisms. The disciplinary identities remain distinct, and integration occurs through conceptual reinforcement rather than content merging.

Disciplines involved

Physiology: Body fluid compartments, osmosis, ADH regulation, and cellular dehydration

Biochemistry: Plasma osmolality, electrolyte balance, BUN changes in dehydration

Medicine: Clinical features, laboratory interpretation, and clinical assessment of dehydration

Family Medicine: Early recognition, preventive advice, and patient counseling

Community Medicine: Environmental risk factors, hydration awareness, and public health prevention

Justification

Each discipline independently addresses the same clinical scenario of dehydration, reinforcing the understanding of disrupted homeostasis from cellular to community levels without merging disciplinary content. This parallel contribution and reinforcement of learning outcomes fulfills the defining characteristics of multidisciplinary integration (Harden Level 9).

Specific Learning Objectives

| Theory | | | | | | | |
|--|--|---|--|----------------------|-------------------------|--------------------------------|----------------------------|
| Subject | Code | Demonstration/Dissection | At the End of The Demonstration Student Should Be Able To | Calgary Gauge | Learning Domains | Teaching Strategy | Assessment Tool |
| Aantomy (Histology) | M1-FM-A-0037 | Introduction to Microscope | • Identify different types of microscopes. | Must Know | C1 | Skill lab Demonstr ation | OSPE |
| | | | • Describe functions of different parts of microscope. | Must Know | C1 | | |
| | | | • Identify different types of lenses. | Must Know | C1 | | |
| | | | • Focus slides. | Should Know | P | | |
| Anatomy (Gross) | M1-FM-A-0017 | Anatomicomedical Terminology-IV (Skin and Body Systems) | • Describe general organization of different systems of body | Must Know | C2 | SGD | MCQ SAQ OSVE OSPE |
| | | | • Discuss concepts of skin and fascia | Must Know | C2 | | |
| | | | • Describe the classification of blood vessels | Must Know | C2 | | |
| | | | • Describe the concepts of divisions of nervous system | Must Know | C1 | | |
| | | | • Analyze the formation of spinal nerve | Should Know | C4 | | |
| | | | • Practice principles of bioethics | Nice to know | C3 | | |
| | | | • Understand the curative and preventive health care measures. | Nice to know | C3 | | |
| | | | • Read a relevant research article | Nice to know | C3 | | |
| | • Apply strategic use of artificial intelligence in healthcare | Nice to know | C3 | | | | |
| | • Use HEC digital library | Nice to know | C3 | | | | |
| | M1-FM-A-0018 | Clavicle | • Determine the side | Must Know | C2 | SGD | MCQ SAQ OSVE OSPE |
| | | | • Demonstrate anatomical position, general features, attachments and articulations (medial and lateral). | Must Know | P | | |
| | | | • Relate the movement and dislocation with the pectoral girdle formation. | Must Know | C4 | | |
| | | | • Describe ossification in detail and Fracture Of clavicle. | Should Know | C3 | | |
| • Practice principles of bioethics | | | Nice to know | C3 | | | |
| • Apply the strategic use of artificial intelligence in healthcare | | | Nice to know | C3 | | | |

| | | | | | | | |
|--|--------------|---------|--|--------------|----|-----|----------------------------|
| | | | <ul style="list-style-type: none"> Understand the curative and preventive health care measures. | Nice to know | C3 | SGD | MCQ SAQ OSVE OSPE |
| | | | <ul style="list-style-type: none"> Use HEC digital library | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Read a relevant research article | Nice to know | C3 | | |
| | M1-FM-A-0019 | Scapula | <ul style="list-style-type: none"> Determine the side | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> Demonstrate anatomical position, general features, attachments, and articulation. (clavicle and shoulder joints) | Must Know | P | | |
| | | | <ul style="list-style-type: none"> Relate the scapular anastomosis with its clinical significance | Must Know | C4 | | |
| | | | <ul style="list-style-type: none"> Demonstrate Scapular movements. | Must Know | P | | |
| | | | <ul style="list-style-type: none"> Practice principles of bioethics | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Focus on provision of curative and preventive health care services | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Use HEC digital library. | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Read a relevant research article | Nice to know | C3 | | |
| | M1-FM-A-0020 | Humerus | <ul style="list-style-type: none"> Determine the side | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> Demonstrate anatomical position, general features, attachments and articulation (shoulder and elbow). | Must Know | P | | |
| | | | <ul style="list-style-type: none"> Correlate axillary, radial, median and ulnar nerve damage with respect to various fractures of humerus. | Should Know | C2 | | |
| <ul style="list-style-type: none"> Relate the structure of humerus with significance of bicipital groove, angle of humeral torsion and carrying angle | | | Must Know | C4 | | | |
| <ul style="list-style-type: none"> Discuss the Ossification of Humerus | | | Should to know | C3 | | | |
| <ul style="list-style-type: none"> Defend different nerve injuries associated with the fractures of humerus. | | | Should Know | C5 | | | |
| <ul style="list-style-type: none"> Understand the curative and preventive health care measures. | | | Nice to know | C3 | | | |
| <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare | | | Nice to know | C3 | | | |

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|------------------------|--------------|---|---|--|----|----|-------------|--------------------|
| | | | <ul style="list-style-type: none"> Practice principles of bioethics | Nice to know | C3 | | | |
| | | | <ul style="list-style-type: none"> Use HEC digital library | Nice to know | C3 | | | |
| | | | <ul style="list-style-type: none"> Read a relevant research article | Nice to know | C3 | | | |
| Anatomy (SDL) | M1-FM-A-0029 | Green Stick Fracture of Clavicle | <ul style="list-style-type: none"> Determine the side Demonstrate anatomical position, general features, attachments and articulations (medial and lateral). Describe Intramembranous development. Describe ossification in detail and Fracture of Clavicle Able to read a relevant research article | <ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. Clavicle (Chapter 3, Page143,153,154). https://www.youtube.com/watch?v=Ykfzt-olaYs | | | | |
| | M1-FM-A-0030 | Applied Anatomy of Scapular Anastomosis and Its Clinical Significance | <ul style="list-style-type: none"> Determine the side Demonstrate anatomical position, general features, attachments and articulations (medial and lateral). Describe scapular anastomosis and its clinical significance Able to read a relevant research article | <ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. Scapula (Chapter 3, Page143-145,154,171,172). https://www.youtube.com/watch?v=zFawNgaSL6E | | | | |
| Physiology (LGIS, SGD) | M1-FM-P-007 | Cell Membrane and Cell Organelles, I & II | <ul style="list-style-type: none"> Enlist functions of ER, golgi apparatus, lysosome & peroxosome, mitochondria | Must know | A | C1 | LGIS SGD | SAQ MCQ VIVA |
| | | | <ul style="list-style-type: none"> Compare and contrast RER & SER, lysosomes & peroxisomes | Must know | A | C4 | | |
| | | | <ul style="list-style-type: none"> Understand Docking mechanism | Should know | B | C2 | | |
| | | | <ul style="list-style-type: none"> Discuss physiological importance of mitochondria & ATP | Must Know | A | C2 | | |
| | | | <ul style="list-style-type: none"> Describe the structure of cell membrane: fluid mosaic model | Must Know | A | C1 | | |
| | | | <ul style="list-style-type: none"> Enlist functions of cell membrane | Must Know | A | C1 | | |
| | | | <ul style="list-style-type: none"> Enlist membrane bound and non-membrane bound organelles | Nice to know | C | C1 | | |
| | | | <ul style="list-style-type: none"> Differentiate between cytoplasm and cytosol | Nice to know | C | C4 | | |
| | M1-FM-P-0013 | Intracellular communication and cell junctions | <ul style="list-style-type: none"> Describe the structure of various intracellular connections Give the physiological importance of cell junctions | Must know | A | C1 | LGIS SGD | SAQ MCQ VIVA |

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|---------------------|--------------|--|--|--|---|----|-----------|---------------------------|--|--|
| | M1-FM-P-0014 | Signal Transduction | <ul style="list-style-type: none"> Describe the various 2nd messenger systems | Must know | A | C1 | LGIS | SAQ MCQ VIVA | | |
| | | | <ul style="list-style-type: none"> Discuss physiological significance | Must Know | A | C2 | | | | |
| | M1-FM-P-0014 | Body fluid compartments, Cell membrane and cell cytoskeleton | <ul style="list-style-type: none"> Discuss the functions of cell Describe cell cytoskeleton Categorize different components of cell cytoskeleton. | Must Know | A | C1 | SGD | MCQ SAQ VIVA | | |
| | | | <ul style="list-style-type: none"> Describe cell cytoskeleton Categorize different components of cell cytoskeleton. | Must Know | A | C4 | | | | |
| Physiology (SDL) | M1-FM-P-0020 | Cell membrane & classification of cell organelles | <ul style="list-style-type: none"> Structure of cell membrane Cell cytoskeleton Cytoplasm and various organelles Golgi Apparatus and its function Lysosomes and peroxisomes Secretory vesicles | <ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Editions, Overview of Cellular Physiology in Medical Physiology (chapter02, Page33) Human Physiology by DeeUnglaub Silver thorn. 8TH Edition.Compartmentation, chapter3, page95 Physiological Basis of Medical Practice by Best & Taylor's.13th Edition.The cell (chapter01, section1 Page 03,18) Textbook of Medical Physiology by Guyton & Hall.14th Edition. Introductionto Physiology. (Section1, chapter03, page31) | | | | | | |
| Physiology (SKL) | M1-FM-P-0028 | Introduction to Wintrobe&Westergen tube | <ul style="list-style-type: none"> Identify the wintrobe and westergen tubes Must Know the differences between two tubes and uses in different methods | Must know | A | C1 | Skill Lab | OSPE | | |
| | | | | Must know | A | P | | | | |
| Biochemistry (LGIS) | M1-FM-B-001 | Cell Organelle-II | <ul style="list-style-type: none"> Describe structure, functions and marker enzymes of ER & Golgi apparatus | Must Know | | C2 | LGIS | MCQ SAQ SEQ VIVA | | |
| | | | <ul style="list-style-type: none"> Describe structure, functions and marker enzymes of lysosome, peroxisome & ribosome | Must Know | | C2 | | | | |
| | | | <ul style="list-style-type: none"> Analyze the relationship between defects in cell organelles and the resulting clinical conditions or congenital disorder | Should Know | | C4 | | | | |
| | | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare Practice principles of bioethics Understand the curative and preventive health care measure Read relevant research articles Use HEC digital library | Nice to know | | C3 | | | | |
| | M1-FM-B-004 | Transport across cell membrane | <ul style="list-style-type: none"> Explain transport of various substances by active and passive transport, diffusion, phagocytosis, endocytosis and exocytosis | Must Know | | C2 | | MCQ SAQ | | |

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|---|--------------------|---|--|--|-------------|------|---------------------------|---------------------------|
| | | | <ul style="list-style-type: none"> • Correlate the clinical disorders with defective transport across cell membrane | Should Know | C3 | LGIS | SEQ VIVA | |
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Nice to know | C3 | | | |
| | M1-FM-B-005 | Osmosis, osmotic pressure and oncotic pressure (Physico chemical aspects-I) | <ul style="list-style-type: none"> • Define osmosis and osmotic pressure. | Must Know | C1 | LGIS | MCQ SAQ SEQ VIVA | |
| | | | <ul style="list-style-type: none"> • Discuss biochemical application of osmotic and oncotic pressure and methods to measure them. | Should Know | C2 | | | |
| | | | <ul style="list-style-type: none"> • Correlate oncotic pressure with clinical scenarios | Nice to Know | C3 | | | |
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Nice to know | C3 | | | |
| | M1-FM-B-006 | Water & PH | <ul style="list-style-type: none"> • Define pH, Pka, body buffer | Must Know | C1 | LGIS | MCQ SAQ SEQ VIVA | |
| | | | <ul style="list-style-type: none"> • Discuss water distribution in the body | Should Know | C2 | | | |
| | | | <ul style="list-style-type: none"> • Understand dehydration and overhydration | Nice to Know | C3 | | | |
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Nice to Know | C3 | | | |
| | Biochemistry (SGD) | M1-FM-B-027 | Cell & Cell membrane | <ul style="list-style-type: none"> • Explain Composition of Normal Cell & Cell Organelles | Should Know | C2 | SGD | MCQ SAQ SEQ VIVA |
| | | | | <ul style="list-style-type: none"> • Describe Composition of Cell Membrane | Should Know | C2 | | |
| <ul style="list-style-type: none"> • Understand Fluid Mosaic Model | | | | Should Know | C2 | | | |

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|--------------------|--------------------------------|--|--|---|----|-----------|------|
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Nice to know | C3 | | |
| Biochemistry (SDL) | M1-FM-B-029 | Cell and cell organelles | <ul style="list-style-type: none"> • Explain composition of normal cell | <ul style="list-style-type: none"> ❖ Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9th edition (chapter 1, page 3) ❖ https://youtu.be/0xe1s65IH0w?si=nMAFtXcYw3_U6eDz | | | |
| | | | <ul style="list-style-type: none"> • Describe methods to separate different organelles of cell | | | | |
| | | | <ul style="list-style-type: none"> • Describe structure, functions and marker enzymes of ER & Golgi apparatus | | | | |
| | | | <ul style="list-style-type: none"> • Describe structure, functions and marker enzymes of lysosome, peroxisome & ribosome | | | | |
| | | | <ul style="list-style-type: none"> • Describe structure, functions and marker enzymes of mitochondria and Nucleus | | | | |
| | | | <ul style="list-style-type: none"> • Illustrate the clinical conditions and congenital defects of cell organelles | | | | |
| M1-FM-B-030 | Cell membrane | <ul style="list-style-type: none"> • Explain composition of cell membrane | <ul style="list-style-type: none"> • Harper's illustrated biochemistry 32nd edition (chapter 40 page – 460) • https://youtu.be/RT61MUjogRo?si=ThIDQR_yn04mSLdu | | | | |
| | | <ul style="list-style-type: none"> • Understand fluid mosaic model | | | | | |
| | | <ul style="list-style-type: none"> • Describe functions performed by each component | | | | | |
| M1-FM-B-031 | Transport across cell membrane | <ul style="list-style-type: none"> • Explain transport of various substances by active and passive transport, diffusion, phagocytosis, endocytosis and exocytosis | <ul style="list-style-type: none"> • Harper's illustrated biochemistry 32nd edition (Chapter 40 page 467) • https://youtu.be/J5pWH1r3pgU?si=-sDY0IeOa7b-mzst | | | | |
| | | <ul style="list-style-type: none"> • Correlate the clinical disorders with defective transport across cell membrane | | | | | |
| Biochemistry (SKL) | M1-FM-B-040 | Introduction to Laboratory precautions and glassware | <ul style="list-style-type: none"> • Understand the use of laboratory glassware | Must Know | P | Skill Lab | OSPE |
| | | | <ul style="list-style-type: none"> • State precautions while working in the laboratory | Must Know | P | Skill Lab | OSPE |

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|-----------|--------------------|--|---|----------|-------------|-----|
| Pathology | M1-FM-VI(Path)-002 | Introduction to Pathology & Cellular Responses to Injury | Define the following terms: <ul style="list-style-type: none"> • Etiology • Pathogenesis • Morphology | C2 | LGIS SGD | MCQ |
| | | | <ul style="list-style-type: none"> • Discuss cellular responses to injury for: • Reversible injury • Adaptation • Irreversible injury • Cell death | C2 | | |
| | M1-FM-VI(Path)-003 | Intracellular Accumulations | <ul style="list-style-type: none"> • Describe types of intracellular accumulations with clinical examples: • Lipids/ fat • Protein • Glycogen • Pigments | C2 | LGIS SGD | MCQ |
| | | | <ul style="list-style-type: none"> • Explain mechanism of intracellular accumulations. | C2 | | |
| | | | <ul style="list-style-type: none"> • Enlist causes of fatty change • Describe the pathogenesis of fatty liver | C1 C1 | | |

Spiral Courses (2nd Week)
Community Medicine

| Theory | | | | | |
|------------------|--------------------|--|------------------------|--------------------------|------------------------|
| Code | Topic | Learning Objectives At the end of the lecture the student should be able to | Learning Domain | Teaching Strategy | Assessment Tool |
| M1-FM-VI(CM)-004 | Lifestyle Medicine | <ul style="list-style-type: none"> • Understand the Role of Lifestyle Factors in Health • Assess and Diagnose Lifestyle-related Health Risks • Implement Lifestyle Interventions for Disease Prevention and Management • Understand the Multidisciplinary Approach in Lifestyle Medicine | C1 C2 C3 C2 | LGIS | MCQs |

Integrated Undergraduate Research Curriculum (IUGRC)

| Theory | | | | | |
|---------------------|---|---|----------------------------------|--------------------------|------------------------|
| Code | Topic | Learning Objectives At the end of the lecture the student should be able to | Learning Domain | Teaching Strategy | Assessment Tool |
| M1-FM-SI(IUGRC)-002 | IUGRC (Research 2) Characteristics of Research Process and Health Research Process | <ul style="list-style-type: none"> • Elaborate various characteristics of a health research process • Differentiate research from a non-research activity • Elaborate ingredients of researcher • Discuss the criteria for selection of a research topic • Elaborate the types of variables • Differentiate between qualitative and quantitative data | C1 C2 C2 C2 C2 C2 | LGIS | MCQs |
| M1-FM-SI(IUGRC)-003 | IUGRC (Research 3) Basics of Ethics in Health Research | <ul style="list-style-type: none"> • Elaborate the value of ethics in conduct of Health Research • Explain basic ethical principles of health research • Explain ethics of research methods • Interpret the application of data collection ethics | C2 C2 C2 | LGIS | MCQs |
| M1-FM-SI(IUGRC)-004 | IUGRC (Research 4) | <ul style="list-style-type: none"> • Narrate responsibility for ethics in HR | C1 | LGIS | MCQs |

| | | | | | |
|--|--------------------------------------|--|----|--|--|
| | Basics of Ethics in Medical Research | <ul style="list-style-type: none"> • Explain Nuremburg code and importance of ethics in current research trends • . Elaborate General ethical principles including explanation of basic principles of Beneficence, non-maleficence, respect and justice • Discuss the Declaration of Helsinki | C2 | | |
|--|--------------------------------------|--|----|--|--|

Multidisciplinary (Hardens Level 9) Clinico-Concept Connect (C³⁶) Sessions for 2nd Week

| Session | Topic | Department | At the End of The Demonstration Student Should Be Able To | Learning Domain | Teaching Strategy | Assessment Tool |
|--|---|--------------------|---|-----------------|-------------------|-----------------|
| Clinico-Concept Connect (C ³⁶) Sessions -I | A Case of Dehydration and Disrupted Homeostasis | Physiology | <ul style="list-style-type: none"> Explain the normal distribution of body fluids among intracellular and extracellular compartments and changes occurring during dehydration. | C2 | LGIS | MCQ |
| | | | <ul style="list-style-type: none"> Explain the physiological regulation of water balance including thirst mechanism and antidiuretic hormone (ADH). | C2 | LGIS | MCQ |
| | | Biochemistry | <ul style="list-style-type: none"> Explain the biochemical basis of plasma osmolality and the role of sodium in maintaining osmotic balance. | C2 | LGIS | MCQ |
| | | | <ul style="list-style-type: none"> Interpret raised serum sodium and plasma osmolality in the context of water deficit. | C3 | LGIS | MCQ |
| | | Medicine | <ul style="list-style-type: none"> Analyse clinical features of dehydration by interpreting patient history and physical examination findings. | C4 | LGIS | MCQ |
| | | | <ul style="list-style-type: none"> Recognize dehydration as a reversible condition if identified and managed early. | C2 | LGIS | MCQ |
| | | | <ul style="list-style-type: none"> Explain the rationale for initial assessment and monitoring of a dehydrated patient. | C2 | LGIS | MCQ |
| | | Family Medicine | <ul style="list-style-type: none"> Explain the importance of early recognition of dehydration at the primary care level. | C2 | LGIS | MCQ |
| | | | <ul style="list-style-type: none"> Evaluate common risk factors for dehydration in young adults and determine their relative impact on hydration status. | C5 | LGIS | MCQ |
| | | Community Medicine | <ul style="list-style-type: none"> Describe dehydration as a public health problem, especially in hot climates. | C2 | LGIS | MCQ |
| | | | <ul style="list-style-type: none"> Evaluate community-based preventive strategies for reducing dehydration-related morbidity. | C5 | LGIS | MCQ |

Theme 3: Control Systems and Communication in the Human Body (3rd Week)

| Themes | Rationale | General learning Objectives |
|--|---|--|
| Control Systems and Communication in the Human Body | <p>This theme introduces students to the mechanisms by which the human body maintains coordination, regulation, and internal stability through integrated control and communication systems. Building on prior knowledge of cellular function, membrane transport, and homeostasis, the theme integrates physiology, anatomy, histology, biochemistry, pathology, and clinical disciplines to explain how cells, tissues, and organs communicate and respond to internal and external stimuli. Emphasis is placed on cellular control mechanisms, receptors and signal transduction, feedback systems, and intracellular communication, as reflected in the timetable. Clinical correlations such as genetic disorders, cellular injury, and applied anatomy help students appreciate how disruption of control systems leads to disease. This theme establishes a foundation for understanding nervous and endocrine regulation in later system-based modules.</p> | <ul style="list-style-type: none"> • By the end of this theme, the student will be able to: • Explain the principles of control systems involved in maintaining internal homeostasis. • Describe mechanisms of cellular and intercellular communication, including receptors and signal transduction pathways. • Differentiate between negative and positive feedback mechanisms and their physiological significance. • Correlate anatomical and histological features with functional aspects of communication and control systems. • Recognize the effects of disruption of control systems at cellular and tissue levels. • Apply basic concepts of regulation and communication to introductory clinical and pathological scenarios. |
| <p>Case based discussion for Multi-Disciplinary Clinico concept connect session C³6 (Physiology, Biochemistry, Endocrinology, Pathology, Medicine & Community Medicine)</p> <p>Clinical Case Scenario 2: Disruption of Integrated Control and Communication Systems</p> <p>A 46-year-old man presents to the medical outpatient department with complaints of excessive thirst, frequent urination, persistent fatigue, and gradual unintentional weight loss over the last five months. He reports drinking large amounts of water throughout the day and waking multiple times at night to urinate. He also describes episodes of blurred vision and difficulty concentrating at work. There is a strong family history of metabolic disease, with both parents diagnosed with type 2 diabetes mellitus.</p> <p>On physical examination, the patient appears tired and mildly dehydrated. His pulse rate is 98 beats per minute, blood pressure is 140/88 mmHg, and respiratory rate is normal. His skin appears dry, with reduced skin turgor. Cardiovascular, respiratory, and abdominal examinations are unremarkable. Neurological examination reveals no focal deficits.</p> <p>Initial laboratory investigations show persistently elevated fasting blood glucose levels and an increased HbA1c, indicating poor long-term glycemic control. Serum electrolyte levels are within normal limits. Further biochemical evaluation reveals normal to elevated circulating insulin levels, suggesting that insulin is being produced but is ineffective at the cellular level. This points toward impaired insulin receptor function and defective intracellular signal transduction, resulting in reduced glucose uptake by peripheral tissues.</p> <p>The failure of insulin-mediated signaling disrupts normal cellular communication and feedback mechanisms, leading to sustained hyperglycemia. This breakdown in control systems affects multiple organs and tissues, producing systemic symptoms such as polyuria, polydipsia, fatigue, and weight loss.</p> | | |

This case highlights how normal regulation of blood glucose depends on effective communication between cells through receptors, second messengers, and feedback loops. Impaired receptor function and altered signal transduction prevent appropriate cellular responses, demonstrating loss of homeostasis. The case integrates principles from physiology (endocrine regulation), biochemistry (hormone action and signaling pathways), pathology (metabolic dysfunction), and clinical medicine, illustrating how disruption of control systems leads to disease.

Educational relevance to theme

- Receptor-mediated cellular communication
- Intracellular signal transduction pathways
- Negative feedback mechanisms in endocrine regulation
- Integration of cellular control with whole-body homeostasis
- Clinical consequences of disrupted control and communication systems

2. Multidisciplinary Integration (Harden Level 9)

Scenario 2: Disruption of Integrated Control and Communication Systems (Type 2 Diabetes Mellitus)

How this case fits

At the multidisciplinary level, the case of poorly controlled type 2 diabetes mellitus is explored by multiple disciplines working in parallel, each contributing discipline-specific insights into disrupted cellular communication, endocrine control, and systemic consequences. The focus remains on a single patient problem, while disciplinary boundaries are maintained.

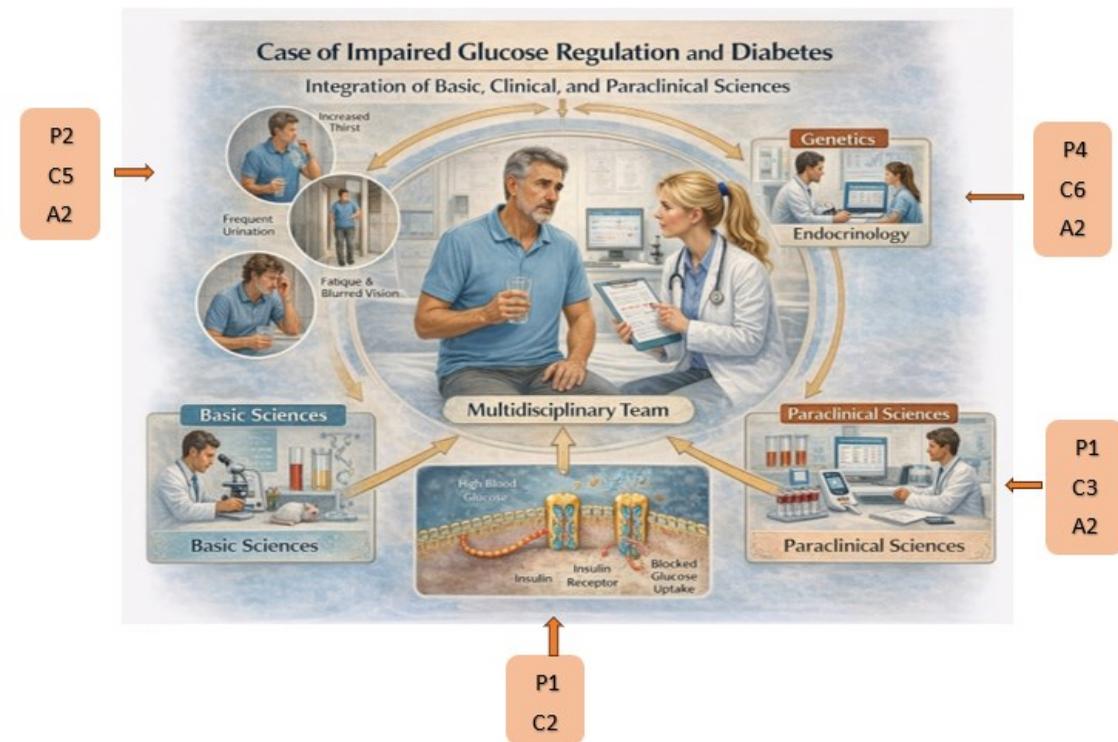
Disciplines involved

- Physiology: Endocrine regulation of glucose homeostasis and feedback mechanisms
- Biochemistry: Insulin receptor signaling, second messengers, and impaired glucose uptake
- Endocrinology: Hormonal regulation, insulin resistance, and feedback control failure
- Pathology: Pathogenesis of insulin resistance and metabolic dysfunction
- Medicine: Clinical features, diagnostic criteria, and interpretation of glycemic indices
- Community Medicine: Lifestyle risk factors, diabetes burden, and prevention strategies

Justification

Each discipline independently analyzes the same patient with diabetes mellitus, emphasizing its own conceptual framework while reinforcing shared themes of control systems, receptor function, and homeostasis. The absence of content merging and the presence of parallel disciplinary contributions confirm alignment with multidisciplinary integration as defined in Harden Level 9.

Theme 3 Clinico Concept Connect Session C³⁶



Harden Level 9 Multidisciplinary

Specific Learning Objectives

| Theory | | | | | | | |
|--|--------------|---------------------------------|---|----------------------|-------------------------|--------------------------|----------------------------|
| Subject | Code | Demonstration/Dissection | At the End of The Demonstration Student Should Be Able To | Calgary Gauge | Learning Domains | Teaching Strategy | Assessment Tool |
| Anatomy (Histology) | M1-FM-A-009 | Types of Epithelium | <ul style="list-style-type: none"> • Define Epithelium | Must Know | C1 | LGIS | MCQ SAQ OSVE OSPE |
| | | | <ul style="list-style-type: none"> • Discuss general features of Epithelial cells (basal, apical and lateral surfaces) | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> • Classify epithelium | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> • Explain the histological structure of simple epithelium | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> • Describe the location and functions of simple epithelium | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> • Classify stratified epithelium. | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> • Describe the functions and distribution of stratified epithelium | Must Know | C1 | | |
| | | | <ul style="list-style-type: none"> • Differentiate between stratified and pseudostratified epithelium | Must Know | C4 | | |
| | | | <ul style="list-style-type: none"> • Describe characteristics of transitional epithelium | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> • Correlate clinical aspects of different types of epithelia | Should Know | C3 | | |
| | | | <ul style="list-style-type: none"> • To understand the bio-physiological aspects of different types of epithelia | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare | Nice to know | C3 | | |
| <ul style="list-style-type: none"> • Understand the curative and preventive health care | Nice to know | C3 | | | | | |

| | | | | | | | |
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| | | | measures. | | | | |
| | | | <ul style="list-style-type: none"> Practice principles of bioethics | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Read a relevant research article | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Use HEC digital library | Nice to know | C3 | | |
| | M1-FM-A-0010 | Specializations of Apical Cell Surface | <ul style="list-style-type: none"> Enumerate different apical modifications of cells | Must Know | C1 | LGIS | MCQ SAQ OSVE OSPE |
| | | | <ul style="list-style-type: none"> Describe histological structure of each apical modification. | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> Discuss functions of each type of apical modifications | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> Correlate clinical aspects of Specializations of apical cell surfaces | Should Know | C3 | | |
| | | | <ul style="list-style-type: none"> Analyze the functional modification in relation to the specializations of apical cell surface | Nice to know | C4 | | |
| | | | <ul style="list-style-type: none"> Enlist causes of infertility. | Should Know | C1 | | |
| | | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Practice principles of bioethics | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Understand the curative and preventive health care measures. | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Read a relevant research article | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Use HEC digital library | Nice to know | C3 | | |
| Anatomy (Embryology) | M1-FM-A-003 | Oogenesis | <ul style="list-style-type: none"> Discuss role of female hormones during oogenesis | Must Know | C2 | LGIS | MCQ SAQ OSVE OSPE |
| | | | <ul style="list-style-type: none"> Describe different stages of oogenesis | Must Know | C2 | | |

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|--|--------------|---|---|--------------|----|------|----------------------------|
| | | | <ul style="list-style-type: none"> Correlate clinical aspects of gametogenesis | Must Know | C3 | | |
| | | | <ul style="list-style-type: none"> To understand the bio-physiological aspects of gametogenesis | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> Understand the curative and preventive health care measures. | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Practice the principles of bioethics | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Use HEC digital library | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Read a relevant research article | Nice to know | C3 | | |
| | M1-FM-A-004 | Spermatogenesis | <ul style="list-style-type: none"> Define spermatogenesis. | Should Know | C1 | LGIS | MCQ SAQ OSVE OSPE |
| | | | <ul style="list-style-type: none"> Describe different phases of spermatogenesis | Should Know | C2 | | |
| | | | <ul style="list-style-type: none"> Discuss stages of spermiogenesis | Should Know | C2 | | |
| | | | <ul style="list-style-type: none"> Relate the functions of male hormones with the process of spermatogenesis | Should know | C3 | | |
| | | | <ul style="list-style-type: none"> Understand the curative and preventive health care measures. | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Practice the principles of bioethics | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare | Nice to know | C3 | | |
| <ul style="list-style-type: none"> Able to read a relevant research article | Nice to know | C3 | | | | | |
| | | <ul style="list-style-type: none"> Use HEC digital library | Should Know | C3 | | | |

| | | | | | | | |
|------------------------|--------------|------------------------------------|---|--------------|----|----------------------------|----------------------------|
| Anatomy (Histology) | M1-FM-A-0038 | Simple epithelium | <ul style="list-style-type: none"> Classify epithelium. | Must Know | C2 | Skill lab Demonstration | OSPE |
| | | | <ul style="list-style-type: none"> Illustrate different types of simple epithelium | Must Know | P | | |
| | | | <ul style="list-style-type: none"> Identify types of simple epithelium. | Must Know | P | | |
| | | | <ul style="list-style-type: none"> Write two points of identification | Should Know | C1 | | |
| Anatomy (Gross) | M1-FM-A-0021 | Anterior Axioappendicular Region | <ul style="list-style-type: none"> Describe Superficial fascia with cutaneous nerves and vessels of anterior axioappendicular region Tabulate muscles of the anterior axioappendicular region | Must Know | C2 | Skill lab SGD | MCQ SAQ OSVE OSPE |
| | | | <ul style="list-style-type: none"> Analyze different movements of anterior axioappendicular region in relation with the action of individual muscle | Should Know | C4 | | |
| | | | <ul style="list-style-type: none"> Strategic use of artificial intelligence in healthcare | Nice to Know | C3 | | |
| | | | <ul style="list-style-type: none"> Understand the curative and preventive health care measures Practice principles of bioethics | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare | Nice to Know | C3 | | |
| | | | <ul style="list-style-type: none"> Use HEC digital library | Nice to Know | C3 | | |
| | | | <ul style="list-style-type: none"> Read a relevant research article | Nice to know | C3 | | |
| | M1-FM-A-0022 | Posterior Axioappendicular Muscles | <ul style="list-style-type: none"> Tabulate muscles of the pectoral region (origin, insertion, nerve supply, action and applied). | Must Know | C2 | Skill lab SGD | MCQ SAQ OSVE OSPE |

| | | | | | | | | |
|------------------------|--------------|---|--|---|----|----|-------------|------------|
| | | | <ul style="list-style-type: none"> Identify and describe the pectoral and clavipectoral fascia | Must Know | C2 | | | |
| | | | <ul style="list-style-type: none"> Use HEC digital library | Nice to Know | C3 | | | |
| | | | <ul style="list-style-type: none"> Understand the curative and preventive health care measures | Nice to know | C3 | | | |
| | | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare | Nice to Know | C3 | | | |
| | | | <ul style="list-style-type: none"> Read a relevant research article | Nice to Know | C3 | | | |
| Anatomy (SDL) | M1-FM-A-0031 | Applied Anatomy of injury to serratus Anterior | <ul style="list-style-type: none"> Describe Superficial fascia with cutaneous nerve and vessels of anterior axioappendicular region. Understand the bio-physiological aspects of anterior axioappendicular region. Able to read a relevant research article and use digital library | ❖ Clinical Oriented Anatomy by Keith L. Moore.8 TH Edition. Anterior axioappendicular muscles (Chapter 3, Page 168,169). https://teachmeanatomy.info/ | | | | |
| | M1-FM-A-0032 | Applied Anatomy of Posterior axioappendicular muscles | <ul style="list-style-type: none"> Tabulate Muscles of the pectoral region (origin, insertion, nerve supply, action and applied). Identify and describe the pectoral and clavipectoral fascia. Able to read a relevant research article and use digital library | ❖ Clinical Oriented Anatomy by Keith L. Moore.8 TH Edition. Posterior axioappendicular muscles (Chapter 3, Page 170,171). https://teachmeanatomy.info/ | | | | |
| Physiology (LGIS, SGD) | M1-FM-P-004 | Homeostatic Control System I | <ul style="list-style-type: none"> Describe the characteristic of control system of the body. | Must Know | A | C1 | LGIS SGD | SAQ MCQ |

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|--|-------------|--|--|--------------|---|----|---------------|--------------------|
| | | | <ul style="list-style-type: none"> Analyze four control mechanisms of body | Must Know | A | C4 | | VIVA |
| | | | <ul style="list-style-type: none"> Understand the mechanism of positive feedback, negative feedback, feed forward control and adaptive control with examples. | Must Know | A | C2 | | |
| | M1-FM-P-005 | Homeostatic Control System II | <ul style="list-style-type: none"> Recall control mechanisms | Should Know | B | C1 | LGIS SGD | SAQ MCQ VIVA |
| | | | <ul style="list-style-type: none"> Give examples | | | C1 | | |
| | | | <ul style="list-style-type: none"> Compare and contrast feed forward and adaptive mechanisms | Nice to Know | C | C4 | | |
| | | | <ul style="list-style-type: none"> Define gain of control system | Must Know | A | C1 | | |
| | | | <ul style="list-style-type: none"> Comprehend gain of the control system | Must Know | A | C2 | | |
| | | | <ul style="list-style-type: none"> Calculate gain of the feedback system and understand the significance of sign in the formula | Nice To know | C | C3 | | |
| | M1-FM-P-006 | Cellular organelles and cell functions | <ul style="list-style-type: none"> Describe cytoskeleton & cell locomotion | Must Know | A | C1 | LGIS Group | SAQ MCQ VIVA |
| | | | <ul style="list-style-type: none"> Discuss functions of cilia and amoeboid movement | Must Know | A | C2 | | |
| | | | <ul style="list-style-type: none"> Describe the mechanism of ATP generation | Should Know | B | C1 | | |
| | | | <ul style="list-style-type: none"> Enlist three major processes of ATP consumption in the body | Should Know | B | C1 | | |
| | | | <ul style="list-style-type: none"> Understand cell ingestion and other independent roles of cell | Should know | B | C2 | | |
| | | | <ul style="list-style-type: none"> Discuss vaults | Nice to know | C | C2 | | |
| | | | <ul style="list-style-type: none"> Understand basic concepts about DNA and RNA | Should know | B | C2 | | |
| | | | <ul style="list-style-type: none"> Compare various types of RNA and their functions | Must know | A | C4 | | |
| | | | <ul style="list-style-type: none"> Enlist and Draw steps of mitosis and meiosis | Nice to know | C | C2 | | |

| | | | | | | | | |
|---------------------|--------------|---|--|--|----|------|------------------|---------------|
| | | | <ul style="list-style-type: none"> Comprehend role of different parts of chain of DNA as genes like TATA box | Nice to know | C | | | |
| | M1-FM-P-0012 | Genetics Transcription & Translation | <ul style="list-style-type: none"> Define & Explain Genetics, Transcription & Translation | Must Know | A | | LGIS PBL | SAQ MCQs VIVA |
| Physiology (SGD) | M1-FM-P-0018 | Intracellular communication and cell junction, signal transduction | <ul style="list-style-type: none"> Describe the structure and function of various intracellular connections Discuss second messenger system | Must know | A | C2 | SGD | A |
| Physiology (SDL) | M1-FM-P-0021 | Intracellular communication and cell junction | <ul style="list-style-type: none"> Receptors and its types Cellular signaling and various mechanisms Signal transduction Hormone receptors and their activation Second messenger mechanisms | <ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition., Overview of Cellular Physiology in Medical Physiology (chapter02, Page33-44) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Compartmentation, chapter 3, page109 Physiology by Linda S. Costanzo 6th Edition. Gastrointestinal Physiology Physiological Basis of Medical Practice by Best & Taylor's.13th Edition The cell (chapter01, Page14) Text book of Medical Physiology by Guyton & Hall.14th Edition. Introduction to Endocrinology. (Section14, Page 920) | | | | |
| Physiology (SKL) | M1-FM-P-0029 | Apparatus identification (Introduction to Neubauer's chamber, Red Blood Cell (RBC) pipettes & White Blood Cell (WBC) pipette) | <ul style="list-style-type: none"> Complete study of Neubauer's slide, calculation of volumes of corner squares and central squares | Must know | A | P | Skill Lab | OSPE |
| | | | <ul style="list-style-type: none"> Important differentiating points between WBC & RBC's pipettes | Must know | A | C1 | | |
| | | | <ul style="list-style-type: none"> How to dilute the two pipettes | Should know | B | P | | |
| | | | <ul style="list-style-type: none"> Must Know the composition of diluting fluids | Must know | A | C1 | | |
| Biochemistry (LGIS) | M1-FM-B-007 | (Physico chemical aspects-II & Physico chemical aspects-III) | <ul style="list-style-type: none"> Define phenomenon of viscosity, surface tension, emulsification and adsorption | Must Know | C1 | LGIS | MCQ SAQ SEQ VIVA | |

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|--|-------------|--|--|-------------|----|------|---------------------------|
| | | Phenomenon of viscosity, surface tension, emulsification and adsorption | <ul style="list-style-type: none"> • Explain Biochemical applications and methods to measure them | Should Know | C2 | | |
| | M1-FM-B-008 | (Physico chemical aspects-II & Physico chemical aspects-III) Donnan equilibrium, adsorption and ion exchange resins | <ul style="list-style-type: none"> • Define Donnan equilibrium, adsorption and ion exchange resins. | Must Know | C1 | LGIS | MCQ SAQ SEQ VIVA |
| <ul style="list-style-type: none"> • Describe their effects on tissue fluids and biochemical importance | | | Should Know | C2 | | | |
| <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | | | Nice to know | C3 | | | |
| | M1-FM-B-009 | Cancer | <ul style="list-style-type: none"> • Explain biochemical basis of cancer | Must Know | C2 | LGIS | MCQ SAQ SEQ VIVA |
| <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | | | Nice to know | C3 | | | |
| Biochemistry (SGD) | M1-FM-B-028 | Physico chemical aspects of cell | <ul style="list-style-type: none"> • Define osmosis and osmotic pressure. | Should Know | C1 | SGD | MCQ |

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|-----------------------|-------------|--|--|---|----|--|--------------------|--|
| | | | <ul style="list-style-type: none"> • Discuss biochemical application of osmotic and oncotic pressure and methods to measure them. | Should Know | C2 | | SAQ SEQ VIVA | |
| | | | <ul style="list-style-type: none"> • Correlate oncotic pressure with clinical scenarios | Nice to Know | C3 | | | |
| | | | <ul style="list-style-type: none"> • Define phenomenon of viscosity, surface tension. | Should Know | C1 | | | |
| | | | <ul style="list-style-type: none"> • Explain Biochemical applications and methods to measure them. | Should Know | C2 | | | |
| | | | <ul style="list-style-type: none"> • Define Donnan equilibrium, adsorption and ion exchange resins. | Should Know | C1 | | | |
| | | | <ul style="list-style-type: none"> • Describe their effects on tissue fluids and biochemical importance | Should Know | C2 | | | |
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Nice to know | C3 | | | |
| Biochemistry (SDL) | M1-FM-B-032 | Physicochemical Aspects Osmosis, osmotic pressure and oncotic pressure | <ul style="list-style-type: none"> • Define osmosis and osmotic pressure. | ❖ Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9 th edition (Chapter 02 page 46) ❖ https://youtu.be/dcAxPYUGgDs?si=ct5KOOQg24Nqv_xwJ | | | | |
| | | | <ul style="list-style-type: none"> • Discuss biochemical application of osmotic and oncotic pressure and methods to measure them. | | | | | |
| | | | <ul style="list-style-type: none"> • Correlate oncotic pressure with clinical scenarios | | | | | |
| | M1-FM-B-033 | Phenomenon of viscosity, surface tension | <ul style="list-style-type: none"> • Define phenomenon of viscosity, surface tension. | <ul style="list-style-type: none"> ❖ Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9th edition (Chapter 02 page 52, 55) ❖ https://youtu.be/zMzqiAuOSz0?si=hbiWv0HpHjsGsWfFf ❖ https://youtu.be/UVcyea3ZH54?si=IUGBmNzV_YLUYbML | | | | |
| | | | <ul style="list-style-type: none"> • Explain Biochemical applications and methods to measure them. | <ul style="list-style-type: none"> • Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9th edition (Chapter 02 page 50) | | | | |
| | M1-FM-B-034 | | <ul style="list-style-type: none"> • Define Donnan equilibrium, | <ul style="list-style-type: none"> • https://youtu.be/MhSfQio8mp0?si=ISnOkPan6Jp49trz | | | | |

| | | | | | | | |
|--------------------|--------------------|--|--|---|------|-----------|------|
| | | Donnan equilibrium, adsorption and ion exchange resins | adsorption and ion exchange resins. | | | | |
| | | | <ul style="list-style-type: none"> Describe their effects on tissue fluids and biochemical importance | | | | |
| | M1-FM-B-035 | Cancer | <ul style="list-style-type: none"> Explain biochemical basis of cancer | <ul style="list-style-type: none"> Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9th edition (Chapter 6 page 168) Harper’s Illustrated Biochemistry, 32nd edition (Chapter 56, page 689) https://youtu.be/6IsVBHGhESw?si=Msxf3n9b-YXE4-yy | | | |
| Biochemistry (SKL) | M1-FM-B-041 | Introduction of Laboratory equipment’s | <ul style="list-style-type: none"> Describe parts and working of different laboratory equipments | Should Know | P | Skill Lab | OSPE |
| Medicine | M1-FM-VI(Med)-004 | Evidence based medicine | <ul style="list-style-type: none"> Define evidence-based medicine | C1 | LGIS | MCQ | |
| | | | <ul style="list-style-type: none"> Discuss its applications | C2 | | | |
| | | | <ul style="list-style-type: none"> Discuss components of EBM | C2 | | | |
| Pathology | M1-FM-VI(Path)-004 | Pigments | <ul style="list-style-type: none"> Classify pigments | C2 | LGIS | MCQ | |
| | | | <ul style="list-style-type: none"> Explain the mechanism of pigment production and deposition in various clinical settings | C2 | | | |
| | | | <ul style="list-style-type: none"> Describe the morphological features (gross/ microscopic) with deposition of following pigments: Lipofuscin, Melani, Hemosiderin, Bilirubin, Anthracosis | C1 | | | |
| | | | <ul style="list-style-type: none"> Define ROS/free radicals | C1 | | | |
| | | | <ul style="list-style-type: none"> Enlist oxygen derived free radicals | C1 | | | |
| | M1-FM-VI(Path)-005 | Free Radicals/ Reactive Oxygen Species (Ros). Oxidative Stress | <ul style="list-style-type: none"> Describe mechanism of generation of free radicals | C2 | LGIS | MCQ | |
| | | | <ul style="list-style-type: none"> Describe mechanism of removal of free radicals(antioxidants) | C2 | | | |
| | | | <ul style="list-style-type: none"> Describe the pathologic effects of free radicals | C2 | | | |

Multidisciplinary (Hardens Level 9) Clinico-Concept Connect (C³⁶) Sessions for 3rd Week

| Session | Topic | Department | At the End of The Demonstration Student Should Be Able To | Learning Domain | Teaching Strategy | Assessment Tool |
|---|--|--------------------|---|-----------------|-------------------|-----------------|
| Clinico-Concept Connect (C ³⁶) Sessions -II | Disruption of Integrated Control and Communication Systems | Physiology | • Describe the normal physiological regulation of blood glucose levels by insulin and counter-regulatory hormones. | C1 | LGIS | MCQ |
| | | | • Correlate clinical features such as polyuria and polydipsia with loss of endocrine control mechanisms. | C3 | LGIS | MCQ |
| | | Biochemistry | • Explain how defective receptor signaling leads to impaired glucose transport and hyperglycemia. | C2 | LGIS | MCQ |
| | | | • Interpret biochemical findings (elevated glucose, increased HbA1c, normal/elevated insulin) in the context of insulin resistance. | C3 | LGIS | MCQ |
| | | Endocrinology | • Evaluate the role of endocrine glands and hormones in maintaining integrated metabolic regulation under normal and pathological conditions. | C5 | LGIS | MCQ |
| | | | • Design a conceptual model illustrating how endocrine glands and hormones interact to achieve integrated metabolic regulation. | C6 | LGIS | MCQ |
| | | Pathology | • Describe the pathological basis of insulin resistance and type 2 diabetes mellitus. | C1 | LGIS | MCQ |
| | | | • Explain how sustained hyperglycemia leads to cellular and tissue-level metabolic dysfunction. | C2 | LGIS | MCQ |
| | | Medicine | • Identify key clinical features suggestive of type 2 diabetes mellitus from history and examination. | C1 | LGIS | MCQ |
| | | | • Evaluate the clinical significance and limitations of laboratory parameters used to assess glycemic control in the diagnosis and management of diabetes mellitus. | C5 | LGIS | MCQ |
| | | Community Medicine | • Describe diabetes mellitus as a major non-communicable disease burden at the community level. | C1 | LGIS | MCQ |
| | | | • Explain the role of lifestyle factors and family history in the development of insulin resistance. | C4 | LGIS | MCQ |

Theme 4: Genetics, Cell Division, and Human Development (4th Week)

| Themes | Rationale | General learning Objectives |
|---|---|--|
| Genetics, Cell Division, and Human Development | <p>This theme focuses on the genetic and cellular mechanisms that govern human growth, development, and reproduction, integrating concepts from genetics, biochemistry, physiology, anatomy, embryology, histology, pathology, and clinical disciplines as outlined in the fourth-week timetable. Building upon earlier themes on cellular structure, control systems, and communication, this theme explains how DNA replication, transcription, translation, and regulated cell division ensure normal development and maintenance of the human body. Topics such as gametogenesis, fertilization, embryological development, and tissue differentiation provide insight into the origin of normal human form and function. Integration with pathology and clinical subjects (medicine, pediatrics, obstetrics & gynecology) introduces students to the basis of genetic and developmental disorders, emphasizing the clinical relevance of basic sciences. This theme lays a critical foundation for understanding inherited diseases, congenital anomalies, and molecular mechanisms of disease encountered in later clinical training.</p> | <p>By the end of this theme, the student will be able to:</p> <ul style="list-style-type: none"> • Describe the structure and function of nucleic acids and their role in genetic information transfer. • Explain the processes of DNA replication, transcription, and translation and their regulation. • Describe the cell cycle, mitosis, meiosis, and programmed cell death, and their significance in development and disease. • Explain the processes of gametogenesis, fertilization, and early embryonic development. • Correlate embryological and histological development with normal structure and function of tissues and organs. • Recognize the basic mechanisms underlying genetic and developmental disorders and their clinical relevance. |
| <p>Case based discussion for Multi-Disciplinary Clinico concept connect session C³⁶ (Anatomy, Biochemistry, Physiology, Peads, Gynae & Obs)</p> <p>Case 3 “Disorder of Growth and Development”</p> <p>A 4-year-old boy is brought to the pediatric outpatient department by his parents with concerns regarding poor growth and delayed development. The parents report that the child has been noticeably shorter than his peers since early childhood. They are particularly concerned that he started walking later than expected, speaks only a few single words, and has difficulty keeping up with other children during play.</p> <p>The child was born at term via normal vaginal delivery. Antenatal history is unremarkable, with no exposure to infections, drugs, or radiation. There is no history of birth asphyxia. The parents deny any chronic illness, recurrent infections, or feeding difficulties. Family history is non-contributory. On general physical examination, the child appears alert but has a small build for his age. His height and weight are both below the 5th percentile. Facial examination reveals mild dysmorphic features, including a flattened nasal bridge and epicanthic folds. Muscle bulk appears reduced, and the child demonstrates hypotonia with delayed motor coordination. Speech is limited for age. Cardiovascular, respiratory, and abdominal examinations are normal. No organomegaly is detected.</p> <p>Developmental assessment shows delay in gross motor, fine motor, and speech milestones, while social interaction is relatively preserved.</p> <p>Clinical Signs and Symptoms</p> <p>Symptoms</p> <p>Delayed walking and speech development</p> | | |

Poor linear growth compared to peers
 Easy fatigability during physical activity
 Delayed achievement of developmental milestones
 Physical Signs
 Short stature (height < 5th percentile)
 Low weight for age
 Mild facial dysmorphism
 Hypotonia (reduced muscle tone)
 Delayed motor coordination
 Normal vital signs
 No cardiac murmurs or respiratory distress

Laboratory and Diagnostic Investigations

Complete Blood Count (CBC): Within normal limits
 Serum Electrolytes: Normal
 Thyroid Function Tests: Normal
 Growth Hormone Levels: Within normal range
 Serum IGF-1: Mildly reduced
 Bone Age (X-ray of left hand and wrist): Delayed compared to chronological age
 Karyotype Analysis: Abnormal (consistent with chromosomal disorder)
 Developmental Screening Tests: Delay in cognitive and motor domains
 Echocardiography: Normal cardiac anatomy

Educational Relevance to Theme

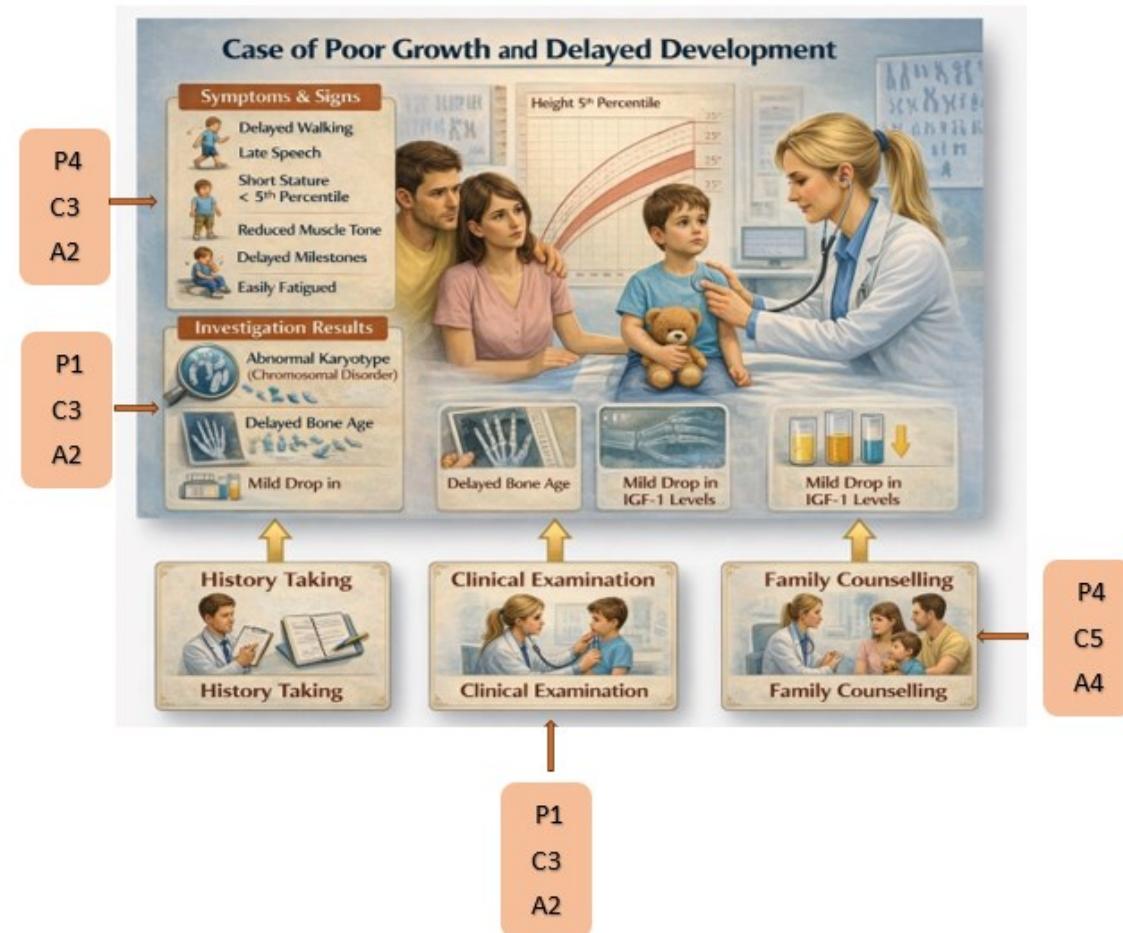
This case highlights how genetic regulation, cell division, differentiation, and tissue specialization are essential for normal human growth and development. Disruption at the cellular and genetic level leads to impaired growth, delayed maturation, and abnormal development, emphasizing the clinical relevance of basic sciences in understanding developmental disorders.

3. Multidisciplinary Integration (Harden Level 9)

Scenario 3: Disorder of Growth and Development

How this case fits

Theme 4 Clinico Concept Connect Session C³6



Harden Level 9 Multidisciplinary

At the multidisciplinary level, this case of a child presenting with short stature and global developmental delay is explored by multiple disciplines working in parallel, with each discipline addressing the same patient problem from its own conceptual and professional perspective. The case allows integration of genetic, biochemical, physiological, developmental, and clinical aspects of growth and maturation while maintaining clear disciplinary boundaries.

Disciplines involved

Anatomy: Structural development, dysmorphic facial features, musculoskeletal growth, and delayed skeletal maturation

Biochemistry: Role of growth factors (IGF-1), molecular regulation of cell growth and differentiation

Physiology: Regulation of growth and development, endocrine control of growth hormone-IGF axis

Pediatrics: Clinical assessment of growth parameters, developmental milestones, and pediatric growth disorders

Gynecology & Obstetrics: Antenatal influences on fetal growth and development, genetic counseling considerations

Justification

Each discipline independently analyzes the same clinical problem of impaired growth and delayed development, reinforcing key concepts such as genetic regulation, endocrine control, and tissue maturation without merging disciplinary content. The parallel contribution of disciplines, with shared reference to a single patient scenario, meets the defining characteristics of multidisciplinary integration as described in Harden Level 9.

Specific Learning Objectives

| Theory | | | | | | | |
|-------------------------|-------------|--------------------------------|--|------------------|---------------------|----------------------|----------------------------|
| Subject | Code | Demonstration/ Dissection | At the End of The Demonstration Student Should Be Able To | Calgary Gauge | Learning Domains | Teaching Strategy | Assessment Tool |
| Anatomy (Embryology) | M1-FM-A-005 | Female Reproductive Cycles | <ul style="list-style-type: none"> • Understand Ovarian and Uterine cycle | Must Know | C1 | LGIS | MCQ SAQ OSVE OSPE |
| | | | <ul style="list-style-type: none"> • Correlate Ovarian and Uterine cycles | Must Know | C3 | | |
| | | | <ul style="list-style-type: none"> • Describe different phases of Ovarian and Uterine cycles | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> • Enumerate female sex hormones | Must Know | C1 | | |
| | | | <ul style="list-style-type: none"> • Discuss functional significance of female reproductive hormones in reproductive cycles | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> • Defend the case of anovulatory cycle in a female | Must Know | C4 | | |
| | | | <ul style="list-style-type: none"> • Understand the bio-physiological aspects female reproductive cycle | Nice to know | C2 | | |
| | | | <ul style="list-style-type: none"> • Focus on provision of curative and preventive health care services | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> • Read a relevant research article | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> • Use HEC digital library | Nice to know | C3 | | |
| | M1-FM-A-006 | Ovulation and Fertilization | <ul style="list-style-type: none"> • Describe follicular development, ovulation and subsequent events in ovary | Must Know | C2 | LGIS | MCQ SAQ OSVE OSPE |
| | | | <ul style="list-style-type: none"> • Give an account on role of luteinizing hormone in ovulation | Must Know | C1 | | |
| | | | <ul style="list-style-type: none"> • Discuss capacitation in female genital tract | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> • Describe different phases and results of fertilization | Should Know | C2 | | |
| | | | <ul style="list-style-type: none"> • Analyze different causes of infertility. | Should Know | C4 | | |
| | | | <ul style="list-style-type: none"> • Compare different technologies of assisted fertilization | Should Know | C4 | | |
| | | | <ul style="list-style-type: none"> • Discuss different techniques of assisted reproduction with special emphasis on IVF | Should Know | C3 | | |
| | | | <ul style="list-style-type: none"> • Discuss the bio-physiological aspects of ovulation and fertilization | Nice to know | C2 | | |

| | | | | | | | |
|-----------------------|--------------|---------------------------------------|---|--------------|----|------|----------------------------|
| | | | <ul style="list-style-type: none"> Focus on provision of curative and preventive health care services. | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Practice principles of bioethics | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Understand the curative and preventive health care measures. | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Read a relevant research article | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Use HEC digital library | Nice to know | C3 | | |
| Aatomy (Histology) | M1-FM-A-0011 | Intercellular Junctions and Adhesions | <ul style="list-style-type: none"> Enumerate different cell junctions | Must Know | C1 | LGIS | MCQ SAQ OSVE OSPE |
| | | | <ul style="list-style-type: none"> Describe histological structure of different cell junctions | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> Differentiate between different types of cell junctions on the basis of their function and clinical conditions. | Should Know | C4 | | |
| | | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Practice principles of bioethics | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Understand the curative and preventive health care measures. | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Read a relevant research article | Nice to know | C3 | | |
| | M1-FM-A-0012 | Glandular Epithelium | <ul style="list-style-type: none"> Define gland. | Must Know | C1 | LGIS | MCQ SAQ OSVE OSPE |
| | | | <ul style="list-style-type: none"> Compare between exocrine and endocrine glands with examples. | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> Classify glands on the basis of morphology, secretory product, and mode of secretion. | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> Understand the bio-physiological aspects of glands. | Should know | C2 | | |
| | | | <ul style="list-style-type: none"> Practice principles of bioethics. | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare. | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Understand the curative and preventive health care measures. | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Read a relevant research article | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> Use HEC digital library | | C3 | | |

| | | | | | | | | | |
|-----------------|--------------|---|---|--|----|-------------------------|----------------------------|--|--|
| | M1-FM-A-0039 | Stratified epithelium /Transitional Epithelium | <ul style="list-style-type: none"> Classify stratified epithelium. Illustrate different types of stratified epithelium Discuss functions of stratified epithelium Enlist sites of specific type of epithelium Identify epithelium under microscope Write two points of identification | Must Know | C1 | Skill lab Demonstration | OSPE | | |
| | | | <ul style="list-style-type: none"> Define axilla Describe its boundaries. Enumerate the Contents of axilla, (axillary artery with its branches, axillary vein and tributaries, axillary lymphatics, lymph nodes and brachial plexus). | Must Know | C1 | | | | |
| | | | <ul style="list-style-type: none"> Discuss functions of stratified epithelium Enlist sites of specific type of epithelium | Must Know | C2 | | | | |
| | | | <ul style="list-style-type: none"> Identify epithelium under microscope Write two points of identification | Must Know | C2 | | | | |
| | | | <ul style="list-style-type: none"> Define axilla Describe its boundaries. Enumerate the Contents of axilla, (axillary artery with its branches, axillary vein and tributaries, axillary lymphatics, lymph nodes and brachial plexus). | Must Know | C1 | | | | |
| | | | <ul style="list-style-type: none"> Write two points of identification | Should Know | P | | | | |
| Aantomy (Gross) | M1-FM-A-0023 | Axilla | <ul style="list-style-type: none"> Define axilla Describe its boundaries. Enumerate the Contents of axilla, (axillary artery with its branches, axillary vein and tributaries, axillary lymphatics, lymph nodes and brachial plexus). | Must Know | C2 | Skill lab SGD | MCQ SAQ OSVE OSPE | | |
| | | | <ul style="list-style-type: none"> Defend the involvement of axillary lymph nodes with different clinical condition | Should Know | C5 | | | | |
| | | | <ul style="list-style-type: none"> Practice principles of bioethics | Nice to Know | C3 | | | | |
| | | | <ul style="list-style-type: none"> Understand the curative and preventive health care measures | Nice to know | C3 | | | | |
| | | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare | Nice to Know | C3 | | | | |
| | | | <ul style="list-style-type: none"> Read a relevant research article | Nice to Know | C3 | | | | |
| | | | <ul style="list-style-type: none"> Use HEC digital library | Nice to Know | C3 | | | | |
| | | | | | | | | | |
| | M1-FM-A-0024 | Brachial Plexus | <ul style="list-style-type: none"> Describe the formation of brachial plexus its roots and trunks. | Must Know | C2 | Skill lab SGD | MCQ SAQ OSVE OSPE | | |
| | | | <ul style="list-style-type: none"> Analyze how the presentation of brachial plexus injuries varies with the level of injury. | Must Know | C4 | | | | |
| | | | <ul style="list-style-type: none"> Understand the curative and preventive health care measures | Nice to Know | C3 | | | | |
| | | | <ul style="list-style-type: none"> Practice principles of bioethics | Nice to Know | C3 | | | | |
| | | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare | Nice to Know | C3 | | | | |
| | | | <ul style="list-style-type: none"> Read a research article on brachial plexus | Nice to Know | C3 | | | | |
| | | <ul style="list-style-type: none"> Use HEC digital library | Nice to Know | C3 | | | | | |
| Anatomy (SDL) | M1-FM-A-0033 | Applied Anatomy of Axilla | <ul style="list-style-type: none"> Define axilla Describe its boundaries Enumerate the Contents of axilla, (axillary artery | <ul style="list-style-type: none"> ❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. Axilla (Chapter 3, Page 183-190,197,198). ❖ https://teachmeanatomy.info/ | | | | | |

| | | | | | | | | |
|---|--------------|---|---|--|----|----|-------------|--------------------|
| | | | with its branches, axillary vein and tributaries, axillary lymphatics, lymph nodes and brachial plexus). | https://www.youtube.com/watch?v=uSMugI_NNjC | | | | |
| | M1-FM-A-0034 | Erb's paralysis | <ul style="list-style-type: none"> Describe the formation of brachial plexus its roots and trunks. Describe the origin and root values of different nerves arising Able to read a research article on brachial plexus Able to use digital library | ❖ Clinical Oriented Anatomy by Keith L. Moore.8 TH Edition. Brachial plexus (Chapter 3, Page 191-196). https://www.youtube.com/watch?v=1qgqrXlpr1Y | | | | |
| | M1-FM-A-0035 | Klumpke's paralysis | <ul style="list-style-type: none"> Describe the different neurological deficits arising as a result of damaged to roots, trunks and branches of brachial plexus at different levels. Able to read a research article on brachial plexus | ❖ Clinical Oriented Anatomy by Keith L. Moore.8 TH Edition. Brachial plexus injuries (Chapter 3, Page 199-200). ❖ https://teachmeanatomy.info/ https://www.youtube.com/watch?v=c9giLkwyYA0 | | | | |
| Physiology (LGIS, SGD) | M1-FM-P-008 | Cell membrane Ion channels, Transport across the cell membrane: Diffusion | • Enlist various types of ion channels | Must Know | A | C1 | LGIS SGD | SAQ MCQ VIVA |
| | | | • Enumerate modes of transport mechanism across the cell membrane | Must know | A | C1 | | |
| | | | • Define and discuss factors affecting diffusion | Should know | B | C1 | | |
| | | | • Compare the energy systems used by different transport mechanism | Must Know | A | C4 | | |
| | M1-FM-P-009 | Transport across cell membrane: Osmosis | • Recall transport mechanism across the cell membrane with special emphasis on osmosis and osmotic pressure | Should Know | B | C1 | LGIS SGD | SAQ MCQ VIVA |
| | | | • Recall factors affecting osmosis | Should know | B | C1 | | |
| | | | • Comprehend the concept of moles and osmoles | Nice to know | C | C2 | | |
| | | | • Recall osmolarity of body fluids | Should know | B | C1 | | |
| | | | • Discuss tonicity | Should know | B | C2 | | |
| | | | • Discriminate concept of isotonic, hypertonic and hypotonic | Must Know | A | C4 | | |
| | M1-FM-P-0010 | Transport across cell membrane: Active transport I & II | • Define active transport | Must Know | A | C1 | LGIS SGD | SAQ MCQ VIVA |
| | | | • Classify active transport | Must know | A | C2 | | |
| • Comprehend various types of active transport with examples with special emphasis on Na-K pump | | | Must know | A | C2 | | | |

| | | | | | | | | |
|---|--|--|---|--------------|----|-------------|---------------------|---------------------|
| | M1-FM-P-0011 | Structure of nucleus and ribosomes, Cell Division | • Describe structure of nucleus and ribosome | Nice to know | C | C1 | LGIS PBL | SAQ MCQs VIVA |
| | | | • Discuss vaults | Nice to know | C | C2 | | |
| | | | • Understand basic concepts about DNA and | Should know | B | C2 | | |
| | | | • RNA | | | C1 | | |
| | | | • Compare various types of RNA and their functions | Must know | A | C4 | | |
| | | | • Enlist and Draw steps of mitosis and meiosis | Nice to know | C | C2 | | |
| | | | • Comprehend role of different parts of chain of DNA as genes like TATA box | Nice to know | C | C2 | | |
| | M1-FM-P-0012 | Genetics Transcription & Translation | • Define & Explain Genetics, Transcription & Translation | Must Know | A | C1 | LGIS PBL | SAQ MCQs VIVA |
| | | | • Describe Genetic control of protein synthesis | Must Know | A | C1 | | |
| | | | • Differentiate between apoptosis & Necrosis | Should know | B | C4 | | |
| Cellular control mechanism, Cell cycle, Programmed cell death | | • Describe different cellular control mechanisms regarding gene regulation | Should know | B | C1 | LGIS PBL | SAQ MCQs VIVA | |
| | • Explain Cell differentiation, apoptosis and cellular changes in cancer | Should know | B | C2 | | | | |
| Physiology (SGD) | M1-FM-P-0018 | Intracellular communication and cell junction, signal transduction | • Describe the structure and function of various intracellular connections | Must know | A | C1 | SGD | MCQ SAQ VIVA |
| | | | • Discuss second messenger system | | | C2 | | |
| | M1-FM-P-0017 | Transport across cell membrane | • Assess the effects of genetic mutations of cell junctions. | Must know | A | C4 | SGD | MCQ SAQ VIVA |
| | | | • Describe the structure of cell membrane | Must know | A | C1 | | |
| | | | • Enlist various ion channels | Must know | A | C1 | | |
| | | | • Discuss transport mechanism across the cell membrane with special emphasis on diffusion and osmosis | Must know | A | C2 | | |
| | | | • Compare primary and secondary active transport | Must know | A | C4 | | |
| • Explain the types of active transport | Must know | A | C2 | | | | | |
| Physiology (SKL) | M1-FM-P-0030 | Apparatus identification | • Be aware with the electrical connections of centrifuge machine and to control different speeds | Nice to know | C | P, A | Skill Lab | OSPE |

| | | | | | | | | |
|---------------------|-------------|--------------------------------------|--|--------------|----|------|---------------------------|--|
| | | (Introduction to centrifuge machine) | | | | | | |
| Biochemistry (LGIS) | M1-FM-B-010 | Nucleic Acid Chemistry-I | <ul style="list-style-type: none"> • Explain structure and biological importance of DNA, types of DNA | Must Know | C2 | LGIS | MCQ SAQ SEQ VIVA | |
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Nice to know | C3 | | | |
| | M1-FM-B-011 | Nucleic Acid Chemistry-II | <ul style="list-style-type: none"> • Explain structure, types and functions of RNA • Differentiate between DNA & RNA | Must Know | C2 | LGIS | MCQ SAQ SEQ VIVA | |
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Nice to know | C3 | | | |
| | M1-FM-B-012 | Replication | <ul style="list-style-type: none"> • Describe mechanism of replication of prokaryotes & Eukaryotes | Must Know | C2 | LGIS | MCQ SAQ SEQ VIVA | |
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Nice to know | C3 | | | |
| | M1-FM-B-013 | DNA damage & Repair | <ul style="list-style-type: none"> • Describe mechanism of DNA damage & Repair | Must Know | C2 | LGIS | MCQ SAQ SEQ VIVA | |
| | | | <ul style="list-style-type: none"> • Analyze the consequences of defective DNA repair mechanisms and correlate them with clinical disorders | Nice to Know | C4 | | | |

| | | | | | | | |
|-------------|---------------------------------|--|--|--------------|----|------|---------------------------|
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Nice to know | C3 | | |
| M1-FM-B-018 | Enzymes Introduction | | <ul style="list-style-type: none"> • Define Enzymes. | Should Know | C1 | LGIS | MCQ SAQ SEQ VIVA |
| | | | <ul style="list-style-type: none"> • Explain general functions of enzymes. | Should Know | C2 | | |
| | | | <ul style="list-style-type: none"> • Differentiate between coenzyme and cofactors | Must Know | C2 | | |
| M1-FM-B-019 | Classification of enzymes | | <ul style="list-style-type: none"> • Discuss different classes of Enzymes | Should Know | C2 | LGIS | MCQ SAQ SEQ VIVA |
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Nice to know | C3 | | |
| M1-FM-B-020 | Mechanism of enzyme action | | <ul style="list-style-type: none"> • Describe different mechanisms of enzyme action. | Should Know | C2 | LGIS | MCQ SAQ SEQ VIVA |
| M1-FM-B-021 | Properties of Enzymes | | <ul style="list-style-type: none"> • Elaborate the Properties of Enzymes such as specificity for substrate and stereo specificity. | Should Know | C2 | LGIS | MCQ SAQ SEQ VIVA |
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Nice to know | C3 | | |
| M1-FM-B-022 | Factors affecting Enzyme action | | <ul style="list-style-type: none"> • Discuss different factors which increase or decrease the activity of | Should Know | C2 | LGIS | MCQ SAQ |

| | | | | | | | |
|-----------------------|--------------------|---|--|---|------|-----------|---------------------------|
| | | | enzymes | | | | SEQ VIVA |
| | M1-FM-B-023 | MM Equation | <ul style="list-style-type: none"> • Explain Michaelis–Menten Kinetics. • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Must know | C2 | LGIS | MCQ SAQ SEQ VIVA |
| | | | | Nice to know | C3 | | |
| Biochemistry (SDL) | M1-FM-B-036 | Nucleotide Derivatives and their importance | <ul style="list-style-type: none"> • Explain the structure and nomenclature of nucleotides, biomedical importance of natural and synthetic analogues | <ul style="list-style-type: none"> • Lippincott’s Illustrated Reviews: Biochemistry, 8th edition (Chapter 22) https://youtu.be/SeOrvA9ikW8?si=T3p3hruJ_XW-8OEV | | | |
| | M1-FM-B-037 | Causes and Repair of DNA Damage | <ul style="list-style-type: none"> • Describe mechanism of DNA damage & repair • Apply knowledge of DNA repair mechanisms in related clinical cases | <ul style="list-style-type: none"> • Lippincott’s Illustrated Reviews: Biochemistry, 8th edition (Chapter 30) https://youtu.be/oRfK85gPAVA?si=b_x7lHqFH7hri02v https://youtu.be/EGexwTfwHjs?si=Lt_TpScDvAxUgidO | | | |
| Biochemistry (SKL) | M1-FM-B-042 | Physiochemical Aspects of Cell – Surface Tension and Emulsion | <ul style="list-style-type: none"> • Demonstrate mechanism of surface tension and emulsification | Should Know | P | Skill Lab | OSPE |
| Pathology | M1-FM-VI(Path)-006 | Irreversible Injury. Necrosis | <ul style="list-style-type: none"> • Define necrosis | C1 | LGIS | MCQ | |
| | | | <ul style="list-style-type: none"> • Enlist patterns/types with clinical examples | C1 | | | |
| | | | <ul style="list-style-type: none"> • Describe morphological changes (gross and microscopic) in necrosis | C2 | | | |

Multidisciplinary (Hardens Level 9) **Clinico-Concept Connect (C³6) Sessions for 4th Week**

| Session | Topic | Department | At the End of The Demonstration Student Should Be Able To | Learning Domain | Teaching Strategy | Assessment Tool |
|--|------------------------------------|--------------|--|-----------------|-------------------|-----------------|
| Clinico-Concept Connect (C ³ 6) Sessions -III | Disorder of Growth and Development | Anatomy, | <ul style="list-style-type: none"> • Explain the basic principles of human genetics (DNA, genes, chromosomes, and mutations) | C2 | LGIS | MCQ |
| | | | <ul style="list-style-type: none"> • Identify the anatomical consequences of genetic abnormalities leading to dysmorphic features and congenital malformations, during diagram-based questions and structured assessments. | C1 | LGIS | MCQ |
| | | Biochemistry | <ul style="list-style-type: none"> • Recognize common dysmorphic facial and bodily features in children and relate these features to underlying genetic and anatomical abnormalities (e.g., chromosomal aneuploidy, single-gene disorders) in image-based spotters or case vignettes, achieving correct identification in at least 3 out of 4 examples. | C2 | LGIS | MCQ |
| | | | <ul style="list-style-type: none"> • Classify genetic disorders according to inheritance patterns (autosomal dominant, autosomal recessive, and X-linked) and explain their biochemical and anatomical basis using simple clinical examples in written or oral assessments. | C2 | LGIS | MCQ |
| | | Padiatrics | <ul style="list-style-type: none"> • Apply basic principles of medical genetics to pediatric case scenarios, demonstrating integrated understanding of clinical presentation (Pediatrics), structural anomalies (Anatomy), and molecular defects (Biochemistry) by accurately analyzing structured case-based questions. | C3 | LGIS | MCQ |
| | | | <ul style="list-style-type: none"> • Demonstrate awareness of the importance of early diagnosis, genetic counseling, and prevention strategies in pediatric genetic disorders by appropriately responding to short clinical scenarios or reflective questions, highlighting the role of multidisciplinary care | C3 | LGIS | MCQ |

| | | | | | | |
|---|-------------|-------------------------|--|----|------|-----|
| | | Anatomy | <ul style="list-style-type: none"> Describe the gross anatomy, blood supply, nerve supply, and anatomical relationships of the male and female reproductive organs relevant to fertility. | C2 | LGIS | MCQ |
| | | | <ul style="list-style-type: none"> Explain the anatomical basis of infertility by correlating structural abnormalities of the male and female reproductive systems with impaired reproductive function | C2 | LGIS | MCQ |
| Clinico-Concept Connect (C ³ 6) Sessions -IV | Infertility | Physiology, | <ul style="list-style-type: none"> Describe the normal physiological regulation of the male and female reproductive systems, including the hypothalamic-pituitary-gonadal axis, and relate it to normal fertility. | C2 | LGIS | MCQ |
| | | | <ul style="list-style-type: none"> Explain the physiological basis of ovulation, spermatogenesis, fertilization, and implantation, highlighting how disruption at any level can lead to infertility. | C2 | LGIS | MCQ |
| | | | <ul style="list-style-type: none"> Classify infertility into primary and secondary types and outline common physiological and gynecological causes using simple clinical correlations. | C2 | LGIS | MCQ |
| | | Gynecology & Obstetrics | <ul style="list-style-type: none"> Correlate menstrual cycle physiology and hormonal patterns with common ovulatory disorders leading to female infertility. | C3 | LGIS | MCQ |
| | | | <ul style="list-style-type: none"> Identify basic male and female factors contributing to infertility and relate them to underlying physiological dysfunctions (e.g., hormonal imbalance, anovulation, impaired spermatogenesis). | C1 | LGIS | MCQ |
| | | | <ul style="list-style-type: none"> Apply fundamental concepts of reproductive physiology to simple clinical scenarios of infertility, demonstrating early integration of physiology with gynecological practice. | C3 | LGIS | MCQ |
| | | | | | | |

Theme 5: From Molecules to Medicine: Clinical Applications of Molecular Biology and Genetics (5th Week)

| Themes | Rationale | General learning Objectives |
|--|---|--|
| <p>From Molecules to Medicine: Clinical Applications of Molecular Biology and Genetics</p> | <p>This theme translates foundational knowledge of molecular biology and genetics into a clinical context, enabling students to understand how molecular mechanisms underpin health and disease. Building on earlier themes related to genetics, cell division, and human development, this week integrates biochemistry, anatomy, physiology, pathology, and clinical disciplines to demonstrate how alterations at the molecular level result in disease processes. Key concepts such as gene expression, enzyme regulation, molecular signaling, and genetic variation are correlated with clinical conditions including metabolic disorders, genetic diseases, infertility, and cancer, as outlined in the timetable. The inclusion of applied anatomy, pathology, and early clinical exposure emphasizes the relevance of molecular mechanisms in diagnosis, prognosis, and therapeutic decision-making. Overall, this theme bridges the gap between basic molecular sciences and clinical medicine, fostering early clinical reasoning and preparing students for evidence-based and precision medicine in later phases of the MBBS curriculum.</p> | <p>By the end of this theme, the student will be able to:</p> <ul style="list-style-type: none"> • Explain the molecular basis of gene expression, including transcription, translation, and regulation of enzymes. • Describe the role of enzymes, cofactors, and inhibitors in normal metabolic processes and disease states. • Correlate molecular and genetic abnormalities with common clinical conditions such as metabolic disorders, infertility, and cancer. • Understand basic molecular mechanisms underlying inherited and acquired genetic diseases. • Apply principles of molecular biology and genetics to interpret simple clinical and laboratory scenarios. • Appreciate the relevance of molecular medicine in diagnosis, prognosis, and therapeutic decision-making. |
| <p>Case based discussion for Multi-Disciplinary Clinico concept connect session C³⁶ (Anatomy, Biochemistry, Medicine & Surgery)</p> <p>Case 4</p> <p>A 22-year-old woman presents to the outpatient clinic with complaints of progressive fatigue, muscle weakness, and episodes of dizziness, especially after prolonged fasting. She reports difficulty in tolerating exercise and occasionally experiences nausea. There is no history of fever, infection, or chronic illness. Her family history reveals that one of her siblings has a similar condition.</p> <p>On physical examination, the patient appears thin but alert. Vital signs are stable. Mild muscle weakness is noted on neurological examination. No organomegaly or lymphadenopathy is present.</p> <p>Initial laboratory investigations show low fasting blood glucose levels with otherwise normal electrolytes. Further biochemical analysis reveals reduced activity of a key metabolic enzyme involved in glucose metabolism. Molecular studies demonstrate a mutation affecting the gene responsible for encoding this enzyme, leading to impaired enzyme function</p> <p>Laboratory and Molecular Investigations</p> <p>Fasting Blood Glucose: Decreased Serum Electrolytes: Within normal limits Liver Function Tests: Normal Enzyme Activity Assay: Reduced activity of a glucose-metabolizing enzyme Genetic Analysis: Point mutation in the gene encoding the enzyme</p> | | |

Family Screening: Similar mutation identified in sibling

Educational Relevance to Theme

This case illustrates how alterations at the molecular and genetic level directly lead to clinical disease, emphasizing the application of molecular biology concepts such as gene expression, enzyme regulation, and genetic mutations in understanding patient presentations. It highlights the transition from basic molecular mechanisms to clinical medicine, reinforcing the importance of molecular diagnostics and personalized treatment approaches.

4. Transdisciplinary Integration (Harden Level 11)

Scenario 4: Molecular Basis of Metabolic Dysfunction

How this case fits

At the multidisciplinary level, this case of a young woman presenting with fasting hypoglycemia, exercise intolerance, and familial occurrence of disease is explored by multiple disciplines working in parallel, each addressing the same patient problem from its own disciplinary perspective. The case facilitates integration of molecular genetics, enzyme function, anatomical considerations, and clinical management while maintaining distinct disciplinary identities.

Disciplines involved

Anatomy: Structural and functional aspects of organs involved in glucose metabolism, particularly liver and skeletal muscle

Biochemistry: Enzyme kinetics, metabolic pathways of glucose utilization, and the impact of genetic mutations on enzyme activity

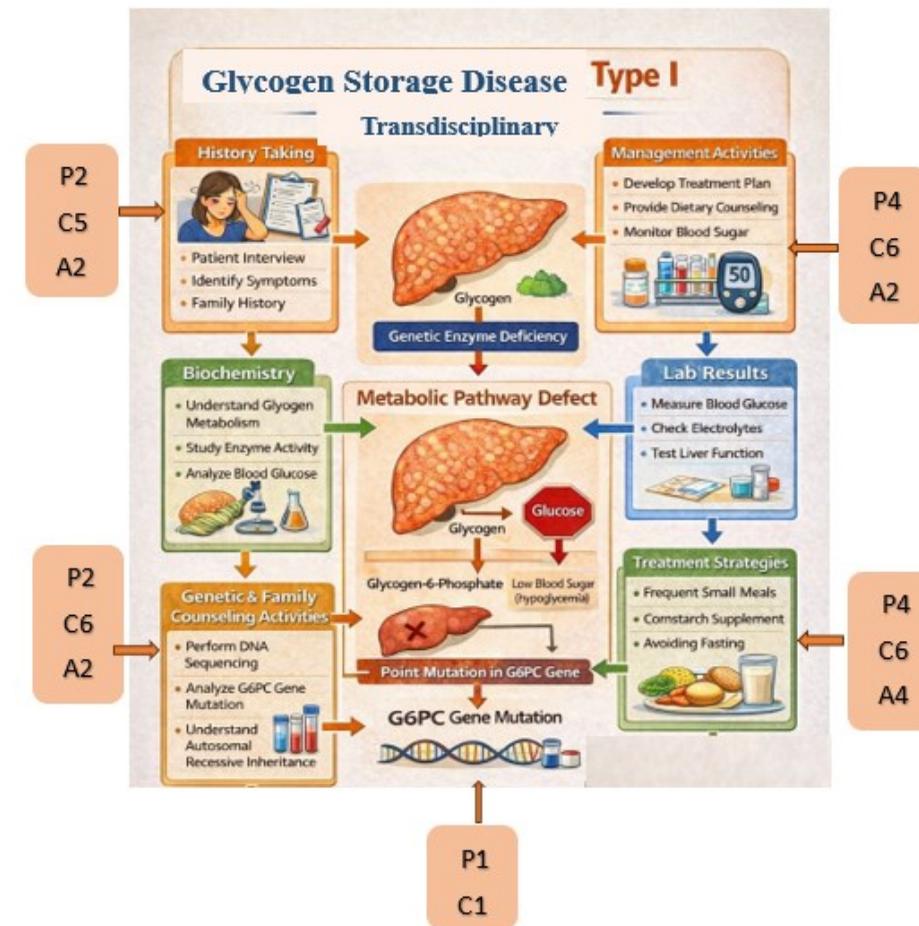
Medicine: Clinical presentation, diagnostic interpretation of hypoglycemia, and correlation with inherited metabolic disorders

Surgery: Role in diagnostic evaluation (e.g., biopsy where indicated), perioperative metabolic considerations, and contribution to multidisciplinary management

Justification

Each discipline independently evaluates the same clinical problem of inherited metabolic dysfunction, reinforcing molecular and biochemical concepts underlying the disease without merging disciplinary content. The parallel and complementary contributions of Anatomy, Biochemistry, Medicine, and Surgery align with the defining features of multidisciplinary integration as described in Harden Level 9, where integration occurs through coordinated understanding rather than content fusion.

Theme 5 Clinico Concept Connect Session C³⁶



Harden Level 11 Transdisciplinary

Specific Learning Objectives

| Theory | | | | | | | |
|-------------------------|--------------|--|---|----------------------|-------------------------|--------------------------|----------------------------|
| Subject | Code | Demonstration/Dissection | At the End of the Demonstration Student Should Be Able To | Calgary Gauge | Learning Domains | Teaching Strategy | Assessment Tool |
| Anatomy (Embryology) | M1-FM-A-007 | Cleavage and Formation of Blastocyst | • Define cleavage | Must Know | C1 | LGIS | MCQ SAQ OSVE OSPE |
| | | | • Define compaction | Must Know | C1 | | |
| | | | • Describe blastocyst formation | Must Know | C2 | | |
| | | | • Understand the bio-physiological aspects of cleavage and blastocyst | Must Know | C2 | | |
| | | | • Compare different clinical conditions associated with cleavage and blastocyst formation | Should Know | C4 | | |
| | | | • Apply the strategic use of artificial intelligence in healthcare | Nice to know | C3 | | |
| | | | • Understand the curative and preventive health care measures. | Nice to know | C3 | | |
| | | | • Practice principles of bioethics | Nice to know | C3 | | |
| | | | • Read a relevant research article | Nice to know | C3 | | |
| | | | • Use HEC digital library | Nice to know | C3 | | |
| Anatomy (Histology) | M1-FM-A-0013 | Development and Histology of Mammary Gland | • Describe the Sources of development of mammary gland | Must Know | C2 | LGIS | MCQ SAQ OSVE OSPE |
| | | | • Discuss the ultra structure of mammary gland | Must Know | C2 | | |
| | | | • Relate different stages of activity of mammary gland with its histological structure | Must Know | C3 | | |
| | | | • Understand the bio-physiological aspects of mammary gland | Should Know | C1 | | |
| | | | • Correlate clinical conditions of mammary glands. | Should Know | C2 | | |
| | | | • Practice principles of bioethics | Nice to know | C3 | | |
| | | | • Apply the strategic use of artificial intelligence in healthcare | Nice to know | C3 | | |
| | | | • Understand the curative and preventive health care measures. | Nice to know | C3 | | |
| | | | • Read a relevant research article | Nice to know | C3 | | |
| | | | • Use HEC digital library | Nice to know | C2 | | |

| | | | | | | | |
|--------------------|--------------|--------------------------|---|--------------|----|------------------|------------------------------------|
| | M1-FM-A-0040 | Mammary gland | <ul style="list-style-type: none"> • Illustrate the different stages of activity of mammary gland • Identify the slides of different stages of mammary gland | Must Know | C2 | Skill Lab | OSPE |
| | | | | Should Know | P | | |
| Anatomy (Gross) | M1-FM-A-0025 | Brachial Plexus Injuries | <ul style="list-style-type: none"> • Defend the different neurological deficits arising as a result of damaged to roots, trunks and branches of brachial plexus at different levels. | Must Know | C5 | SGD | MCQ SAQ OSVE OSPE OSCE |
| | | | <ul style="list-style-type: none"> • Differentiate the clinical conditions on the basis of the level of injury and presentation of patient. | Must Know | C4 | | |
| | | | <ul style="list-style-type: none"> • Read a research article on brachial plexus | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> • Understand the curative and preventive health care measures | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> • Practice principles of bioethics | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> • Read a relevant research article | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> • Use HEC digital library | Nice to know | C3 | | |
| | M1-FM-A-0026 | Breast | <ul style="list-style-type: none"> • Describe the extent of breast | Must Know | C2 | Skill lab SGD | MCQ SAQ OSVE OSPE |
| | | | <ul style="list-style-type: none"> • Describe the relations of breast | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> • Describe structure of gland. | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> • Discuss the blood supply, venous drainage and lymphatics. | Must Know | C2 | | |
| | | | <ul style="list-style-type: none"> • Defend the diagnosis of breast carcinoma on the basis of clinical picture and lymphatic spread. | Should know | C5 | | |
| | | | <ul style="list-style-type: none"> • Discuss congenital anomalies of breast | Should know | C3 | | |
| | | | <ul style="list-style-type: none"> • Practice principles of bioethics | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> • Understand the curative and preventive health care measures | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> • Read a relevant research article | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare | Nice to Know | | | |
| | | | <ul style="list-style-type: none"> • Use HEC digital library | Nice to know | C3 | | |

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|------------------|--------------|---|--|---|----|-----|------------------------------------|
| | M1-FM-A-0027 | Sternoclavicular and acromioclavicular joints | <ul style="list-style-type: none"> Classify joints and discuss the attachment of capsule and ligaments and discuss the different movement on these joints along with muscles involved in these movements. Describe neurovascular supply. Understand the curative and preventive health care measures Practice principles of bioethics Apply the strategic use of artificial intelligence in healthcare Read a relevant research article Use HEC digital library | Must Know | C2 | SGD | MCQ SAQ OSVE OSPE |
| | | | | Must Know | C2 | | |
| | | | | Nice to know | C3 | | |
| | | | | Nice to know | C3 | | |
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| | | | | Nice to know | C3 | | |
| | M1-FM-A-0028 | Surface Anatomy & Radiology | <ul style="list-style-type: none"> Discuss the surface anatomy of axioappendicular region. Create videos of marking of clinically important landmarks on the simulated patient/ models. Interpret the normal radiologic appearance of bones in axioappendicular region. Apply the strategic use of artificial intelligence in healthcare Practice principles of bioethics Understand the curative and preventive health care measures Read a relevant research article Use HEC digital library | Must Know | C2 | SGD | MCQ SAQ OSVE OSPE OSCE |
| | | | | Must know | C6 | | |
| | | | | Must Know | C3 | | |
| | | | | Nice to know | C3 | | |
| | | | | Nice to know | C3 | | |
| | | | | Nice to know | C3 | | |
| | | | | Nice to know | C3 | | |
| | | | | Nice to know | C3 | | |
| Anatomy (SDL) | M1-FM-A-0036 | Carcinoma of Breast | <ul style="list-style-type: none"> Describe the extent of breast Describe the relations of breast Describe structure of gland. Discuss related clinical | <ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. Breast (Chapter 4, Page 315-318,323-326). https://www.youtube.com/watch?v=OW0qQnT5GoA | | | |
| Physiology (SDL) | M1-FM-P-0017 | Transport across cell membrane | <ul style="list-style-type: none"> Describe the physiological significance of Apoptosis and necrosis. – Cellular control mechanism and cell cycle. | Should know | C3 | SGD | MCQ SAQ |
| | M1-FM-P 0024 | Genetics, Transcription and Translation | <ul style="list-style-type: none"> Building blocks of DNA Genetic code Process of transcription and translation Types of RNA | <ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition, General principles and Energy production in Medical Physiology (Chapter01, Page63) | | | |

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| | | | <ul style="list-style-type: none"> Cell division | <ul style="list-style-type: none"> Textbook of Medical Physiology by Guy ton & Hall.14th Edition. (Section01, Chapter03, Page31) | | | | |
| | M1-FM-P-0026 | Transport across cell membrane and its various types (osmosis, diffusion, primary and secondary active transport) | <ul style="list-style-type: none"> Types of transport across cell membrane Diffusion and osmosis Concept of gating of channels Primary active transport Secondary active transport | <ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition, Overview of Cellular Physiology in 107 Medical Physiology (Chapter02, Page45) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Membrane dynamics chapter 5, page 160 Physiology by Linda S. Costanzo 6th Edition. Cellular physiology, chapter 1, page 5 Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Properties and functions of cell membrane, chapter 2, page 18 Textbook of Medical Physiology by Guyton & Hall.14th Edition. Membrane Physiology. (Section02, Chapter04, Page51) | | | | |
| | M1-FM-P-0030 | Apparatus identification (Introduction to centrifuge machine) | <ul style="list-style-type: none"> Be aware with the electrical connections of centrifuge machine and to control different speeds | Nice to know | C | P, A | Skill Lab | OSPE |
| Biochemistry (LGIS) | M1-FM-B-014 | Transcription | <ul style="list-style-type: none"> Describe mechanism of Transcription of prokaryotes & Eukaryotes | Must Know | C2 | LGIS | MCQ SAQ SEQ VIVA | |
| | | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare Practice principles of bioethics Understand the curative and preventive health care measure Read relevant research articles Use HEC digital library | Nice to know | C3 | | | |
| | M1-FM-B-015 | Translation | <ul style="list-style-type: none"> Discuss genetic code | Must Know | C2 | LGIS | MCQ SAQ SEQ VIVA | |
| | | | <ul style="list-style-type: none"> Differentiate the mechanisms of action of antibiotics acting at various stages of protein synthesis (translation) | Should Know | C4 | | | |
| | | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare Practice principles of bioethics Understand the curative and preventive | Nice to know | C3 | | | |

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| | | | <ul style="list-style-type: none"> health care measure • Read relevant research articles • Use HEC digital library | | | | |
| M1-FM-B-016 | Mutation | <ul style="list-style-type: none"> • Describe different types of mutations with examples | Should Know | C2 | LGIS | MCQ SAQ SEQ VIVA | |
| | | <ul style="list-style-type: none"> • Differentiate the effects of frameshift mutations from point mutations on the reading frame and protein synthesis. | Should Know | C4 | | | |
| | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Nice to know | C3 | | | |
| M1-FM-B-017 | Recombinant DNA/ PCR (Polymerase Chain Reaction) | <ul style="list-style-type: none"> • Define PCR | Should Know | C1 | LGIS | MCQ SAQ SEQ VIVA | |
| | | <ul style="list-style-type: none"> • Apply the steps of PCR to amplify a specific DNA sequence for diagnostic or research purposes c3 | Should Know | C3 | | | |
| | | <ul style="list-style-type: none"> • Discuss Recombinant DNA technology | Must Know | C2 | | | |
| | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Nice to know | C3 | | | |
| M1-FM-B-024 | Enzyme inhibitors | <ul style="list-style-type: none"> • Describe enzyme inhibitors. | Must Know | C2 | LGIS | MCQ SAQ SEQ VIVA | |
| | | <ul style="list-style-type: none"> • Differentiate competitive, non-competitive, and uncompetitive enzyme inhibition based on their effects on K_m, V_{max}, and Lineweaver–Burk plots. | Must Know | C4 | | | |
| | | <ul style="list-style-type: none"> • Justify the choice of a competitive or irreversible inhibitor in the treatment of a specific metabolic disorder | Should Know | C5 | | | |

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| | M1-FM-B-025 | Enzyme Regulation | <ul style="list-style-type: none"> • Explain enzyme regulation | Must Know | C2 | LGIS | MCQ SAQ SEQ VIVA |
| | | | <ul style="list-style-type: none"> • Explain how the activity of the regulatory enzymes can be modulated for benefit of body | Should Know | C2 | | |
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Nice to know | C3 | | |
| | M1-FM-B-026 | Diagnostic role of Enzymes | <ul style="list-style-type: none"> • Compare enzyme profiles in myocardial infarction, skeletal muscle injury, and liver disease | Must Know | C4 | LGIS | MCQ SAQ SEQ VIVA |
| | | | <ul style="list-style-type: none"> • Justify the selection of specific enzymes for monitoring disease progression or therapeutic response. | Should Know | C5 | | |
| | | | <ul style="list-style-type: none"> • Interpret the role of Enzyme as medicine and their effects on body. | Nice to know | C3 | | |
| | | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Understand the curative and preventive health care measure • Read relevant research articles • Use HEC digital library | Nice to know | C3 | | |
| | Biochemistry (SDL) | M1-FM-B-038 | Clinical Applications of PCR & Recombinant DNA Technology | <ul style="list-style-type: none"> • Define PCR | <ul style="list-style-type: none"> ❖ Lippincott's Illustrated Reviews: Biochemistry, 8th edition (Chapter 34) ❖ https://youtu.be/iQsu3Kz9NYo?si=c0wEVtwTfUJMN7Z ❖ https://youtu.be/OpU_CQ0pFyQ?si=zyQ0d530Op9Af-BS | | |
| <ul style="list-style-type: none"> • Explain mechanism and indications of PCR | | | | | | | |
| | | <ul style="list-style-type: none"> • Discuss Recombinant DNA technology | | | | | |
| | M1-FM-B-039 | Diagnostics Role of Enzyme | <ul style="list-style-type: none"> • Interpret the role of Enzyme in diagnosis and their effects on body. | <ul style="list-style-type: none"> ❖ Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9th edition (Chapter 06 page 169) ❖ Lippincott Illustrated reviews of biochemistry 8th edition (Chapter 05 page 69) | | | |

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| | | | | ❖ https://youtu.be/1OWiw8olxwQ?si=GMgOchRdpKCCPDjB | | | |
| Biochemistry (SKL) | M1-FM-B-043 | Physiochemical aspects of cell-Adsorption & Tonicity | • Demonstrate effects of solutions of different tonicity on red cells (isotonic, hypotonic and hypertonic) | Should Know | P | Skill Lab | OSPE |
| | | | • Illustrate process of adsorption. | Should Know | P | | |
| Pathology | M1-FM-VI(Path)-008 | Genetic Disorders | • Classify human genetic disorders | C1 | | LGIS | MCQs |
| | | | • Define mutation | C1 | | | |
| | | | Define the following inheritance pattern: <ul style="list-style-type: none"> • Autosomal dominant • Autosomal recessive • X-linked | C1 | | | |
| | | | • Describe diseases associated with consanguineous marriages | C1 | | | |
| | | | • Correlate anatomical structures of the breast with common patterns of tumor spread, particularly lymphatic spread to axillary lymph nodes. | C3 | | LGIS | MCQs |
| | | | • Identify common risk factors and early warning signs of breast carcinoma, emphasizing the importance of early detection and screening. | C1 | | LGIS | MCQs |
| | | | • Relate basic pathological changes in breast tissue to clinical presentation, such as lump formation, skin changes, and nipple involvement. | C3 | | LGIS | MCQs |
| | | | • Demonstrate awareness of the principles of prevention, early diagnosis, and multidisciplinary management of breast cancer, highlighting the relevance of anatomy and pathology in surgical decision-making. | C3 | | LGIS | MCQs |

Transdisciplinary (Hardens Level 11) Clinico-Concept Connect (C³6) Sessions for 5th Week

| Session | Topic | Department | At the End of The Demonstration Student Should Be Able To | Learning Domain | Teaching Strategy | Assessment Tool |
|--|--|--------------------|---|-----------------|-------------------|-----------------|
| Clinico-Concept Connect (C ³ 6) Sessions -V | Carcinoma of Breast (CA Breast) | Anatomy, | <ul style="list-style-type: none"> Describe the normal gross and microscopic anatomy of the breast, including lobes, ducts, lymphatic drainage, and blood supply, relevant to the spread of breast carcinoma. | C2 | LGIS | MCQs |
| | | | <ul style="list-style-type: none"> Explain the basic pathological basis of carcinoma of the breast, including the concept of benign versus malignant tumors and common histological types at an introductory level. | C2 | LGIS | MCQs |
| | | Surgery | <ul style="list-style-type: none"> Correlate anatomical structures of the breast with common patterns of tumor spread, particularly lymphatic spread to axillary lymph nodes. | C3 | LGIS | MCQs |
| | | | <ul style="list-style-type: none"> Identify common risk factors and early warning signs of breast carcinoma, emphasizing the importance of early detection and screening. | C1 | LGIS | MCQs |
| | | Pathology | <ul style="list-style-type: none"> Relate basic pathological changes in breast tissue to clinical presentation, such as lump formation, skin changes, and nipple involvement. | C3 | LGIS | MCQs |
| | | Community Medicine | <ul style="list-style-type: none"> Demonstrate awareness of the principles of prevention, early diagnosis, and multidisciplinary management of breast cancer, highlighting the relevance of anatomy and pathology in surgical decision-making. | C3 | LGIS | MCQs |
| Clinico-Concept Connect (C ³ 6) Sessions -VI | Molecular Basis of Inherited Metabolic Dysfunction | Anatomy | <ul style="list-style-type: none"> Describe the anatomical structures of organs involved in glucose metabolism, particularly liver and skeletal muscle. | C1 | LGIS | MCQs |
| | | | <ul style="list-style-type: none"> Correlate muscle weakness and exercise intolerance with anatomical sites affected by impaired glucose metabolism. | C3 | LGIS | MCQs |
| | | Biochemistry | <ul style="list-style-type: none"> Explain how genetic mutations alter enzyme structure and function leading to metabolic dysfunction. | C2 | LGIS | MCQs |
| | | | <ul style="list-style-type: none"> Interpret biochemical and molecular investigations in a patient with inherited enzyme deficiency. | C3 | LGIS | MCQs |
| | | Medicine | <ul style="list-style-type: none"> Explain perioperative metabolic considerations in patients with inherited enzyme deficiencies. | C2 | LGIS | MCQs |
| | | Surgery | <ul style="list-style-type: none"> Explain perioperative metabolic considerations in patients with inherited enzyme deficiencies. | C2 | LGIS | MCQs |
| <ul style="list-style-type: none"> Apply principles of multidisciplinary management when surgical intervention or diagnostic procedures are required. | C3 | | LGIS | MCQs | | |

Anatomy LGIS Syllabus of Learning Management System (LMS)

| Theory | | | | |
|---|---|--|----------------------------|--|
| Code | Topic | Learning Objectives At the End of One Hour the Lecture the Student Should Be Able To | Learning Domain | Learning Resources |
| M1-FM-A-0041 | Introduction to General Anatomy | <ul style="list-style-type: none"> • Define the term Anatomy and its various branches | C1 | <ol style="list-style-type: none"> 1. Clinically Oriented Anatomy by Keith Moore 9th edition. 2. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III |
| | | <ul style="list-style-type: none"> • Define different terminologies related to Anatomy | C1 | |
| | | <ul style="list-style-type: none"> • Describe different Anatomical planes and directions in relation to anatomical position | C2 | |
| | | <ul style="list-style-type: none"> • Elaborate different phases in life span of man | C2 | |
| | | <ul style="list-style-type: none"> • Define basic tissues of human body | C1 | |
| | | <ul style="list-style-type: none"> • Discuss general outlines and functions of basic tissues | C2 | |
| | | <ul style="list-style-type: none"> • Describe formation of different systems of body | C2 | |
| | | <ul style="list-style-type: none"> • Understand the curative and preventive health care measures. | C3 | |
| | | <ul style="list-style-type: none"> • Practice the principles of bioethics | C3 | |
| | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare | C3 | |
| | | <ul style="list-style-type: none"> • Read relevant research article | C3 | |
| <ul style="list-style-type: none"> • Use HEC digital library | C3 | | | |
| Embryology | | | | |
| M1-FM-A-0042 | Introduction to Human Development | <ul style="list-style-type: none"> • Discuss significance and importance of studying Embryology. | C2 | <ol style="list-style-type: none"> 1. Clinically Oriented Anatomy by Keith Moore 9th edition. 2. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III |
| | | <ul style="list-style-type: none"> • Define different terminologies to describe developmental stages. | C1 | |
| | | <ul style="list-style-type: none"> • Describe series of critical events that take place during embryonic development. | C2 | |
| | | <ul style="list-style-type: none"> • Appreciate difference between embryonic and fetal period. | C2 | |

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| | | <ul style="list-style-type: none"> • Discuss common chromosomal abnormalities. | C2 | |
| | | <ul style="list-style-type: none"> • Understand the curative and preventive health care measures. | C3 | |
| | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare. | C3 | |
| | | <ul style="list-style-type: none"> • Practice principles of bioethics | C3 | |
| | | <ul style="list-style-type: none"> • Use HEC digital library. | C3 | |
| | | <ul style="list-style-type: none"> • Read relevant research article. | C3 | |
| M1-FM-A-0043 | Oogenesis | <ul style="list-style-type: none"> • Discuss role of female hormones during oogenesis | C2 | <ol style="list-style-type: none"> 1. Clinically Oriented Anatomy by Keith Moore 9th edition. 2. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III |
| | | <ul style="list-style-type: none"> • Describe different stages of oogenesis | C2 | |
| | | <ul style="list-style-type: none"> • Correlate clinical aspects of gametogenesis | C3 | |
| | | <ul style="list-style-type: none"> • To understand the bio-physiological aspects of gametogenesis | C2 | |
| | | <ul style="list-style-type: none"> • Understand the curative and preventive health care measures. | C3 | |
| | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare | C3 | |
| | | <ul style="list-style-type: none"> • Practice the principles of bioethics | C3 | |
| | | <ul style="list-style-type: none"> • Use HEC digital library | C3 | |
| M1-FM-A-0044 | Spermatogenesis | <ul style="list-style-type: none"> • Define spermatogenesis. | C1 | <ol style="list-style-type: none"> 1. Clinically Oriented Anatomy by Keith Moore 9th edition. 2. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III |
| | | <ul style="list-style-type: none"> • Describe different phases of spermatogenesis | C2 | |
| | | <ul style="list-style-type: none"> • Discuss stages of spermiogenesis | C2 | |
| | | <ul style="list-style-type: none"> • Elaborate functions of male hormones during spermatogenesis | C2 | |
| | | <ul style="list-style-type: none"> • Understand the curative and preventive health care measures. | C3 | |
| | | <ul style="list-style-type: none"> • Practice the principles of bioethics | C3 | |
| | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare | C3 | |
| | | <ul style="list-style-type: none"> • Able to read a relevant research article | C3 | |
| | | <ul style="list-style-type: none"> • Use HEC digital library | C3 | |

Anatomy SGDs Syllabus of Learning Management System (LMS)

| Code | Demonstration/Dissection | At the End of The Demonstration Student Should Be Able To | Learning Domains | Learning Resources |
|--------------|--|--|------------------|--|
| M1-FM-A-0045 | Anatomicomedical Terminology I (Anatomical Position and Planes) | <ul style="list-style-type: none"> • Describe different anatomical planes of human body and correlate with radiological anatomy • Demonstrate anatomical position of human body | C2 | Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. |
| | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare • Practice principles of bioethics • Read a relevant research article | P C3 C3 | |
| | | <ul style="list-style-type: none"> • Define different terms related to body parts | C1 | |
| | | <ul style="list-style-type: none"> • Describe axis of movement | C2 | |
| M1-FM-A-0046 | Anatomicomedical Terminology -II (Anatomical Terms and Axis of Movements) | <ul style="list-style-type: none"> • Demonstrate axis of movement | P | Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. |
| | | <ul style="list-style-type: none"> • Strategic use of artificial intelligence in healthcare | C3 | |
| | | <ul style="list-style-type: none"> • Focus on provision of curative and preventive health care services | C3 | |
| | | <ul style="list-style-type: none"> • Practice principles of bioethics | C3 | |
| | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare | C3 | |
| | | <ul style="list-style-type: none"> • Understand the curative and preventive health care measures. | C3 | |
| | | <ul style="list-style-type: none"> • Read a relevant research article | C3 | |
| | | <ul style="list-style-type: none"> • Use HEC digital library | C3 | |
| | | <ul style="list-style-type: none"> • Define cell | C1 | |
| | | <ul style="list-style-type: none"> • Define tissue | C1 | |
| M1-FM-A-0047 | Anatomicomedical Terminology -III (Cell and Tissues) | <ul style="list-style-type: none"> • Describe basic tissues of human body | C2 | Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. |
| | | <ul style="list-style-type: none"> • Practice principles of bioethics | C3 | |
| | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare | C3 | |
| | | <ul style="list-style-type: none"> • Understand the curative and preventive health care services | C3 | |
| | | <ul style="list-style-type: none"> • Read a relevant research article | C3 | |
| | | <ul style="list-style-type: none"> • Use digital library | C3 | |

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|--------------|---|--|--------|--|
| M1-FM-A-0048 | Anatomicomedical Terminology-IV (Skin and Body Systems) | • Describe general organization of different systems of body | C2 | Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. |
| | | • Discuss concepts of skin and fascia | C2 | |
| | | • Describe the classification of blood vessels | C2 | |
| | | • Describe the concepts of divisions of nervous system | C1 | |
| | | • Describe the formation of spinal nerve | C2 | |
| | | • Practice principles of bioethics | C3 | |
| | | • Understand the curative and preventive health care measures. | C3 | |
| | | • Read a relevant research article • Apply strategic use of artificial intelligence in healthcare | C3 | |
| | | • Use HEC digital library | C3 | |
| M1-FM-A-0049 | Clavicle | • Determine the side | C2 | Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. |
| | | • Demonstrate anatomical position, general features, attachments and articulations (medial and lateral). | P | |
| | | • Describe Intramembranous development and cleido-cranial dysostosis. | C3 | |
| | | • Elaborate pectoral girdle formation movement and dislocation. | C3 | |
| | | • Describe ossification in detail and Fracture Of clavicle. | C2, C3 | |
| | | • Practice principles of bioethics | C3 | |
| | | • Apply the strategic use of artificial intelligence in healthcare | C3 | |
| | | • Understand the curative and preventive health care measures. | C3 | |
| | | • Use HEC digital library • Read a relevant research article | C3 | |
| M1-FM-A-0050 | Scapula | • Determine the side | C2 | |
| | | • Demonstrate anatomical position, general features, attachments, and articulation. (clavicle and shoulder joints) | P | |

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| | | <ul style="list-style-type: none"> Describe scapular anastomosis and its clinical significance | C3 | Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. |
| | | <ul style="list-style-type: none"> Demonstrate Scapular movements. | P | |
| | | <ul style="list-style-type: none"> Practice principles of bioethics | C3 | |
| | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare | C3 | |
| | | <ul style="list-style-type: none"> Focus on provision of curative and preventive health care services | C3 | |
| | | <ul style="list-style-type: none"> Use HEC digital library. | C3 | |
| | | <ul style="list-style-type: none"> Read a relevant research article | C3 | |
| M1-FM-A-0051 | Humerus | <ul style="list-style-type: none"> Determine the side | C2 | Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. |
| | | <ul style="list-style-type: none"> Demonstrate anatomical position, general features, attachments and articulation (shoulder and elbow). | P | |
| | | <ul style="list-style-type: none"> Describe the importance of anatomical and surgical neck of humerus | C2 | |
| | | <ul style="list-style-type: none"> Correlate axillary, radial, median and ulnar nerve damage with respect to various fractures of humerus. | C2 | |
| | | <ul style="list-style-type: none"> Describe Significance of bicipital groove, angle of humeral torsion and carrying angle | C2 | |
| | | <ul style="list-style-type: none"> Discuss Ossification and fractures | C3 | |
| | | <ul style="list-style-type: none"> Understand the curative and preventive health care measures. | C3 | |
| | | <ul style="list-style-type: none"> Apply the strategic use of artificial intelligence in healthcare | C3 | |
| | | <ul style="list-style-type: none"> Practice principles of bioethics | C3 | |
| | | <ul style="list-style-type: none"> Use HEC digital library | C3 | |
| | | <ul style="list-style-type: none"> Read a relevant research article | C3 | |
| M1-FM-A-0052 | Anterior Axioappendicular Region | <ul style="list-style-type: none"> Describe Superficial fascia with cutaneous nerve and vessels of anterior axioappendicular region and tabulate muscles of the anterior axioappendicular region | C2 | Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. |
| | | <ul style="list-style-type: none"> Understand the bio-physiological aspects of anterior axioappendicular region. | C1 | |

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|--------------|------------------------------------|---|----|--|
| | | <ul style="list-style-type: none"> • Strategic use of artificial intelligence in healthcare | C3 | |
| | | <ul style="list-style-type: none"> • Understand the curative and preventive health care measures • Practice principles of bioethics | C3 | |
| | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare | C3 | |
| | | <ul style="list-style-type: none"> • Use HEC digital library | C3 | |
| | | <ul style="list-style-type: none"> • Read a relevant research article | C3 | |
| M1-FM-A-0053 | Posterior Axioappendicular Muscles | <ul style="list-style-type: none"> • Tabulate muscles of the pectoral region (origin, insertion, nerve supply, action and applied). | C2 | Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. |
| | | <ul style="list-style-type: none"> • Identify and describe the pectoral and clavipectoral fascia | C2 | |
| | | <ul style="list-style-type: none"> • Use HEC digital library | C3 | |
| | | <ul style="list-style-type: none"> • Understand the curative and preventive health care measures | C3 | |
| | | <ul style="list-style-type: none"> • Apply the strategic use of artificial intelligence in healthcare | C3 | |
| | | <ul style="list-style-type: none"> • Read a relevant research article | C3 | |

Anatomy Histology Syllabus of Learning Management System (LMS)

| Code | Practical | At the End of The Practical Student Should Be Able To | Learning Domain | Learning Resources |
|--------------|----------------------------|--|-----------------|--|
| M1-FM-A-0054 | Introduction to Microscope | <ul style="list-style-type: none"> • Identify different types of microscopes. | C1 | 1. B. Young J. W. Health Wheather's Functional Histology 6th edition. 2. Medical Histology by Prof. Laiq Hussain 7th edition. 3. https://www.udemy.com/course/histology/ |
| | | <ul style="list-style-type: none"> • Describe functions of different parts of microscope. | C1 | |
| | | <ul style="list-style-type: none"> • Identify different types of lenses. | C1 | |
| | | <ul style="list-style-type: none"> • Focus slides. | P | |
| M1-FM-A-0055 | Simple epithelium | <ul style="list-style-type: none"> • Classify epithelium. | C2 | 1. B. Young J. W. Health Wheather's Functional Histology 6th edition. 2. Medical Histology by Prof. Laiq Hussain 7th edition. https://www.udemy.com/course/histology/ |
| | | <ul style="list-style-type: none"> • Illustrate different types of simple epithelium | P | |
| | | <ul style="list-style-type: none"> • Identify types of simple epithelium. | P | |
| | | <ul style="list-style-type: none"> • Write two points of identification | C1 | |

Physiology Syllabus of Learning Management System (LMS)

| Code | Topics | Learning Objectives | Calgary Model |
|--------------|---|--|---------------|
| M1-FM-P-0031 | Concept of body fluids & internal environment. | Introduction Concept of extracellular and intracellular fluid Homeostasis Examples of control system | Must Know |
| M1-FM-P-0032 | Cell membrane & classification of cell organelles | Structure of cell membrane Cell cytoskeleton Cytoplasm and various organelles Golgi Apparatus and its function Lysosomes and peroxisomes Secretory vesicles | Must Know |
| M1-FM-P-0033 | Intracellular communication and cell junction | Receptors and its types Cellular signaling and various mechanisms Signal transduction Hormone receptors and their activation Second messenger mechanisms | Nice to know |
| M1-FM-P-0034 | Receptors and signal transduction | Receptors and its types Cellular signaling and various mechanisms Signal transduction Hormone receptors and their activation Second messenger mechanisms | Nice to know |
| M1-FM-P-0035 | Homeostasis Control System-I(Negative Feedback System, Concept of Error and Gain) | Control systems of body Negative and positive feedback mechanism and their examples Apoptosis and necrosis | Must Know |
| M1-FM-P-0036 | Genetics, Transcription and Translation | Building blocks of DNA Genetic code Process of transcription and translation Types of RNA Cell division | Must Know |
| M1-FM-P-0037 | Structure of Nucleus, Ribosomes and Cell Division | Structure of Nucleus Ribosomes Mitosis & Overview of cancer | Must Know |

| | | | |
|--------------|---|---|----------------------------|
| M1-FM-P-0038 | Transport across cell membrane and its various types (osmosis, diffusion, primary and secondary active transport) | Types of transport across cell membrane Diffusion and osmosis Concept of gating of channels Primary active transport Secondary active transport | Must Know / Should know |
|--------------|---|---|----------------------------|

Biochemistry LGIS Syllabus of Learning Management System (LMS)

| Theory | | | | |
|---------------|--|---|----------------------------------|---|
| Code | Topic | Learning Objectives At the End of One Hour the Lecture the Student Should Be Able To | Learning Domain | Learning Resources |
| M1-FM-B-0039 | Cell and cell organelles | <ul style="list-style-type: none"> • Explain composition of normal cell • Describe methods to separate different organelles of cell • Describe structure, functions and marker enzymes of ER & Golgi apparatus • Describe structure, functions and marker enzymes of lysosome, peroxisome & ribosome • Describe structure, functions and marker enzymes of mitochondria and Nucleus. • Illustrate the clinical conditions and congenital defects of cell organelles | C2 C2 C2 C2 C2 C3 | Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9 th edition (chapter 1, page 3) |
| M1-FM-B-0040 | Cell membrane | <ul style="list-style-type: none"> • Explain composition of cell membrane • Understand fluid mosaic model • Describe functions performed by each component | C2 C2 C2 | Harper's illustrated biochemistry 32 nd edition (chapter 40 page - 460) |
| M1-FM-B-0041 | Functions of cell membranes | <ul style="list-style-type: none"> • Discuss functions & importance of cell membrane | C2 | |
| M1-FM-B-0042 | Transport across cell membrane | <ul style="list-style-type: none"> • Explain transport of various substances by active and passive transport, diffusion, phagocytosis, endocytosis and exocytosis • Correlate the clinical disorders with defective transport across cell membrane | C2 C3 | Harper's illustrated biochemistry 32 nd edition (chapter 40 page - 467) |
| M1-FM-B-0043 | Osmosis, osmotic pressure and oncotic pressure | <ul style="list-style-type: none"> • Define osmosis and osmotic pressure. • Discuss biochemical application of osmotic and oncotic pressure and methods to measure them. | C1 C2 | Essentials of medical Biochemistry. Mushtaq |

| | | | | |
|--------------|---|---|----------------|--|
| | | <ul style="list-style-type: none"> Correlate oncotic pressure with clinical scenarios | C3 | Ahmad Vol – I 9 th edition (Chapter 02 page 46) |
| M1-FM-B-0044 | Phenomenon of viscosity, surface tension, emulsification and adsorption | <ul style="list-style-type: none"> Define phenomenon of viscosity, surface tension, emulsification and adsorption Explain Biochemical applications and methods to measure them | C1 C2 | Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9 th edition (Chapter 02 page 52, 55) |
| M1-FM-B-0045 | Donnan equilibrium, adsorption and ion exchange resins | <ul style="list-style-type: none"> Define Donnan equilibrium, adsorption and ion exchange resins. Describe their effects on tissue fluids and biochemical importance | C1 C2 | Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9 th edition |
| M1-FM-B-0046 | Water and pH | <ul style="list-style-type: none"> Define pH, Pka, body buffer Discuss water distribution in the body Understand dehydration and overhydration | C1 C2 C3 | |
| M1-FM-B-0047 | Enzymes Introduction | <ul style="list-style-type: none"> Define Enzymes. Explain general functions of enzymes. Differentiate between coenzyme and cofactors | C1 C2 C2 | |
| M1-FM-B-0048 | Mechanism of enzyme action | <ul style="list-style-type: none"> Describe different mechanisms of enzyme action. | C2 | Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9 th edition (Chapter 06 page 169) Lippincott Illustrated reviews of biochemistry 8 th edition (Chapter 05 page 69) |
| M1-FM-B-0049 | Classification of enzymes | <ul style="list-style-type: none"> Discuss different classes of Enzymes | C2 | |
| M1-FM-B-0050 | Properties of Enzymes | <ul style="list-style-type: none"> Elaborate the Properties of Enzymes such as specificity for substrate and stereo specificity. | C2 | |
| M1-FM-B-0051 | Factors affecting Enzyme action | <ul style="list-style-type: none"> Discuss different factors which increase or decrease the activity of enzymes | C2 | |
| M1-FM-B-0052 | Enzyme inhibitors | <ul style="list-style-type: none"> Describe enzyme inhibitors and how the activity of the regulatory enzymes can be modulated for benefit of body | C2 | |
| M1-FM-B-0053 | Enzyme Regulation | <ul style="list-style-type: none"> Explain enzyme regulation | C2 | |
| M1-FM-B-0054 | Diagnostic role of Enzymes | <ul style="list-style-type: none"> Interpret the role of measuring activity of different enzymes in the diagnosis and prognosis of different diseases Interpret the role of Enzyme as medicine and their effects on body. | C3 C3 | |
| M1-FM-B-0055 | Nucleic acids chemistry | <ul style="list-style-type: none"> Explain structure and biological importance of DNA, types of DNA Differentiate between DNA & RNA Explain structure, types and functions of RNA | C2 C2 C2 |  | Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9^{th} edition (Chapter 02 page 50) |

| | | | | |
|--------------|------------------------------------|---|----------------|--|
| M1-FM-B-0056 | Replication | <ul style="list-style-type: none"> Describe mechanism of replication of prokaryotes & Eukaryotes | C2 | Lippincott Illustrated reviews of biochemistry 8 th edition |
| M1-FM-B-0057 | Transcription | <ul style="list-style-type: none"> Describe mechanism of Transcription of prokaryotes & Eukaryotes | C2 | |
| M1-FM-B-0058 | Translation | <ul style="list-style-type: none"> Discuss genetic code Describe mechanism of Translation in prokaryotes & Eukaryotes Illustrate mechanism of action of antibiotics at different stages of translation | C2 C2 C3 | |
| M1-FM-B-0059 | DNA damage & Repair | <ul style="list-style-type: none"> Describe mechanism of DNA damage & Repair Apply knowledge of DNA repair mechanisms in related clinical cases | C2 C3 | |
| M1-FM-B-0060 | Mutations | <ul style="list-style-type: none"> Describe different types of mutations with examples | C2 | |
| M1-FM-B-0061 | PCR and Recombinant DNA technology | <ul style="list-style-type: none"> Define PCR Explain mechanism and indications of PCR Discuss Recombinant DNA technology | C1 C2 C2 | |
| M1-FM-B-0062 | Cancer | <ul style="list-style-type: none"> Explain biochemical basis of cancer | C2 | Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9 th edition (Chapter 6 page 168) |

Biochemistry SGDs Syllabus of Learning Management System (LMS)

| Code | Topic | Learning Objectives At the End of One Hour the Lecture the Student Should Be Able To | Learning Domain | Learning Resources |
|--------------|---------------------------------|--|-----------------|---|
| M1-FM-B-0063 | Cell and Cell Membrane | Explain Composition of Normal Cell & Cell Organelles | C2 | Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9 th edition (chapter 1, page 3) |
| | | Describe Composition of Cell Membrane Understand Fluid Mosaic Model | C2 | |
| M1-FM-B-0064 | Physicochemical Aspects of Cell | Define osmosis and osmotic pressure. Discuss biochemical application of osmotic and oncotic pressure and methods to measure them. Correlate oncotic pressure with clinical scenarios | C1 C2 C3 | Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9 th edition (chapter 1) |
| | | Define phenomenon of viscosity, surface tension. Explain Biochemical applications and methods to measure them. | C1 C2 | |
| | | Define Donnan equilibrium, adsorption and ion exchange resins. Describe their effects on tissue fluids and biochemical importance | C1 C2 | |

Transdisciplinary, Interdisciplinary & Multidisciplinary Case Based Learning (CBL)

| Subject | Topic | Learning Objectives At the end of the lecture the student should be able to | Learning Domain |
|----------------|--|--|------------------------|
| Anatomy | • Fracture of clavicle | Apply basic knowledge of subject to study clinical case. | C3 |
| | • Winging of scapula due to long thoracic nerve injury | Apply basic knowledge of subject to study clinical case. | C3 |
| Physiology | • Down's syndrome | Apply basic knowledge of subject to study clinical case. | C3 |
| | • Smoker's cough | Apply basic knowledge of subject to study clinical case. | C3 |
| Biochemistry | • Enzymes | Apply basic knowledge of subject to study clinical case. | C3 |
| | • Genetics/PCR | Apply basic knowledge of subject to study clinical case. | C3 |

SECTION – IV

RMU – 12 Integrated Modular MBBS Curriculum 2026 **Isolation to Beyond Boundaries**

Assessment

RMU – 12 Assessment Framework of Integrated Modular MBBS Curriculum 2026
Isolation to **Beyond Boundaries**

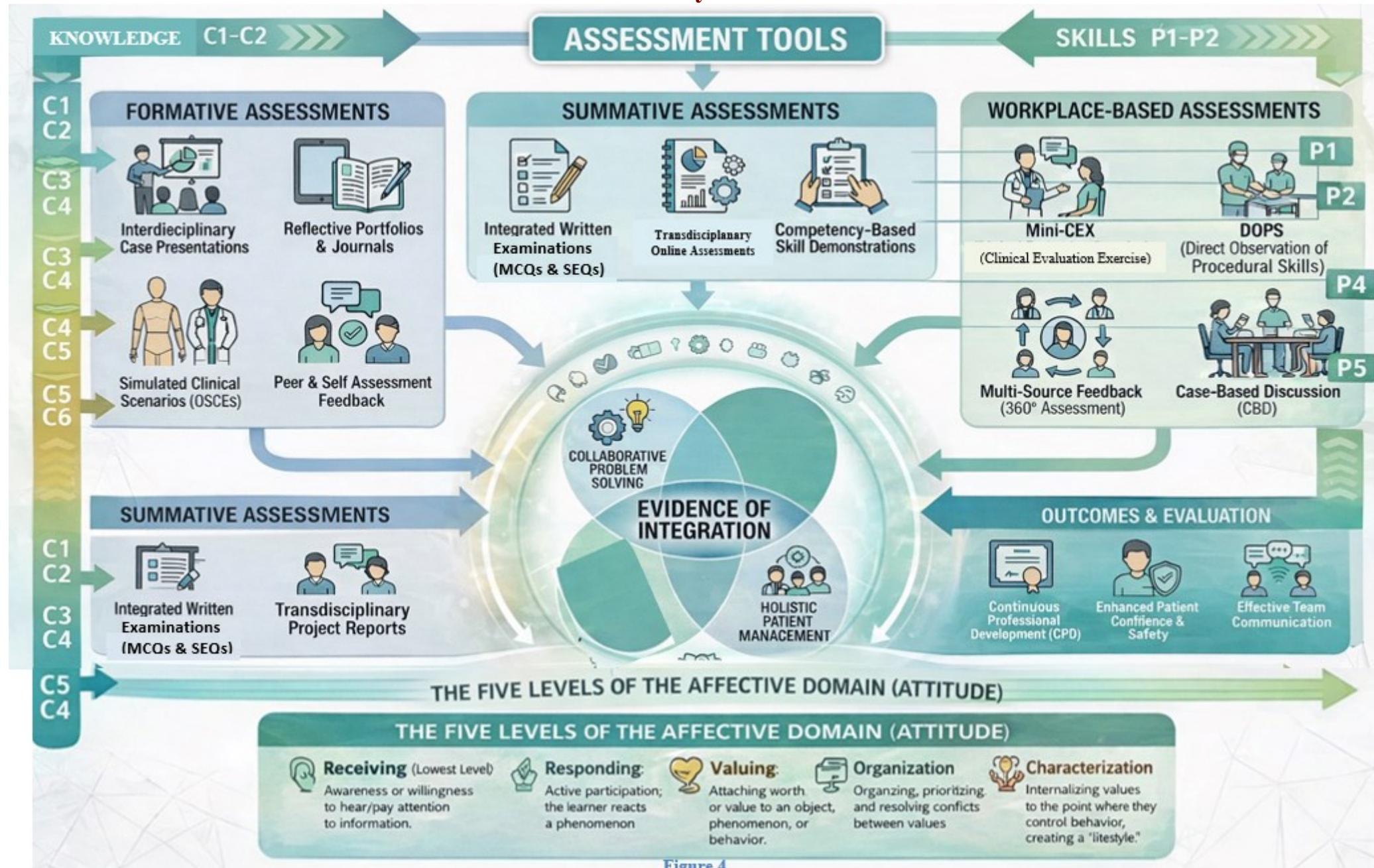


Figure 4

Assessment

Assessment is the systematic basis for making inferences about the learning and development of students. It is the process of defining, selecting, designing, collecting, analyzing, interpreting, and using information to increase students' learning and development.

Assessment Policy

Scope

This policy is applicable to all the students of the MBBS program of RMU for all modes of teaching (on campus/online/any other) from the date of approval by the RMU Academic Council.

1. Guiding principles

- RMU has the responsibility to ensure to all the stakeholders that students have achieved the identified outcomes of the medical degree course.
- Assessment requires a variety of methods; no single method can completely ensure that the requisite competence level has been achieved. Hence each assessment instrument must be selected based on its utility index.
- Feedback, ensuring that the feedback loop is closed, should be provided to students following all assessments to ensure that students identify gaps in their learning and faculty can review future curricular and assessment content.
- The quality of the entire assessment including confidentiality of the assessment process must be ensured.
- The assessment process should be clear and transparent so that students know in advance the expectations (from students) and consequences of the assessment.
- Details of the conduct of examinations are available in the Examination policy document.

2. Purposes of Assessment.

- To ensure appropriate competence has been achieved.
- Feedback to students regarding their readiness and deficiencies
- Feedback to faculty to evaluate the effectiveness of the teaching program.

3. Forms of assessments

3.1 Formative Assessment

A formative assessment refers to a low-stakes assessment that does not normally contribute towards a student's final grade. Assessment for learning is carried out throughout modules and clerkships using various strategies (at the discretion of module coordinators and clerkship directors' feedback. Formative assessment is conducted at both mid-module and end-module stages for clinical lectures and joint multidisciplinary sessions. These assessments are carried out through an on-campus online assessment platform to monitor students' ongoing learning and progress.

3.2 Summative Assessment

A summative assessment is performed at the end of a unit that allows a teacher to measure a student's understanding, typically against a standardized criterion. These Assessment includes End of Module Assessment (EMA), End of Block Assessment (EBA), Pre- Annual Assessment (PAA) and Annual Professional Assessment (APA). Each Assessment comprises of theory component and a practical component.

3.2.1 Components of Assessment

- Cognitive competence is tested in the theory component using the following tool of assessment
 - USMLE/ PLAB Type / Multiple Choice Questions (MCQs)
 - USMLE/ PLAB Type / Extended Match Questions (EMQ)
 - Short Answer Questions (SAQs)
 - Short Essay Questions (SEQs)
- Competence in psychomotor and affect domains is tested in practical component using the following tools of assessment
 - Audio Visual OSPE (AVOSPE): This comprises of stations using PowerPoint slides with images animations and videos
 - Laboratory OSPE (Lab OSPE): This comprises of stations focused on practical (hands on performance) components from core subject areas
 - Integrated OSPE (I OSPE): This comprises of stations, from each core subject, emphasizing horizontal and vertical integration
 - Objective Structured Clinical Examinations (OSCE): This comprises of stations, dedicated to Early Clinical Exposure (ECE), Simulated Patients (SP), models, ALPHA and clinical component of core subjects

- Objective Structured Viva Examinations (OSVE): This comprises of table viva for each core subject. Students will be evaluated by internal and external examiner using a structured marking rubric, with each viva
-

3.2.2 End of Module Assessment (EMA)

- End of module assessments will be conducted at the end of each module.
- The module teams will be responsible for the assessment plan including assessment strategies, timings, and other essentials

3.2.3 End of Block Assessment (EBA)

- End of block assessments will be conducted at the end of each block.
- The block teams will be responsible for the assessment plan including assessment strategies, timings, and other essentials
- 85% attendance in each subject will be mandatory
- Student must pass in all LMS, mid module assessments to appear in EBA
- There will be no remedial classes for attendance compensation
- There will be no remedial of assessment in case of poor academic performance

3.2.4 Weekly LMS Based Online Assessment

- Weekly assessment of Large Group Interactive Session (LGIS) and Self-Directed Learning (SDL) Sessions will be conducted on LMS (learning management system). The LMS result will be shared by module coordinator and DME through vice chancellor on weekly basis

Table of Specification (TOS) For Module & Block Examination for First Year MBBS

| Domains: C-Core Subject (70%) Levels C1-C2, HV- Horizontal & Vertical Integration (20%) Levels C2-C3, S- Spiral Integration (10%) Levels C2-C3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------|-------------------------------|----|---|-------|-------|------|-------|-------|------|----|---|-------|-------|---|----|---|-------|--------------------|---|---------|---|----|---|-------|------|-------------|---------------------------------|------------------------|-------|------|------|-----------------------|-------|
| End of Module Assessment | Subject | Theory (Cognitive) Assessment | | | | | | | | | | | | | | | | | | Practical (Skill & Attitude) Assessment | | | | | | | Grand Total | Total Time of Module Assessment | | | | | | |
| | | MCQs | | | | | EMQs | | | SAQs | | | | SEQs | | | | Marks | Total Marks Theory | Total Time | AV OSPE | | | | | Time | | | AED Reflective Writing | OSVE | | | Total Practical Marks | |
| | | C | HV | S | Total | Marks | C | Total | Marks | C | HV | S | Total | Marks | C | HV | S | | | | Total | C | HV | S | Total | | | | | Marks | Viva | Copy | | Total |
| First Module | Anatomy | 19 | 4 | 2 | 25 | 25 | 1 | 1 | 5 | 3 | 1 | 1 | 5 | 25 | 3 | 1 | 1 | 5 | 45 | 100 | 2 HRS | 7 | 2 | 1 | 10 | 50 | 50 min | 15 min | 45 | 5 | 50 | 100 | 200 | 6 HRS |
| | Physiology | 19 | 4 | 2 | 25 | 25 | 1 | 1 | 5 | 3 | 1 | 1 | 5 | 25 | 3 | 1 | 1 | 5 | 45 | 100 | 2 HRS | 7 | 2 | 1 | 10 | 50 | 50 min | 15 min | 45 | 5 | 50 | 100 | 200 | 6 HRS |
| | Biochemistry | 19 | 4 | 2 | 25 | 25 | 1 | 1 | 5 | 3 | 1 | 1 | 5 | 25 | 3 | 1 | 1 | 5 | 45 | 100 | 2 HRS | 7 | 2 | 1 | 10 | 50 | 50 min | 15 min | 45 | 5 | 50 | 100 | 200 | 6 HRS |
| Formative- Weekly LMS Based Assessment of 30 MCQs (10 MCQs per Subject) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| End of Module Assessment | Subject | Theory (Cognitive) Assessment | | | | | | | | | | | | | | | | | | Practical (Skill & Attitude) Assessment | | | | | | | Grand Total | Total Time of Module Assessment | | | | | | |
| | | MCQs | | | | | EMQs | | | SAQs | | | | SEQs | | | | Marks | Total Marks Theory | Total Time | AV OSPE | | | | | Time | | | AED Reflective Writing | OSVE | | | Total Practical Marks | |
| | | C | HV | S | Total | Marks | C | Total | Marks | C | HV | S | Total | Marks | C | HV | S | | | | Total | C | HV | S | Total | | | | | Marks | Viva | Copy | | Total |
| Second Module | Anatomy | 19 | 4 | 2 | 25 | 25 | 1 | 1 | 5 | 3 | 1 | 1 | 5 | 25 | 3 | 1 | 1 | 5 | 45 | 100 | 2 HRS | 7 | 2 | 1 | 10 | 50 | 50 min | 15 min | 45 | 5 | 50 | 100 | 200 | 6 HRS |
| | Physiology | 19 | 4 | 2 | 25 | 25 | 1 | 1 | 5 | 3 | 1 | 1 | 5 | 25 | 3 | 1 | 1 | 5 | 45 | 100 | 2 HRS | 7 | 2 | 1 | 10 | 50 | 50 min | 15 min | 45 | 5 | 50 | 100 | 200 | 6 HRS |
| | Biochemistry | 19 | 4 | 2 | 25 | 25 | 1 | 1 | 5 | 3 | 1 | 1 | 5 | 25 | 3 | 1 | 1 | 5 | 45 | 100 | 2 HRS | 7 | 2 | 1 | 10 | 50 | 50 min | 15 min | 45 | 5 | 50 | 100 | 200 | 6 HRS |
| Formative- Weekly LMS Based Assessment of 30 MCQs (10 MCQs per Subject) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Block | Subjects | LMS Based Assessment | | | | | OSPE | | | | | | Grand Total | Total Block Time | | |
|-------|--------------|----------------------|----|---|-------|--------|---------|----|-------|-------|-------|-------|-------------|------------------|---|----|
| | | MCQs | | | | | LabOSPE | | IOSPE | | COSPE | | | | | |
| | | C | HV | S | Total | Time | C | HV | S | Total | Marks | Time | | | C | HV | S | Total | Marks | Time |
| BLOCK | Anatomy | 21 | 6 | 3 | 30 | 30 min | 14 | 4 | 2 | 20 | 60 | 6 HRS | 90 | 10 HRS | | |
| | Physiology | 21 | 6 | 3 | 30 | 30 min | 14 | 4 | 2 | 20 | 60 | 6 HRS | 90 | 10 HRS | | |
| | Biochemistry | 21 | 6 | 3 | 30 | 30 min | 14 | 4 | 2 | 20 | 60 | 6 HRS | 90 | 10 HRS | | |

| Weekly LMS Assessment | | | |
|------------------------------|---------|------------|--------------|
| Subjects | Anatomy | Physiology | Biochemistry |
| No of MCQs* | 30 | 30 | 30 |
| Marks/MCQ | 30 | 30 | 30 |
| *MCQ=1 Mark each, 1 min each | | | |

50% Questions/OSPE Stations/Viva Stations will be from Foundation Module and 50% Questions will be from MSK-1 Module

For Each assessment student will have to individually pass Theory and Practical components

| | | | | | | |
|--|-------|--------|--------|--------|-----------|---------|
| Marks per Item | MCQ=1 | EMQ= 5 | SAQ= 5 | SEQ= 9 | AVOSPE= 5 | OSPE= 3 |
| OSPE Time=1 Round of 40 Students =80 min | | | | | | |
| 3 Round of 40 Students =240 min | | | | | | |
| OSVE=Time per student=5mins | | | | | | |

3.2.4 Continuous Internal Assessment (CIA)

Continuous Internal Assessment means the assessment based on tests and assignments given to the students during an academic period.

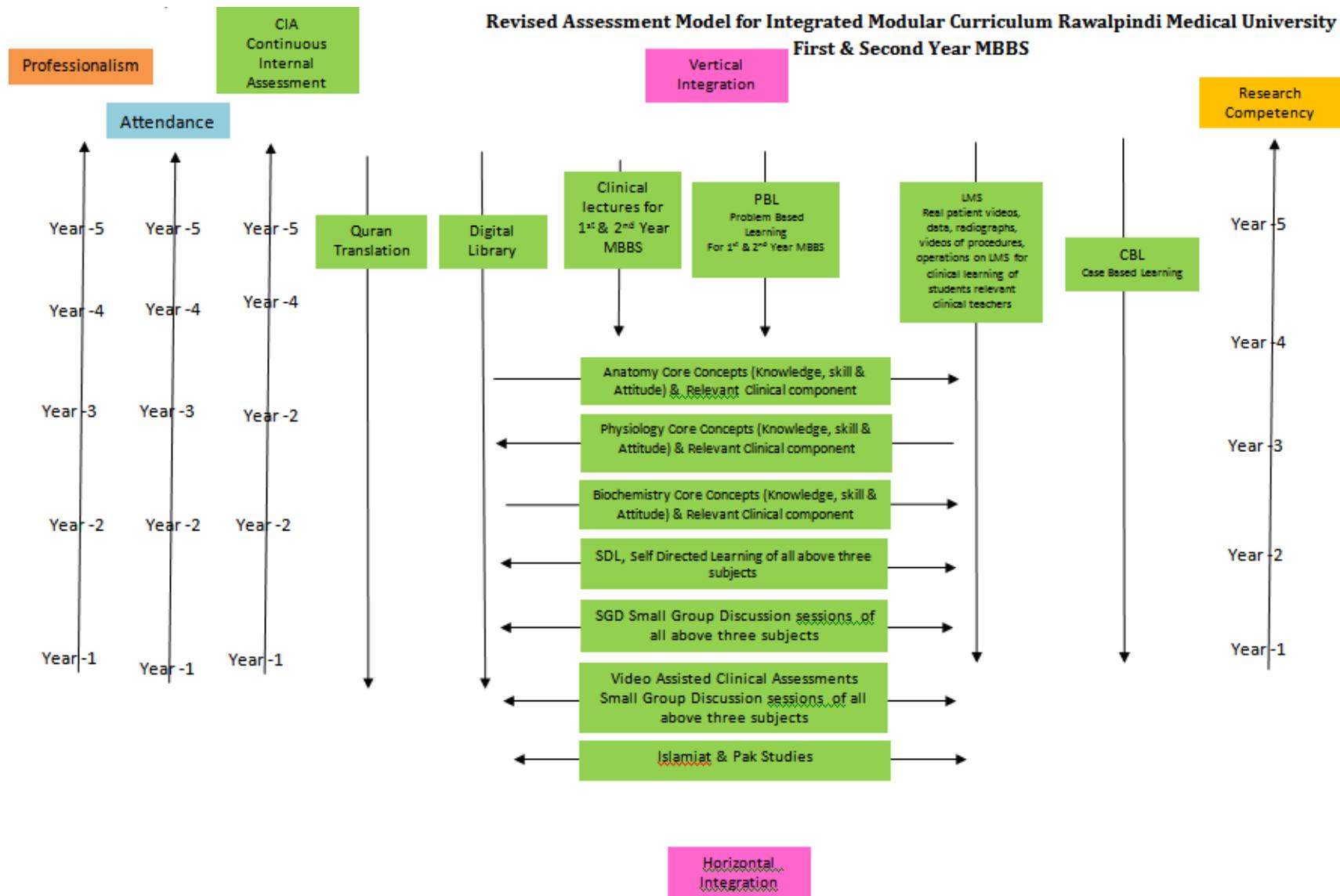
Break up of internal assessment is as follows:

Table 4: Block wise and subject wise distribution of CIA marks = 360Marks (40%)

| Subjects | Block-I | | | Block-II | | | Block-III | | | Total CIA (40%) |
|---------------------------|-----------------------------|--|-------------|-----------------------------|--|-------------|-----------------------------|--|-------------|-------------------------|
| | On campus assessments (30%) | Online LMS based Summative assessments (10%) | Total (40%) | On campus assessments (30%) | Online LMS based Summative assessments (10%) | Total (40%) | On campus assessments (30%) | Online LMS based Summative assessments (10%) | Total (40%) | |
| Anatomy | 30 | 10 | 40 | 30 | 10 | 40 | 30 | 10 | 40 | 40+40+40=120 |
| Physiology | 30 | 10 | 40 | 30 | 10 | 40 | 30 | 10 | 40 | 40+40+40=120 |
| Biochemistry | 30 | 10 | 40 | 30 | 10 | 40 | 30 | 10 | 40 | 40+40+40=120 |
| Total Marks of CIA | 90 | 30 | 120 | 90 | 30 | 120 | 90 | 30 | 120 | 120+120+120= 360 |

Once internal assessment is compiled it CANNOT be altered under ANY circumstance unless a clerical/ human error is detected. He will repeat classes and skills There will be no change in calculated internal assessment scores for supplementary University examination.

I. Diagrammatic Presentation of Various Components of Clinically Oriented Integrated Modular Curriculum of Rawalpindi Medical University



Reference: The Integrated & Clinically Oriented Assessment Model For Under Graduates Rawalpindi Medical University “Mumtahn” “ممتحن” (The Examiner)

No. of Assessments of Anatomy for First Year MBBS (Block- I):

| Block | Sr. # | Module – 1 Foundation Module - I Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
|--------------|---|---|---------------------|---------------------------------|---------------------------------|---------------------------|----------------------|----------------------|--|
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| Block – I | 1 | End Module Examinations (SEQs, SAQs, EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 30 Minutes | 1 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | Weekly LMS based Assessment (MCQs based) | Summative | 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 05 Minutes | | | 3 Assessments | |
| | Sr. # | Module – 2 MSK-I Module Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| | 1 | End Module Examinations (SEQs, SAQs, EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 60 Minutes | 2 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | 2 Weekly LMS based Assessment (MCQs based) | Summative | 2 x 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 35 Minutes | | | 4 Assessments | |
| | Sr. # | Block – I Assessment | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| | 1 | Objectively Structured Practical Examination (OSPE) | Summative | 5 Hours | 5 Hours & 30 minutes | | | 2 Summative | |
| 2 | LMS Based Block Assessment (MCQs based) | Summative | 30 Minutes | | | | | | |
| Total | | | | 5 Hours & 30 Minutes | | | 2 Assessments | | |

No. of Assessments of Anatomy for First Year MBBS (Block- II):

| Block | Sr. # | Module – 3 MSK-II Module Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
|--------------|---|---|------------------------|---------------------------------|---------------------------------|---------------------------|----------------------|----------------------|--|
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| Block – II | 1 | End Module Examinations (SEQs, SAQs, EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 30 Minutes | 1 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | Weekly LMS based Assessment (MCQs based) | Summative | 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 05 Minutes | | | 3 Assessments | |
| | Sr. # | Module – 4 Hematology & Immunology Module-I Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| | 1 | End Module Examinations (SEQs,SAQs,EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 60 Minutes | 2 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | 2 Weekly LMS based Assessment (MCQs based) | Summative | 2 x 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 35 Minutes | | | 4 Assessments | |
| Sr. # | Block – II Assessment | Type of Assessments | Total Assessments Time | | | No. of Assessments | | | |
| | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | | |
| 1 | Objectively Structured Practical Examination (OSPE) | Summative | 5 Hours | 5 Hours & 30 minutes | | | 2 Summative | | |
| 2 | LMS Based Block Assessment (MCQs based) | Summative | 30 Minutes | | | | | | |
| Total | | | | 5 Hours & 30 Minutes | | | 2 Assessments | | |

No. of Assessments of Anatomy for First Year MBBS (Block- III):

| Block | Sr. # | Module – 5 CVS Module-I Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
|--------------|---|---|------------------------|---------------------------------|---------------------------------|---------------------------|----------------------|----------------------|--|
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| Block – II | 1 | End Module Examinations (SEQs,SAQs,EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 30 Minutes | 1 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | Weekly LMS based Assessment (MCQs based) | Summative | 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 05 Minutes | | | 3 Assessments | |
| | Sr. # | Module – 6 Respiration Module-I Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| | 1 | End Module Examinations (SEQs,SAQs,EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 60 Minutes | 2 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | 2 Weekly LMS based Assessment (MCQs based) | Summative | 2 x 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 35 Minutes | | | 4 Assessments | |
| Sr. # | Block – III Assessment | Type of Assessments | Total Assessments Time | | | No. of Assessments | | | |
| | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | | |
| 1 | Objectively Structured Practical Examination (OSPE) | Summative | 5 Hours | 5 Hours & 30 minutes | | | 2 Summative | | |
| 2 | LMS Based Block Assessment (MCQs based) | Summative | 30 Minutes | | | | | | |
| Total | | | | 5 Hours & 30 Minutes | | | 2 Assessments | | |

Total Time of Anatomy Assessments for First Year MBBS:

| Module | Summative Assessment Time | Formative Assessment Time | Total Assessments Time |
|----------------------------------|----------------------------------|-------------------------------|---------------------------------|
| Foundation Module - I | 2 Hours & 35 minutes | 30 Minutes | 3 Hours & 05 Minutes |
| MSK-I Module | 2 Hours & 35 minutes | 60 Minutes | 3 Hours & 35 Minutes |
| Block -I | 5 Hours & 30 Minutes | | 5 Hours & 30 Minutes |
| MSK-II Module | 2 Hours & 35 minutes | 30 Minutes | 3 Hours & 05 Minutes |
| Hematology & Immunology Module-I | 2 Hours & 35 minutes | 60 Minutes | 3 Hours & 35 Minutes |
| Block -II | 5 Hours & 30 Minutes | | 5 Hours & 30 Minutes |
| CVS Module-I | 2 Hours & 35 minutes | 30 Minutes | 3 Hours & 05 Minutes |
| Respiration Module-I | 2 Hours & 35 minutes | 60 Minutes | 3 Hours & 35 Minutes |
| Block -III | 5 Hours & 30 Minutes | | 5 Hours & 30 Minutes |
| Pre-Annual Examination |  | ..... | 7 Hours & 45 Minutes |
| First Professional |  | ..... | 3 Hours & 45 Minutes |
| Grand Total | 31 Hours & 30 Minutes | 4 hours and 30 minutes | 48 Hours |

Total Teaching Hours vs Total Assessment Hours

| | | |
|---|--|---|
| Ratio of Teaching Hours to Assessments Hours | Grand Total Teaching Hours 250 Hours: | Grand Total Assessment Hours 48 Hours |
| | 5:1 | |

No. of Assessments of Physiology for First Year MBBS (Block- I):

| Block | Sr. # | Module – 1 Foundation Module - I Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
|--------------|---|---|------------------------|---------------------------------|---------------------------------|---------------------------|----------------------|----------------------|--|
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| Block – I | 1 | End Module Examinations (SEQs, SAQs, EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 30 Minutes | 1 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | Weekly LMS based Assessment (MCQs based) | Summative | 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 05 Minutes | | | 3 Assessments | |
| | Sr. # | Module – 2 MSK-I Module Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| | 1 | End Module Examinations (SEQs, SAQs, EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 60 Minutes | 2 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | 2 Weekly LMS based Assessment (MCQs based) | Summative | 2 x 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 35 Minutes | | | 4 Assessments | |
| Sr. # | Block – I Assessment | Type of Assessments | Total Assessments Time | | | No. of Assessments | | | |
| | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | | |
| 1 | Objectively Structured Practical Examination (OSPE) | Summative | 5 Hours | 5 Hours & 30 minutes | | | 2 Summative | | |
| 2 | LMS Based Block Assessment (MCQs based) | Summative | 30 Minutes | | | | | | |
| Total | | | | 5 Hours & 30 Minutes | | | 2 Assessments | | |

No. of Assessments of Physiology for First Year MBBS (Block- II)

| Block | Sr. # | Module – 3 MSK-II Module Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
|--------------|---|--|------------------------|---------------------------------|---------------------------------|---------------------------|----------------------|----------------------|--|
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| Block – II | 1 | End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 30 Minutes | 1 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | Weekly LMS based Assessment (MCQs based) | Summative | 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 05 Minutes | | | 3 Assessments | |
| | Sr. # | Module – 4 Hematology & Immunology Module-I Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| | 1 | End Module Examinations (SEQs, SAQs, EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 60 Minutes | 2 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | 2 Weekly LMS based Assessment (MCQs based) | Summative | 2 x 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 35 Minutes | | | 4 Assessments | |
| Sr. # | Block – II Assessment | Type of Assessments | Total Assessments Time | | | No. of Assessments | | | |
| | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | | |
| 1 | Objectively Structured Practical Examination (OSPE) | Summative | 5 Hours | 5 Hours & 30 minutes | | | 2 Summative | | |
| 2 | LMS Based Block Assessment (MCQs based) | Summative | 30 Minutes | | | | | | |
| Total | | | | 5 Hours & 30 Minutes | | | 2 Assessments | | |

No. of Assessments of Physiology for First Year MBBS (Block- III):

| Block | Sr. # | Module – 5 CVS Module-I Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
|--------------|---|---|------------------------|---------------------------------|---------------------------------|---------------------------|----------------------|----------------------|--|
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| Block – II | 1 | End Module Examinations (SEQs, SAQs, EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 30 Minutes | 1 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | Weekly LMS based Assessment (MCQs based) | Summative | 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 05 Minutes | | | 3 Assessments | |
| | Sr. # | Module – 6 Respiration Module-I Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| | 1 | End Module Examinations (SEQs, SAQs, EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 60 Minutes | 2 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | 2 Weekly LMS based Assessment (MCQs based) | Summative | 2 x 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 35 Minutes | | | 4 Assessments | |
| Sr. # | Block – III Assessment | Type of Assessments | Total Assessments Time | | | No. of Assessments | | | |
| | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | | |
| 1 | Objectively Structured Practical Examination (OSPE) | Summative | 5 Hours | 5 Hours & 30 minutes | | | 2 Summative | | |
| 2 | LMS Based Block Assessment (MCQs based) | Summative | 30 Minutes | | | | | | |
| Total | | | | 5 Hours & 30 Minutes | | | 2 Assessments | | |

Total Time of Physiology Assessments for First Year MBBS:

| Module | Summative Assessment Time | Formative Assessment Time | Total Assessments Time |
|----------------------------------|----------------------------------|----------------------------------|---------------------------------|
| Foundation Module - I | 2 Hours & 35 minutes | 30 Minutes | 3 Hours & 05 Minutes |
| MSK-I Module | 2 Hours & 35 minutes | 60 Minutes | 3 Hours & 35 Minutes |
| Block -I | 5 Hours & 30 Minutes | | 5 Hours & 30 Minutes |
| MSK-II Module | 2 Hours & 35 minutes | 30 Minutes | 3 Hours & 05 Minutes |
| Hematology & Immunology Module-I | 2 Hours & 35 minutes | 60 Minutes | 3 Hours & 35 Minutes |
| Block -II | 5 Hours & 30 Minutes | | 5 Hours & 30 Minutes |
| CVS Module-I | 2 Hours & 35 minutes | 30 Minutes | 3 Hours & 05 Minutes |
| Respiration Module-I | 2 Hours & 35 minutes | 60 Minutes | 3 Hours & 35 Minutes |
| Block -III | 5 Hours & 30 Minutes | | 5 Hours & 30 Minutes |
| Pre-Annual Examination |  | ..... | 7 Hours & 45 Minutes |
| First Professional |  | ..... | 3 Hours & 45 Minutes |
| Grand Total | 31 Hours & 30 Minutes | 4 hours and 30 minutes | 48 Hours |

Total Teaching Hours vs Total Assessment Hours

| | | |
|---|----------------------------|------------------------------|
| Ratio of Teaching Hours to Assessments Hours | Grand Total Teaching Hours | Grand Total Assessment Hours |
| | 225 hours: | 48 Hours |
| | 9:2 | |

No. of Assessments of Biochemistry for First Year MBBS (Block- I):

| Block | Sr. # | Module – 1 Foundation Module - I Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
|--------------|---|---|------------------------|---------------------------------|---------------------------------|---------------------------|----------------------|----------------------|--|
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| Block – I | 1 | End Module Examinations (SEQs,SAQs,EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 30 Minutes | 1 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | Weekly LMS based Assessment (MCQs based) | Summative | 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 05 Minutes | | | 3 Assessments | |
| | Sr. # | Module – 2 MSK-I Module Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| | 1 | End Module Examinations (SEQs,SAQs,EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 60 Minutes | 2 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | 2 Weekly LMS based Assessment (MCQs based) | Summative | 2 x 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 35 Minutes | | | 4 Assessments | |
| Sr. # | Block – I Assessment | Type of Assessments | Total Assessments Time | | | No. of Assessments | | | |
| | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | | |
| 1 | Objectively Structured Practical Examination (OSPE) | Summative | 5 Hours | 5 Hours & 30 minutes | | | 2 Summative | | |
| 2 | LMS Based Block Assessment (MCQs based) | Summative | 30 Minutes | | | | | | |
| Total | | | | 5 Hours & 30 Minutes | | | 2 Assessments | | |

No. of Assessments of Biochemistry for First Year MBBS (Block- II):

| Block | Sr. # | Module – 3 MSK-II Module Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
|--------------|---|---|------------------------|---------------------------------|---------------------------------|---------------------------|----------------------|----------------------|--|
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| Block – II | 1 | End Module Examinations (SEQs,SAQs,EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 30 Minutes | 1 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | Weekly LMS based Assessment (MCQs based) | Summative | 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 05 Minutes | | | 3 Assessments | |
| | Sr. # | Module – 4 Hematology & Immunology Module-I Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| | 1 | End Module Examinations (SEQs,SAQs,EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 60 Minutes | 2 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | 2 Weekly LMS based Assessment (MCQs based) | Summative | 2 x 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 35 Minutes | | | 4 Assessments | |
| Sr. # | Block – II Assessment | Type of Assessments | Total Assessments Time | | | No. of Assessments | | | |
| | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | | |
| 1 | Objectively Structured Practical Examination (OSPE) | Summative | 5 Hours | 5 Hours & 30 minutes | | | 2 Summative | | |
| 2 | LMS Based Block Assessment (MCQs based) | Summative | 30 Minutes | | | | | | |
| Total | | | | 5 Hours & 30 Minutes | | | 2 Assessments | | |

No. of Assessments of Biochemistry for First Year MBBS (Block- III):

| Block | Sr. # | Module – 5 CVS Module-I Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
|--------------|---|---|------------------------|---------------------------------|---------------------------------|---------------------------|----------------------|----------------------|--|
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| Block – II | 1 | End Module Examinations (SEQs, SAQs, EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 30 Minutes | 1 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | Weekly LMS based Assessment (MCQs based) | Summative | 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 05 Minutes | | | 3 Assessments | |
| | Sr. # | Module – 6 Respiration Module-I Components | Type of Assessments | Total Assessments Time | | | No. of Assessments | | |
| | | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | |
| | 1 | End Module Examinations (SEQs,SAQs,EMQs, MCQs AvOSPE Based) | Summative | 2 Hours 25 minutes | 2 Hours & 35 minutes | 60 Minutes | 2 Formative | 2 Summative | |
| | 2 | Structured & Clinically oriented Viva voce | Summative | 10 Minutes | | | | | |
| | 3 | 2 Weekly LMS based Assessment (MCQs based) | Summative | 2 x 30 Minutes | | | | | |
| | Total | | | | 3 Hours & 35 Minutes | | | 4 Assessments | |
| Sr. # | Block – III Assessment | Type of Assessments | Total Assessments Time | | | No. of Assessments | | | |
| | | | Assessment Time | Summative Assessment Time | Formative Assessment Time | | | | |
| 1 | Objectively Structured Practical Examination (OSPE) | Summative | 5 Hours | 5 Hours & 30 minutes | | | 2 Summative | | |
| 2 | LMS Based Block Assessment (MCQs based) | Summative | 30 Minutes | | | | | | |
| Total | | | | 5 Hours & 30 Minutes | | | 2 Assessments | | |

Total Time of Biochemistry Assessments for First Year MBBS:

| Module | Summative Assessment Time | Formative Assessment Time | Total Assessments Time |
|----------------------------------|----------------------------------|-------------------------------|------------------------|
| Foundation Module - I | 2 Hours & 35 minutes | 30 Minutes | 3 Hours & 05 Minutes |
| MSK-I Module | 2 Hours & 35 minutes | 60 Minutes | 3 Hours & 35 Minutes |
| Block -I | 5 Hours & 30 Minutes | | 5 Hours & 30 Minutes |
| MSK-II Module | 2 Hours & 35 minutes | 30 Minutes | 3 Hours & 05 Minutes |
| Hematology & Immunology Module-I | 2 Hours & 35 minutes | 60 Minutes | 3 Hours & 35 Minutes |
| Block -II | 5 Hours & 30 Minutes | | 5 Hours & 30 Minutes |
| CVS Module-I | 2 Hours & 35 minutes | 30 Minutes | 3 Hours & 05 Minutes |
| Respiration Module-I | 2 Hours & 35 minutes | 60 Minutes | 3 Hours & 35 Minutes |
| Block -III | 5 Hours & 30 Minutes | | 5 Hours & 30 Minutes |
| Pre-Annual Examination |  | ..... | 7 Hours & 45 Minutes |
| First Professional |  | ..... | 3 Hours & 45 Minutes |
| Grand Total | 31 Hours & 30 Minutes | 4 hours and 30 minutes | 48 Hours |

Total Teaching Hours vs Total Assessment Hours

| | | |
|---|--|--|
| Ratio of Teaching Hours to Assessments Hours | Grand Total Teaching Hours 125 Hours: | Grand Total Assessment Hours 48 Hours |
| | 5:2 | |

No. of Assessments of Clinical Component (Vertical and Horizontal Integration) for First Year MBBS (Block- I):

| Block | Sr. # | Module – 1 Foundation Module - I Components | Type of Assessments | Total Assessments Time | | No. of Assessments | |
|--------------|--------------|--|---------------------|------------------------|---------------------------|----------------------|----------------------|
| | | | | Assessment Time | Formative Assessment Time | | |
| Block – I | 1 | Mid Module Examination (MCQs Based) | Formative | 15 Minutes | 45 Minutes | 2 Formative | |
| | 2 | End Module Examination (MCQs Based) | Formative | 30 Minutes | | | |
| | Total | | | | 45 Minutes | | 2 Assessments |
| | Sr. # | Module – 2 MSK-I Module Components | Type of Assessments | Total Assessments Time | | No. of Assessments | |
| | | | | Assessment Time | Formative Assessment Time | | |
| | 1 | Mid Module Examination (MCQs Based) | Formative | 15 Minutes | 45 Minutes | 2 Formative | |
| | 2 | End Module Examination (MCQs Based) | Formative | 30 Minutes | | | |
| Total | | | | 45 Minutes | | 2 Assessments | |

No. of Assessments of Clinical Component (Vertical and Horizontal Integration) for First Year MBBS (Block- II):

| Block | Sr. # | Module – 3 MSK-II Module Components | Type of Assessments | Total Assessments Time | | No. of Assessments | |
|------------|--------------|---|---------------------|------------------------|---------------------------|--------------------|----------------------|
| | | | | Assessment Time | Formative Assessment Time | | |
| Block – II | 1 | Mid Module Examination (MCQs Based) | Formative | 15 Minutes | 45 Minutes | 2 Formative | |
| | 2 | End Module Examination (MCQs Based) | Formative | 30 Minutes | | | |
| | Total | | | | 45 Minutes | | 2 Assessments |
| | Sr. # | Module – 4 Hematology & Immunology Module-I Components | Type of Assessments | Total Assessments Time | | No. of Assessments | |
| | | | | Assessment Time | Formative Assessment Time | | |
| | 1 | Mid Module Examination (MCQs Based) | Formative | 15 Minutes | 45 Minutes | 2 Formative | |
| | 2 | End Module Examination (MCQs Based) | Formative | 30 Minutes | | | |
| | Total | | | | 45 Minutes | | 2 Assessments |

No. of Assessments of Clinical Component (Vertical and Horizontal Integration) for First Year MBBS (Block- III):

| Block | Sr. # | Module – 5 CVS Module-I Components | Type of Assessments | Total Assessments Time | | No. of Assessments |
|--------------|--------------|---|---------------------|------------------------|---------------------------|----------------------|
| | | | | Assessment Time | Formative Assessment Time | |
| Block – III | 1 | Mid Module Examination (MCQs Based) | Formative | 15 Minutes | 45 Minutes | 2 Formative |
| | 2 | End Module Examination (MCQs Based) | Formative | 30 Minutes | | |
| | Total | | | | 45 Minutes | 2 Assessments |
| | Sr. # | Module – 6 Respiration Module-I Components | Type of Assessments | Total Assessments Time | | No. of Assessments |
| | | | | Assessment Time | Formative Assessment Time | |
| | 1 | Mid Module Examination (MCQs Based) | Formative | 15 Minutes | 45 Minutes | 2 Formative |
| | 2 | End Module Examination (MCQs Based) | Formative | 30 Minutes | | |
| Total | | | | 45 Minutes | 2 Assessments | |

Total Time of Clinical Component (Vertical and Horizontal Integration) Assessments for First Year MBBS:

| Module | Formative Assessment Time | Total Assessments Time |
|----------------------------------|----------------------------------|-------------------------------|
| Foundation Module - I | 45 Minutes | 45 Minutes |
| MSK-I Module | 45 Minutes | 45 Minutes |
| Block -I | | |
| MSK-II Module | 45 Minutes | 45 Minutes |
| Hematology & Immunology Module-I | 45 Minutes | 45 Minutes |
| Block -II | | |
| CVS Module-I | 45 Minutes | 45 Minutes |
| Respiration Module-I | 45 Minutes | 45 Minutes |
| Block -III | | |
| Pre-Annual Examination | ..... | 35 Minutes |
| First Professional | ..... | 60 Minutes |
| Grand Total | 4 hours and 30 minutes | 6 hours and 5 minutes |

Total Teaching Hours vs Total Assessment Hours

| | | |
|---|---|---|
| Ratio of Teaching Hours to Assessments Hours | Grand Total Teaching Hours 97 Hours: | Grand Total Assessment Hours 6 Hours |
| | 19:1 | |

3.2.4 Pre- Annual Assessment (PAA)

- It is mandatory to appear in all EBA to appear in PAA
- Transcript / good character certificate from head of departments will be needed to appear in pre-annual assessment.

Table of Specifications for Pre-Annual Examination

- Total Marks: 845

| Total marks =800 Marks | | | |
|---|-------------------------|-------------------------------------|--|
| Subjects | % Weightage of subjects | Marks distribution as per weightage | |
| Anatomy | 28% | 240 Marks | |
| Physiology | 28% | 240 Marks | |
| Biochemistry | 28% | 240 Marks | |
| Integrated Subjects Community Medicine & Public Health/Research Behavioral Sciences Pathology Pharmacology Radiology Family Medicine Surgery Medicine Gynae & Obs Orthopedics Pediatrics Surgery Ophthalmology Otorhinolaryngology | 14 % | 115 Marks | |
| Early Clinical Exposure (ECE) | 1% | 5 Marks | |
| ALPHA(Artificial Intelligence, Leadership, Professionalism, Humanities & Arts) GEC (General Education Cluster) | 1% | 5 Marks | |

| | |
|-------------|-----------|
| Total Marks | 845 Marks |
|-------------|-----------|

Notes:

- The total marks for final Annual Assessment (Professional examination) are 900 as per UHS
- The total marks for Pre-Annual Assessment are 800 as OSVE is not being used as assessment tool.
- As per analysis of Module/Block results throughout the academic year, the passing percentage of students is generally higher in OSVE than in other assessment tools. For comprehensive assessment this tool will not be used in Pre- Annual Assessment.as per decision of assessment committee OSVE is not included.

A - Blockwise Distribution of Marks

| Total Marks | BLOCK I Marks | BLOCK II Marks | BLOCK III Marks | Total Marks |
|-------------|------------------|-------------------|--------------------|----------------|
| 845 Marks | 285 Marks | 285 Marks | 275 Marks | 845 Marks |

B - Subject wise marks breakup in Blocks

| Subjects | Block I | Block II | Block III | Total Marks |
|------------------------|----------|----------|-----------|--------------------|
| Anatomy | 80 Marks | 80 Marks | 80 Marks | 240 Marks (28%) |
| Physiology | 80 Marks | 80 Marks | 80 Marks | 240 Marks (28%) |
| Biochemistry | 80 Marks | 80 Marks | 80 Marks | 240 Marks (28%) |
| Integrated Subjects | 45 Marks | 45 Marks | 35 Marks | 125 Marks (16%) |

C - Subject wise Break up of Marks for First year MBBS - Block -I

| Block | Subjects | Theory (Knowledge) | Practical (Skill/attitude) | Total marks | Total marks (Core subjects + Integrated Subjects) |
|---------------------------------------|------------------------------|---------------------------|-----------------------------------|--------------------|--|
| Block I | Anatomy | 50 | 30 | 80 marks | 240+ 45 = 285 marks |
| | Physiology | 50 | 30 | 80 marks | |
| | Biochemistry | 50 | 30 | 80 marks | |
| | Total | | | 240 marks | |
| (Core subjects + Integrated Subjects) | Integrated Subjects | | | 45 Marks | |
| | Community Medicine /Research | 6 Marks | | | |
| | Behavioral Sciences | 3 Marks | | | |
| | Pathology | 2 Marks | | | |
| | Pharmacology | 3 Marks | | | |
| | Radiology | 2 Marks | | | |
| | Gynae & Obs | 4 Marks | | | |
| | Medicine | 2 Marks | | | |
| | Family Medicine | 2 Marks | | | |
| | Pediatrics | 4 Marks | | | |
| | Surgery | 2 Marks | | | |
| | ECE | | 5 Marks | | |
| | ALPHA and GEC | | 5 Marks | | |
| 285 Marks | | | | | |
| Total | | 240+ 45 = 285 marks | | | |
| marks | | | | | |

D - Subject wise Break up of Marks for First year MBBS - Block -II

| Block | Subjects | Theory (Knowledge) | Practical (Skill/attitude) | Total marks | Total marks (Core subjects + Integrated Subjects) |
|--|------------------------------|---------------------|----------------------------|-------------|--|
| Block II (Core subjects + Integrated Subjects) 285 Marks | Anatomy | 50 | 30 | 80 marks | 240+ 45 = 285 marks |
| | Physiology | 50 | 30 | 80 marks | |
| | Biochemistry | 50 | 30 | 80 marks | |
| | Total | | | 240 marks | |
| | Integrated Subjects | | | 45 Marks | |
| | Community Medicine /Research | 4 Marks | | | |
| | Family Medicine | 3 Marks | | | |
| | Orthopedics | 3 Marks | | | |
| | Radiology | 3 Marks | | | |
| | Medicine | 3 Marks | | | |
| | Gynae & Obs | 3 Marks | | | |
| | Behavioral Sciences | 4 Marks | | | |
| | Pathology | 2 Marks | | | |
| | ECE | | 5 Marks | | |
| ALPHA and GEC | | 5 Marks | | | |
| Total | | 240+ 45 = 285 marks | | | |
| marks | | | | | |

E - Subject wise Break up of Marks for First year MBBS - Block -III

| Block | Subjects | Theory (Knowledge) | Practical (Skill/attitude) | Total marks | Total marks (Core subjects + Integrated Subjects) | |
|---|---------------------|-----------------------|-------------------------------|----------------|--|----------|
| Block III | Anatomy | 50 | 30 | 80 marks | 240+35 = 275 marks | |
| | Physiology | 50 | 30 | 80 marks | | |
| | Biochemistry | 50 | 30 | 80 marks | | |
| | Total | | | 240 marks | | |
| Total marks (Core subjects + Integrated Subjects) | Integrated Subjects | | | | | 35 Marks |
| | Community Medicine | 2 Marks | | | | |
| | Behavioral Sciences | 2Marks | | | | |
| | Medicine | 3 Marks | | | | |
| | Family medicine | 3 Marks | | | | |
| | Gynae & Obs | 2 Marks | | | | |
| | Radiology | 2 Marks | | | | |
| | Pediatrics | 2 Marks | | | | |
| | Otorhinolaryngology | 3 Marks | | | | |
| | Ophthalmology | 2 Marks | | | | |
| | Pathology | 2Marks | | | | |
| 275 Marks | Pharmacology | 2 Marks | | | | |
| | ECE | | 5 Marks | | | |
| | ALPHA and GEC | | 5 Marks | | | |
| Total | | 240+35 = 275 marks | | | | |
| marks | | | | | | |
| GRAND TOTAL MARKS | | 800 | | | | |

F - Modular distribution of Marks for Module 1(Foundation Module - I) & Module 2(MSK-I Module) - Block -I

Block -I Theory Component (Knowledge)

| Subjects | MCQs | | | EMQ | | | SAQ | | | SEQ | | | Total marks |
|---|------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------------|
| | Module -1 | Module- 2 | Marks | Module -1 | Module- 2 | Marks | Module -1 | Module- 2 | Marks | Module -1 | Module- 2 | Marks | |
| Anatomy | 13 | 12 | 25 | - | 01 | 5 | 01 | 01 | 10 | 0.5 | 0.5 | 10 | 50 |
| Physiology | 12 | 13 | 25 | | 01 | 5 | 01 | 01 | 10 | | 01 | 10 | 50 |
| Biochemistry | 15 | 10 | 25 | - | 01 | 5 | 01 | 01 | 10 | 01 | - | 10 | 50 |
| Vertically & Spirally Integrated Subjects | | | 35 | - | | - | - | | - | - | | - | 35 |
| Total | 110 | | 110 | 3 | | 15 | 6 | | 30 | 3 | | 30 | 185 |

Block -I Practical Component (Skill & Attitude)

| Subjects | Lab OSPE | | | Iospe | | | OSCE | | | Total stations | Total marks |
|-----------------|---------------------------------|---------------------------------|-----------|---------------------------------|---------------------------------|-----------|---------------------------------|---------------------------------|-----------|----------------|-------------|
| | Number of Stations of Module -1 | Number of Stations of Module -2 | Marks | Number of Stations of Module -1 | Number of Stations of Module -2 | Marks | Number of Stations of Module -1 | Number of Stations of Module -2 | Marks | | |
| Anatomy | 01 | 02 | 15 | 01 | | 5 | 01 | 01 | 10 | 6 | 30 |
| Physiology | 01 | 02 | 15 | | 01 | 5 | 01 | 01 | 10 | 6 | 30 |
| Biochemistry | 01 | 02 | 15 | - | 01 | 5 | 01 | 01 | 10 | 6 | 30 |
| ECE | - | | - | - | | - | | 01 | 5 | 1 | 5 |
| ALPHA- Research | - | | - | - | | - | | 01 | 5 | 1 | 5 |
| Total | 9 | | 45 | 3 | | 15 | 8 | | 40 | 20 | 100 |

G- Modular distribution of Marks for Module 3 (MSK-II Module) & Module 4(Haematology & Immunology Module-I) - Block -II

Block -II Theory Component (Knowledge)

| Subjects | MCQs | | | EMQ | | | SAQ | | | SEQ | | | Total marks |
|---|------------|----------|------------|-----------|----------|-----------|-----------|----------|-----------|-----------|----------|-----------|-------------|
| | Module -1 | Module-2 | Marks | Module -1 | Module-2 | Marks | Module -1 | Module-2 | Marks | Module -1 | Module-2 | Marks | |
| Anatomy | 12 | 13 | 25 | | 01 | 5 | 01 | 01 | 10 | 0.5 | 0.5 | 10 | 50 |
| Physiology | 12 | 13 | 25 | | 01 | 5 | 01 | 01 | 10 | | 01 | 10 | 50 |
| Biochemistry | 10 | 15 | 25 | | 01 | 5 | 01 | 01 | 10 | | 01 | 10 | 50 |
| Vertically & Spirally Integrated Subjects | | | 35 | - | | - | - | | - | - | | - | 35 |
| Total | 110 | | 110 | 3 | | 15 | 6 | | 30 | 3 | | 30 | 185 |

Block -II Practical Component (Skill & Attitude)

| Subjects | Lab OSPE | | | I ospe | | | OSCE | | | Total stations | Total marks |
|----------------|---------------------------------|---------------------------------|-----------|---------------------------------|---------------------------------|-----------|---------------------------------|---------------------------------|-----------|----------------|-------------|
| | Number of Stations of Module -1 | Number of Stations of Module -2 | Marks | Number of Stations of Module -1 | Number of Stations of Module -2 | Marks | Number of Stations of Module -1 | Number of Stations of Module -2 | Marks | | |
| Anatomy | 02 | 01 | 15 | - | 01 | 5 | 01 | 01 | 10 | 6 | 30 |
| Physiology | 01 | 02 | 15 | | 01 | 5 | 01 | 01 | 10 | 6 | 30 |
| Biochemistry | 01 | 02 | 15 | 01 | - | 5 | 01 | 01 | 10 | 6 | 30 |
| ECE | - | | - | - | | - | | 01 | 5 | 1 | 5 |
| ALPHA-Research | - | | - | - | | - | | 01 | 5 | 1 | 5 |
| Total | | 9 | 45 | | 3 | 15 | | 8 | 40 | 20 | 100 |

H - Modular distribution of Marks for Module 5 (CVS Module-I) & Module 6 (Respiration Module-I) - Block -III

Block -III Theory Component (Knowledge)

| Subjects | MCQs | | | EMQ | | | SAQ | | | SEQ | | | Total marks |
|---|-----------|----------|-------|-----------|----------|-------|-----------|----------|-------|-----------|----------|-------|-------------|
| | Module -1 | Module-2 | Marks | |
| Anatomy | 13 | 12 | 25 | 01 | - | 5 | 01 | 01 | 10 | 0.5 | 0.5 | 10 | 50 |
| Physiology | 13 | 12 | 25 | 01 | | 5 | 01 | 01 | 10 | 01 | | 10 | 50 |
| Biochemistry | 13 | 12 | 25 | 01 | - | 5 | 01 | 01 | 10 | 01 | - | 10 | 50 |
| Vertically & Spirally Integrated Subjects | | | 25 | - | | - | - | | - | - | | - | 25 |
| Total | 100 | | 100 | 3 | | 15 | 6 | | 30 | 3 | | 30 | 175 |

Block -III Practical Component (Skill & Attitude)

| Subjects | Lab OSPE | | | I OSPE | | | OSCE | | | Total stations | Total marks |
|----------------|---------------------------------|---------------------------------|-------|---------------------------------|---------------------------------|-------|---------------------------------|---------------------------------|-------|----------------|-------------|
| | Number of Stations of Module -1 | Number of Stations of Module -2 | Marks | Number of Stations of Module -1 | Number of Stations of Module -2 | Marks | Number of Stations of Module -1 | Number of Stations of Module -2 | Marks | | |
| Anatomy | 02 | 01 | 15 | - | 01 | 5 | 01 | 01 | 10 | 6 | 30 |
| Physiology | 02 | 01 | 15 | 01 | - | 5 | 01 | 01 | 10 | 6 | 30 |
| Biochemistry | 02 | 01 | 15 | - | 01 | 5 | 01 | 01 | 10 | 6 | 30 |
| ECE | - | | - | - | | - | | 01 | 5 | 1 | 5 |
| ALPHA-Research | - | | - | - | | - | | 01 | 5 | 1 | 5 |
| Total | 9 | | 45 | 3 | | 15 | 8 | | 40 | 20 | 100 |

Calculation for Pre-Annual Assessment Implementation for First Year MBBS 2025

| Block -I | Theory component (Knowledge) | | | | Practical component (Skill & Attitude) | | | Total time required for Block – I pre annual assessment is 8 hrs and 25 minutes |
|----------------------------------|---|------------|------------|-----------|--|-------------|-------------|---|
| | MCQs | SAQs | SEQs | EMQs | Lab OSPE | I OSPE | OSCE | |
| Total number of questions | 110 | 6 | 3 | 3 | 9 | 3 | 8 | |
| Time required for each component | 110 x 1 min | 6 x 10 min | 3 x 10 min | 3 x 5 min | 9 x 2.5 min | 3 x 2.5 min | 8 x 2.5 min | |
| | 110 mins | 60 mins | 30 mins | 25 mins | 22.5 mins | 7.5 mins | 20 mins | |
| Total time | 110+60+30+25 = 225 mins (4hrs and 25 mins) | | | | 22.5+7.5+20 = 50 mins/ round of 20 students | | | 4 hrs |
| | | | | | If the OSPE is conducted simultaneously at 4 venues: In 50 minutes, 20 students can complete the OSPE at each venue, totaling 80 students across all venues. With 5 rounds at 4 venues, the entire class can complete the OSPE within 4 hours. | | | |
| Block -II | Theory component (Knowledge) | | | | Practical component (Skill & Attitude) | | | Total time required for Block – II pre annual assessment is 8 hrs and 25 minutes |
| | MCQs | SAQs | SEQs | EMQs | Lab OSPE | I OSPE | OSCE | |
| Total number of questions | 110 | 6 | 3 | 3 | 9 | 3 | 8 | |
| Time required for each component | 110 x 1 min | 6 x 10 min | 3 x 10 min | 3 x 5 min | 9 x 2.5 min | 3 x 2.5 min | 8 x 2.5 min | |
| | 110 mins | 60 mins | 30 mins | 25 mins | 22.5 mins | 7.5 mins | 20 mins | |
| Total time | 110+60+30+25 = 225 mins (4hrs and 25 mins) | | | | 22.5+7.5+20 = 50 mins/ round of 20 students | | | 4 hrs |
| | | | | | If the OSPE is conducted simultaneously at 4 venues: In 50 minutes, 20 students can complete the OSPE at each venue, totaling 80 students across all venues. With 5 rounds at 4 venues, the entire class can complete the OSPE within 4 hours. | | | |
| Block -III | Theory component (Knowledge) | | | | Practical component (Skill & Attitude) | | | Total time required for Block – III pre annual assessment is 8 hrs and 15 minutes |
| | MCQs | SAQs | SEQs | EMQs | Lab OSPE | I OSPE | OSCE | |
| Total number of questions | 100 | 6 | 3 | 3 | 9 | 3 | 8 | |
| Time required for each component | 100 x 1 min | 6 x 10 min | 3 x 10 min | 3 x 5 min | 9 x 2.5 min | 3 x 2.5 min | 8 x 2.5 min | |
| | 100 mins | 60 mins | 30 mins | 25 mins | 22.5 mins | 7.5 mins | 20 mins | |
| Total time | 100+60+30+25 = 225 mins (4hrs and 15 mins) | | | | 22.5+7.5+20 = 50 mins/ round of 20 students | | | 4 hrs |
| | | | | | If the OSPE is conducted simultaneously at 4 venues: In 50 minutes, 20 students can complete the OSPE at each venue, totaling 80 students across all venues. With 5 rounds at 4 venues, the entire class can complete the OSPE within 4 hours. | | | |

Table of Specification: First and Second year Final Annual Assessment (Professional)

Statutes:

1. **Scheduling:** First Professional MBBS will be held at the end of First year whereas the Second Professional MBBS shall be held at the end of Second year.
2. **Subjects:** Every candidate is required to appear in the following subjects in Each Block
 - a. **Core subjects**
 Integrated Anatomy, Integrated Physiology and Integrated Biochemistry
 - b. **Vertically integrated Subjects**
 Community Medicine & Public Health, Behavioural Sciences, Pathology, Pharmacology and associated Clinical Subjects
 - c. **Spirally Integrated subjects**
 General Education Cluster (GEC), ALPHA (Artificial Intelligence, Leadership, Professionalism, Humanities and Arts), Early Clinical Exposure (ECE) and Research.
3. **Assessments:** There will be three papers in First Annual Professional Examination and four papers in the Second Annual professional Examination.

Table: 1 Number of Papers/Blocks in First & Second Annual professional Examination

| Paper | First year MBBS | Second year MBBS |
|---------|-----------------|--|
| Paper-1 | Block -I | Block -I |
| Paper-2 | Block- II | Block- II |
| Paper-3 | Block-III | Block-III |
| Paper-4 | Nil | GEC (Islamic Studies & Pakistan Studies) |

- a. **First Professional Examination Total Marks = 900***
 - i. Block I Assessment Total Marks = 300
 - ii. Block II Assessment Total Marks = 300
 - iii. Block III Assessment Total Marks = 300

b. Second Professional Examination Total Marks = 1000 *

- i. Block I Assessment Total Marks = 300
- ii. Block II Assessment Total Marks = 300
- iii. Block III Assessment Total Marks = 300
- iv. GEC Assessment (Islamic Studies & Pakistan Studies) Total Marks = 100

4. Continuous Internal Assessment (CIA):

Continuous Internal Assessment shall carry total marks = 360 (40% of the total allocated marks= 900) for first and second year MBBS .CIA will have two components for each block

A: On Campus assessments (30%) = 270 Marks

B: Online LMS Based Summative Assessments (10%) = 90 Marks

Total marks for each block per subject will be 120 marks.

5. Block Assessment Components: The components of Block Assessment shall be as follows:

A. One Theory Paper (Knowledge(K) having two sections

- i. **Section:1** will have Multiple choice questions (1 mark for each MCQ) and time allocated will be 1 minute for each MCQ. The integration ratio in MCQs will be 70% core content, 10% horizontal integration, and 20% vertical integration. There will be no negative marking
- ii. **Section:2** will have Structured Essay Questions of 5 marks each and time allocated for 1 SEQ will be 10 minutes.

Table: 2 Block wise Number of MCQs and SEQs in First & Second Annual professional Examination

| First year MBBS | Number of MCQs | Number of SEQs |
|-------------------------|-----------------------|-----------------------|
| Block -I | 60 | 6 |
| Block -II | 60 | 6 |
| Block -III | 60 | 6 |
| Second Year MBBS | Number of MCQs | Number of SEQs |
| Block -I | 60 | 6 |
| Block -II | 60 | 6 |
| Block -III | 60 | 6 |

B. Skill Assessment Component (Practical(P) and Attitude(A)):

The assessment will include an Objective Structured Practical Examination (OSPE) with a total of 18 stations, time allocated for each station will be 3 minutes.

i. Laboratory OSPE (Lab OSPE):

This section will consist of stations focused on practical (hands on performance) components from core subject areas, each station carries 5 marks.

ii. Integrated OSPE (I OSPE):

This section will include stations, from each core subject, emphasizing horizontal and vertical integration, each station carries 5 marks.

iii. Objective Structured Clinical Examinations (OSCE):

This section comprises of stations, dedicated to Early Clinical Exposure (ECE), Simulated Patients (SP), models, ALPHA and clinical component of core subjects, each station carries 5 marks.

iv. Objective Structured Viva Examinations (OSVE):

This section will consist of table viva for each core subject. Students will be evaluated by internal and external examiner using a structured marking rubric, with total marks 10.

Table: 3 Block wise Number of OSPE and OSVE Stations in First & Second Annual professional Examination

| First year MBBS | Number of LabOSPE Stations | Number of iOSPE Stations | Number of OSCE Stations | Number of table VIVA /OSPE Station |
|-------------------------|-----------------------------------|---------------------------------|--------------------------------|---|
| Block -I | 5 | 3 | 4 | 6 |
| Block -II | 5 | 3 | 4 | 6 |
| Block -III | 4 | 3 | 5 | 6 |
| Second Year MBBS | Number of LabOSPE Stations | Number of iOSPE Stations | Number of OSCE Stations | Number of table VIVA /OSPE Station |
| Block -I | 4 | 3 | 5 | 6 |
| Block -II | 5 | 3 | 4 | 6 |
| Block -III | 5 | 3 | 4 | 6 |

Table: 4 Block wise Total Number of MCQs, SEQs OSPE and OSVE Stations in First & Second Annual Professional Examination

| First year MBBS | Number of MCQs | Number of SEQs | Number of OSPE Stations + OSVE |
|-------------------------|-----------------------|-----------------------|---------------------------------------|
| Block -I | 60 | 6 | 18 |
| Block -II | 60 | 6 | 18 |
| Block -III | 60 | 6 | 18 |
| Total | 180 MCQs | 18 SEQs | 54 OSPE Stations |
| Second Year MBBS | Number of MCQs | Number of SEQs | Number of OSPE Stations + OSVE |
| Block -I | 60 | 6 | 18 |
| Block -II | 60 | 6 | 18 |
| Block -III | 60 | 6 | 18 |
| Total | 180 MCQs | 18 SEQs | 54 OSPE Stations |

- 5 **Annual Examination Eligibility Criteria:** Eligibility to appear in Annual Professional will be as per RMU Assessment Policy approved by the Academic Council and Syndicate.
- 6 **Passing Criteria:** The students of First & Second year MBBS must secure at least 50% marks separately in theory and practical exams of all core subjects (Anatomy, Physiology & Biochemistry), with an overall aggregate of 50% to pass in a Block Assessment. *
- 7 **Supplementary Examination Criteria:** If a student fails in any component (subject) within a Block, they shall appear in relevant block **only in that failed subject (s)** during the Supplementary Examination.

Table: 5 Table of Abbreviation

| | |
|----------|---|
| CIA | Continuous Internal Assessment |
| I-OSPE | Integrated OSPE |
| Lab OSPE | Laboratory Objective Structured Practical Examination |
| OSCE | Objective Structured Clinical Examinations |
| OSVE | Objective Structured Viva Examinations |
| ECE | Early Clinical Exposure |
| ALPHA | (Artificial Intelligence, Leadership, Professionalism, Humanities & Arts) |

| Blocks | Subjects | Total marks | Module 1 | Module 2 | Total marks |
|-------------------------------|---------------------------|-------------|----------|----------|-------------|
| Block 1 (90 Marks) | Anatomy | 30 | 15 marks | 15 marks | 90 |
| | Physiology | 30 | 15 marks | 15 marks | |
| | Biochemistry | 30 | 15 marks | 15 marks | |
| Block 2 (90 Marks) | Anatomy | 30 | 15 marks | 15 marks | 90 |
| | Physiology | 30 | 15 marks | 15 marks | |
| | Biochemistry | 30 | 15 marks | 15 marks | |
| Block 3 (90 Marks) | Anatomy | 30 | 15 marks | 15 marks | 90 |
| | Physiology | 30 | 15 marks | 15 marks | |
| | Biochemistry | 30 | 15 marks | 15 marks | |
| Total marks | | | | | 270 Marks |
| GEC | General Education Cluster | | | | |
| K | Knowledge | | | | |

*Reference: University of Health Sciences Lahore (87th meeting of syndicate) Annexure 1

**Previous Model with 30% CIA
Annual Assessment Plan of First Year MBBS 2024 (Batch 51)**

- Total First Professional Marks: 900
- Annual Marks: (70%) =630 Marks
- Continuous Internal Assessment (30%) =270 Marks

A: Original Distribution of CIA (Continuous Internal Assessment) Marks (270 Marks)

B: Extrapolated marks to be calculated from Summative assessments throughout the Academic Year 2024

| Blocks | Modules | Anatomy | Physiology | Biochemistry | Total |
|-------------------------------|------------|---------|------------|--------------|-------|
| Block 1 1470 Marks | Module 1 | 200 | 200 | 200 | 600 |
| | Module 2 | 200 | 200 | 200 | 600 |
| | Block Exam | 90 | 90 | 90 | 270 |
| | Total | 490 | 490 | 490 | 1470 |
| Block 2 | Module 1 | 200 | 200 | 200 | 600 |

| | | | | | |
|-------------------------------|------------|------|------|------|------|
| 1470 Marks | Module 2 | 200 | 200 | 200 | 600 |
| | Block Exam | 90 | 90 | 90 | 270 |
| | Total | 490 | 490 | 490 | 1470 |
| Block 3 1470 Marks | Module 1 | 200 | 200 | 200 | 600 |
| | Module 2 | 200 | 200 | 200 | 600 |
| | Block Exam | 90 | 90 | 90 | 270 |
| | Total | 490 | 490 | 490 | 1470 |
| Total Marks | | 1470 | 1470 | 1470 | 4410 |

Note:

- Total Operational marks =4410 converted to 270 marks and per block 1470 marks will be converted to 90 marks for Annual Professional marks calculation .

**Continuous Internal Assessment (CIA) Plan of First Year MBBS 2025
With CIA 40%**

- Total First Professional Marks: 900
- Annual Marks: (60%) =540 Marks
- Continuous Internal Assessment (40%)

Components of CIA

- **A:** CIA calculated from on campus assessments including LMS (on campus) =30%=270 Marks
- **B:** CIA calculated from Online LMS Assessments =10%=90 Marks

Table1: CIA calculated from on campus assessments =30%= 270 Marks

| Total Block Marks | Subjects | Block wise subject Marks | Module 1 Marks | Module 2 Marks | Block Marks | Total Block Marks |
|--------------------------|-----------------|-----------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|--------------------------|
| Block – I 90 Marks | Anatomy | 30 (Theory-15 Practical-15) | 10 marks (Theory-6 Practical-4) | 10 marks (Theory-6 Practical-4) | 10 Marks (Theory-3 Practical-7) | Block – I 90 Marks |
| | Physiology | 30 (Theory-15 Practical-15) | 10 marks (Theory-6 Practical-4) | 10 marks (Theory-6 Practical-4) | 10 Marks (Theory-3 Practical-7) | |
| | Biochemistry | 30 (Theory-15 Practical-15) | 10 marks (Theory-6 Practical-4) | 10 marks (Theory-6 Practical-4) | 10 Marks (Theory-3 Practical-7) | |
| | Anatomy | 30 | 10 marks | 10 marks | 10 Marks | |

| | | | | | | |
|-------------------------|--------------|-----------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|-------------------------|
| Block – II 90 Marks | | (Theory-15 Practical-15) | (Theory-6 Practical-4) | (Theory-6 Practical-4) | (Theory-3 Practical-7) | Block – II 90 Marks |
| | Physiology | 30 (Theory-15 Practical-15) | 10 marks (Theory-6 Practical-4) | 10 marks (Theory-6 Practical-4) | 10 Marks (Theory-3 Practical-7) | |
| | Biochemistry | 30 (Theory-15 Practical-15) | 10 marks (Theory-6 Practical-4) | 10 marks (Theory-6 Practical-4) | 10 Marks (Theory-3 Practical-7) | |
| Block – III 90 Marks | Anatomy | 30 (Theory-15 Practical-15) | 10 marks (Theory-6 Practical-4) | 10 marks (Theory-6 Practical-4) | 10 Marks (Theory-3 Practical-7) | Block – III 90 Marks |
| | Physiology | 30 (Theory-15 Practical-15) | 10 marks (Theory-6 Practical-4) | 10 marks (Theory-6 Practical-4) | 10 Marks (Theory-3 Practical-7) | |
| | Biochemistry | 30 (Theory-15 Practical-15) | 10 marks (Theory-6 Practical-4) | 10 marks (Theory-6 Practical-4) | 10 Marks (Theory-3 Practical-7) | |
| Total Marks of CIA | | | | | | 270 Marks |

Table 2 : CIA calculated from Online LMS Summative Assessments = 10% = 90 Marks

| Total Block Marks | Subjects | Block wise subject Marks | Module 1 Marks | Module 2 Marks | Total Block Marks |
|--------------------------------|-----------------|---------------------------------|--|--|--------------------------|
| Block – I 30 Marks | Anatomy | 10 (Theory-5 Practical-5) | 5 marks (Theory-2.5 Practical-2.5) | 5 marks (Theory-2.5 Practical-2.5) | Block – I 30 Marks |
| | Physiology | 10 (Theory-5 Practical-5) | 5 marks (Theory-2.5 Practical-2.5) | 5 marks (Theory-2.5 Practical-2.5) | |
| | Biochemistry | 10 (Theory-5 Practical-5) | 5 marks (Theory-2.5 Practical-2.5) | 5 marks (Theory-2.5 Practical-2.5) | |
| Block – II 30 Marks | Anatomy | 10 (Theory-5 Practical-5) | 5 marks (Theory-2.5 Practical-2.5) | 5 marks (Theory-2.5 Practical-2.5) | Block – II 30 Marks |
| | Physiology | 10 (Theory-5 Practical-5) | 5 marks (Theory-2.5 Practical-2.5) | 5 marks (Theory-2.5 Practical-2.5) | |

| | | | | | |
|-------------------------|--------------|---------------------------------|--|--|-------------------------|
| | | Practical-5) | Practical-2.5) | Practical-2.5) | |
| | Biochemistry | 10 (Theory-5 Practical-5) | 5 marks (Theory-2.5 Practical-2.5) | 5 marks (Theory-2.5 Practical-2.5) | |
| Block – III 30 Marks | Anatomy | 10 (Theory-5 Practical-5) | 5 marks (Theory-2.5 Practical-2.5) | 5 marks (Theory-2.5 Practical-2.5) | Block – III 30 Marks |
| | Physiology | 10 (Theory-5 Practical-5) | 5 marks (Theory-2.5 Practical-2.5) | 5 marks (Theory-2.5 Practical-2.5) | |
| | Biochemistry | 10 (Theory-5 Practical-5) | 5 marks (Theory-2.5 Practical-2.5) | 5 marks (Theory-2.5 Practical-2.5) | |

Table 3 : Extrapolated marks to be calculated from on campus Summative assessments throughout the Academic Year 2025

| Blocks | Modules | Anatomy | Physiology | Biochemistry | Total |
|-----------------------|----------------|----------------|-------------------|---------------------|--------------|
| Block 1 1470 Marks | Module 1 | 200 | 200 | 200 | 600 |
| | Module 2 | 200 | 200 | 200 | 600 |
| | Block Exam | 90 | 90 | 90 | 270 |
| | Total | 490 | 490 | 490 | 1470 |
| Block 2 1470 Marks | Module 1 | 200 | 200 | 200 | 600 |
| | Module 2 | 200 | 200 | 200 | 600 |
| | Block Exam | 90 | 90 | 90 | 270 |
| | Total | 490 | 490 | 490 | 1470 |
| Block 3 1470 Marks | Module 1 | 200 | 200 | 200 | 600 |
| | Module 2 | 200 | 200 | 200 | 600 |
| | Block Exam | 90 | 90 | 90 | 270 |
| | Total | 490 | 490 | 490 | 1470 |
| Total Marks | | 1470 | 1470 | 1470 | 4410 |

Note:

- Total Operational marks =4410 converted to 270 marks and per block 1470 marks will be converted to 90 marks for Annual Professional marks calculation.
- The CIA should be submitted to Examination cell in round off values.

Table 4: Block wise and subject wise distribution of CIA marks = 360Marks (40%)

| Subjects | Block-I | | | Block-II | | | Block-III | | | Total CIA (40%) |
|---------------------------|-----------------------------|--|-------------|-----------------------------|--|-------------|-----------------------------|--|-------------|-------------------------|
| | On campus assessments (30%) | Online LMS based Summative assessments (10%) | Total (40%) | On campus assessments (30%) | Online LMS based Summative assessments (10%) | Total (40%) | On campus assessments (30%) | Online LMS based Summative assessments (10%) | Total (40%) | |
| Anatomy | 30 | 10 | 40 | 30 | 10 | 40 | 30 | 10 | 40 | 40+40+40=120 |
| Physiology | 30 | 10 | 40 | 30 | 10 | 40 | 30 | 10 | 40 | 40+40+40=120 |
| Biochemistry | 30 | 10 | 40 | 30 | 10 | 40 | 30 | 10 | 40 | 40+40+40=120 |
| Total Marks of CIA | 90 | 30 | 120 | 90 | 30 | 120 | 90 | 30 | 120 | 120+120+120= 360 |

Table: 5 Module wise No of MCQs per subject per LMS Based Summative Assessment (10% CIA)

| | No of MCQs per subject per LMS Based Summative Assessment | Module :1 (Number of MCQs x Number of LMS) | Module :2 (Number of MCQs x Number of LMS) | Module :3 (Number of MCQs x Number of LMS) | Module :4 (Number of MCQs x Number of LMS) | Module :5 (Number of MCQs x Number of LMS) | Module :6 (Number of MCQs x Number of LMS) | TOTAL Number of MCQs |
|-----------------------------|---|--|--|--|--|--|--|----------------------|
| Anatomy | 40 MCQs | 40 x2= 80 MCQs | 40 x2= 80 MCQs | 40 x2= 80 MCQs | 40 x2= 80 MCQs | 40 x2= 80 MCQs | 40 MCQs | 440 |
| Physiology | 40 MCQs | 40 x2= 80 MCQs | 40 x2= 80 MCQs | 40 x2= 80 MCQs | 40 x2= 80 MCQs | 40 x2= 80 MCQs | 40 MCQs | 440 |
| Biochemistry | 40 MCQs | 40 x2= 80 MCQs | 40 x2= 80 MCQs | 40 x2= 80 MCQs | 40 x2= 80 MCQs | 40 x2= 80 MCQs | 40 MCQs | 440 |
| Total Number of MCQs | | 240 | 240 | 240 | 240 | 240 | 120 | 1320 |

Table:6 Table of specification of Continuous Internal Assessment (CIA) for LMS Based Summative Assessment

| Subjects | Total No of MCQs Per LMS | Knowledge (K) +Practical (SKL) | | | | | | | | | Total time per LMS Assessment 30 min (0.75 seconds for 1 MCQ) |
|--------------|--------------------------|--------------------------------|------------------|----|----|-----|----------------|------------------|----|----|---|
| | | LGIS ,SGDs& Skill lab (50%) | | | | | SDL (50%) | | | | |
| | | Number of MCQs | Cognitive Domain | | | SKL | Number of MCQs | Cognitive Domain | | | |
| | | | C1 | C2 | C3 | | | C1 | C2 | C3 | |
| Anatomy | 40 | 20 | 2 | 3 | 10 | 5 | 20 | 5 | 5 | 10 | |
| Physiology | 40 | 20 | 2 | 3 | 10 | 5 | 20 | 5 | 5 | 10 | |
| Biochemistry | 40 | 20 | 2 | 3 | 10 | 5 | 20 | 5 | 5 | 10 | |

Note: An LMS-based assessment conducted during the block is regarded as part of the on-campus assessment, with the resulting CIA contributing to the 30% weightage.

The time allocated for LMS Based Summative assessment (off Campus) will be 30 minutes for 40 Mcqs (0.75 seconds for 1 MCQ)

Table: 7 Table of specification of Continuous Internal Assessment (CIA) for First and Second year MBBS (On Campus assessments (30%))

| Domains: C-Core Subject (70%) Levels C1-C2, HV- Horizontal & Vertical Integration (20%) Levels C2-C3, S- Spiral Integration (10%) Levels C2-C3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------|-------------------------------|----|---|-------|-------|------|-------|-------|------|----|---|-------|-------|---|----|---|-------|--------------------|---|---------|---|----|---|------|------------------------|-------------|---------------------------------|-------|-------|------|-----------------------|------|-------|
| End of Module Assessment | Subject | Theory (Cognitive) Assessment | | | | | | | | | | | | | | | | | | Practical (Skill & Attitude) Assessment | | | | | | | Grand Total | Total Time of Module Assessment | | | | | | |
| | | MCQs | | | | | EMQs | | | SAQs | | | | SEQs | | | | Marks | Total Marks Theory | Total Time | AV OSPE | | | | Time | AED Reflective Writing | | | OSVE | | | Total Practical Marks | | |
| | | C | HV | S | Total | Marks | C | Total | Marks | C | HV | S | Total | Marks | C | HV | S | | | | Total | C | HV | S | | | | | Total | Marks | Viva | | Copy | Total |
| First Module | Anatomy | 19 | 4 | 2 | 25 | 25 | 1 | 1 | 5 | 3 | 1 | 1 | 5 | 25 | 3 | 1 | 1 | 5 | 45 | 100 | 2 HRS | 7 | 2 | 1 | 10 | 50 | 50 min | 15 min | 45 | 5 | 50 | 100 | 200 | 6 HRS |
| | Physiology | 19 | 4 | 2 | 25 | 25 | 1 | 1 | 5 | 3 | 1 | 1 | 5 | 25 | 3 | 1 | 1 | 5 | 45 | 100 | 2 HRS | 7 | 2 | 1 | 10 | 50 | 50 min | 15 min | 45 | 5 | 50 | 100 | 200 | 6 HRS |
| | Biochemistry | 19 | 4 | 2 | 25 | 25 | 1 | 1 | 5 | 3 | 1 | 1 | 5 | 25 | 3 | 1 | 1 | 5 | 45 | 100 | 2 HRS | 7 | 2 | 1 | 10 | 50 | 50 min | 15 min | 45 | 5 | 50 | 100 | 200 | 6 HRS |
| Formative- Weekly LMS Based Assessment of 30 MCQs (10 MCQs per Subject) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| End of Module Assessment | Subject | Theory (Cognitive) Assessment | | | | | | | | | | | | | | | | | | Practical (Skill & Attitude) Assessment | | | | | | | Grand Total | Total Time of Module Assessment | | | | | | |
| | | MCQs | | | | | EMQs | | | SAQs | | | | SEQs | | | | Marks | Total Marks Theory | Total Time | AV OSPE | | | | Time | AED Reflective Writing | | | OSVE | | | Total Practical Marks | | |
| | | C | HV | S | Total | Marks | C | Total | Marks | C | HV | S | Total | Marks | C | HV | S | | | | Total | C | HV | S | | | | | Total | Marks | Viva | | Copy | Total |
| Second Module | Anatomy | 19 | 4 | 2 | 25 | 25 | 1 | 1 | 5 | 3 | 1 | 1 | 5 | 25 | 3 | 1 | 1 | 5 | 45 | 100 | 2 HRS | 7 | 2 | 1 | 10 | 50 | 50 min | 15 min | 45 | 5 | 50 | 100 | 200 | 6 HRS |
| | Physiology | 19 | 4 | 2 | 25 | 25 | 1 | 1 | 5 | 3 | 1 | 1 | 5 | 25 | 3 | 1 | 1 | 5 | 45 | 100 | 2 HRS | 7 | 2 | 1 | 10 | 50 | 50 min | 15 min | 45 | 5 | 50 | 100 | 200 | 6 HRS |
| | Biochemistry | 19 | 4 | 2 | 25 | 25 | 1 | 1 | 5 | 3 | 1 | 1 | 5 | 25 | 3 | 1 | 1 | 5 | 45 | 100 | 2 HRS | 7 | 2 | 1 | 10 | 50 | 50 min | 15 min | 45 | 5 | 50 | 100 | 200 | 6 HRS |
| Formative- Weekly LMS Based Assessment of 30 MCQs (10 MCQs per Subject) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Block | Subjects | LMS Based Assessment | | | | | OSPE | | | | | | Grand Total | Total Block Time | |
|-------|--------------|----------------------|----|---|-------|--------|---------|-------|-------|----|-------|-------|-------------|------------------|------|
| | | MCQs | | | | | LabOSPE | IOSPE | COSPE | | Total | Marks | | | Time |
| | | C | HV | S | Total | Time | C | HV | S | | | | | | |
| BLOCK | Anatomy | 21 | 6 | 3 | 30 | 30 min | 14 | 4 | 2 | 20 | 60 | 6 HRS | 90 | 10 HRS | |
| | Physiology | 21 | 6 | 3 | 30 | 30 min | 14 | 4 | 2 | 20 | 60 | 6 HRS | 90 | 10 HRS | |
| | Biochemistry | 21 | 6 | 3 | 30 | 30 min | 14 | 4 | 2 | 20 | 60 | 6 HRS | 90 | 10 HRS | |

| Weekly LMS Assessment | | | |
|-----------------------|---------|------------|------------|
| Subjects | Anatomy | Physiology | Biochemist |
| No of MCQs* | 30 | 30 | 30 |
| Marks/MCQ | 30 | 30 | 30 |

*MCQ=1 Mark each, 1 min each

50% Questions/OSPE Stations/Viva Stations will be from Foundation Module and 50% Questions will be from MSK-1 Module

For Each assessment student will have to individually pass Theory and Practical components

Marks per Item

| | | | | | |
|--|--------|--------|--------|-----------|---------|
| MCQ=1 | EMQ= 5 | SAQ= 5 | SEQ= 9 | AVOSPE= 5 | OSPE= 3 |
| OSPE Time=1 Round of 40 Students =80 min | | | | | |
| 3 Round of 40 Students =240 min | | | | | |
| OSVE=Time per student=5mins | | | | | |

Final Annual Assessment (First professional Examinations) 2025(Batch 52)

- Total First Professional Marks: 900
- Continuous Internal Assessment (40%) =360 Marks
- Annual Marks: (60%) =540 Marks

A: First Professional Examination (60%)

| A: First Professional Examination (60%) Total marks = 540 Marks | | |
|---|-------------------------|-------------------------------------|
| Subjects | % Weightage of subjects | Marks distribution as per weightage |
| Anatomy | 35% | 188 Marks |
| Physiology | 31% | 166 Marks |
| Biochemistry | 21% | 114 Marks |
| Integrated Subjects Community Medicine & Public Health/Research Behavioural Sciences Pathology Pharmacology Radiology Family Medicine Surgery Medicine Gynae & Obs Orthopedics Pediatrics Surgery Ophthalmology Otorhinolaryngology | 7 % | 42Marks |
| Early Clinical Exposure ALPHA and General Education Cluster (GEC) | 6 % | 30 Marks |
| Total Marks | | 540 Marks |

B: Block wise Distribution of Marks

| Total Annual Professional Marks (60%) | BLOCK 1 Marks | BLOCK 2 Marks | BLOCK 3 Marks | Total Marks |
|--|----------------------|----------------------|----------------------|--------------------|
| 540Marks | 180 Marks | 180 Marks | 180 Marks | 540 Marks |

C: Subject wise marks breakup in Blocks

| Subjects | Block 1 | Block 2 | Block 3 | Total Marks |
|----------------------------|----------------|----------------|----------------|--------------------|
| Anatomy | 72 Marks | 68 Marks | 48 Marks | 188 Marks (35%) |
| Physiology | 40 Marks | 54 Marks | 72 Marks | 166 Marks (31%) |
| Biochemistry | 42 Marks | 34 Marks | 38 Marks | 114 Marks (21%) |
| Integrated Subjects | 26 Marks | 24 Marks | 22 Marks | 72 Marks (13%) |

D: Subject wise distribution of Marks for First year MBBS (Batch 52)

| Block | Subjects | Theory | Practical | Total marks | Total marks |
|--|---------------------|---------------|------------------|--------------------|---------------------------------------|
| Block 1 (Core subjects + Integrated Subjects) | Anatomy | 37 marks | 35 marks | 72 marks | (Core subjects + Integrated Subjects) |
| | Physiology | 20 marks | 20 marks | 40 marks | |
| | Biochemistry | 17 marks | 25 marks | 42 marks | |
| | Total | 74 | 80 | 154 marks | |
| | Integrated Subjects | | | 26Marks | |

| | | | | | |
|---------------------------------------|------------------------------|--------------------|--------------------|--------------------|---------------------------------------|
| 180 Marks | Community Medicine /Research | 3Marks | | 154+26 = 180 marks | |
| | Behavioural Sciences | 2 Marks | | | |
| | Pathology | 2 Marks | | | |
| | Pharmacology | 3 Marks | | | |
| | Radiology | 1 Mark | | | |
| | Gynae & Obs | 1 Mark | | | |
| | Medicine | 1 Mark | | | |
| | Family Medicine | 1 Mark | | | |
| | Paediatrics | 1 Mark | | | |
| | Surgery | 1 Mark | | | |
| | ECE | | 5 Marks | | |
| | ALPHA and GEC | | 5 Marks | | |
| Total marks | | 154+26 = 180 marks | | | |
| Block | Subjects | Theory | Practical | Total marks | Total marks |
| Block 2 | Anatomy | 33 marks | 35 marks | 68 marks | (Core subjects + Integrated Subjects) |
| | Physiology | 29 marks | 25 marks | 54 marks | |
| | Biochemistry | 14 marks | 20 marks | 34 marks | |
| | Total | 76 | 80 | 156 Marks | |
| (Core subjects + Integrated Subjects) | Integrated Subjects | | | 24 Marks | |
| | Community Medicine /Research | 2 Marks | | | |
| | Family Medicine | 1 Mark | | | |
| | Orthopedics | 2 Marks | | | |
| | Radiology | 2 Marks | | | |
| | Medicine | 2 Marks | | | |
| | Gynae & Obs | 1 Mark | | | |
| | Behavioural Sciences | 2 Marks | | | |
| | Pathology | 2 Marks | | | |
| | ECE | | 5 Marks | | |
| ALPHA and GEC | | 5 Marks | | | |
| 210 Marks | Total marks | | 156+24 = 180 marks | | |
| Block | Subjects | Theory | Practical | Total marks | Total marks |
| Block 3 | Anatomy | 23 marks | 25 marks | 48marks | |

| | | | | | |
|-------------------|----------------------|--------------------|----------|-----------|---|
| 210 Marks | Physiology | 42 marks | 30 marks | 72 marks | (Core subjects + Integrated Subjects) 158+22 = 180 marks |
| | Biochemistry | 13 marks | 25 marks | 38 marks | |
| | Total | 78 | 80 | 158 marks | |
| | Integrated Subjects | | | 22 Marks | |
| | Community Medicine | 1 Marks | | | |
| | Behavioural Sciences | 1 Marks | | | |
| | Medicine | 1 Marks | | | |
| | Family medicine | 1 Mark | | | |
| | Gynae & Obs | 1 Mark | | | |
| | Radiology | 1 Mark | | | |
| | Pediatrics | 1 Mark | | | |
| | Otorhinolaryngology | 1 Mark | | | |
| | Ophthalmology | 1 Mark | | | |
| | Pathology | 1 Marks | | | |
| | Pharmacology | 1 Marks | | | |
| | ECE | | 5 Marks | | |
| ALPHA and GEC | | 5 Marks | | | |
| Total marks | | 158+22 = 180 marks | | | |
| GRAND TOTAL MARKS | | 540 Marks | | | |

E: Block wise distribution of Marks for First year MBBS (Batch 52)
(Annual Professional Marks + CIA)

| Subject | Theory | | | Practical | | | Total Marks |
|---|--------------------------------------|-------------|-------|--------------------------------------|----------------|-------|-------------|
| | Component | No of Items | Marks | Component | No of Stations | Marks | |
| Block I Total Annual marks=180 | Section I- MCQ | 60x1 | 60 | LabOSPE | 5 X 5 | 25 | 180 |
| | Section II- SEQ | 6x5 | 30 | iOSPE | 3 X 5 | 15 | |
| | | | | OSCE | 4 X 5 | 20 | |
| | | | | OSVE | 6 x 5 | 30 | |
| | | | | Total | | 90 | |
| CIA = 120 Marks | Continuous Internal Assessment (40%) | | 60 | Continuous Internal Assessment (40%) | | 60 | 120 |

| | | | | | | | |
|--|--------------------------------------|------|-----|--------------------------------------|-------|-----|-----|
| Total Annual marks+ CIA =180+120= 300 | Total Marks | | 150 | Total Marks | | 150 | 300 |
| Block II Total Annual marks=180 | Section I- MCQ | 60x1 | 60 | LabOSPE | 5 X 5 | 25 | 180 |
| | Section II- SEQ | 6x5 | 30 | iOSPE | 3 X 5 | 15 | |
| | | | | OSCE | 4 X 5 | 20 | |
| | Total | | 90 | OSVE | 6 x 5 | 30 | |
| | | | 90 | Total | | 90 | |
| CIA = 120 Marks | Continuous Internal Assessment (40%) | | 60 | Continuous Internal Assessment (40%) | | 60 | 120 |
| Total Annual marks+ CIA =180+120= 300 | Total Marks | | 150 | Total Marks | | 150 | 300 |
| Block III Total Annual marks=180 | Section I- MCQ | 60x1 | 60 | LabOSPE | 5 X 5 | 25 | 180 |
| | Section II- SEQ | 6x5 | 30 | iOSPE | 3 X 5 | 15 | |
| | | | | OSCE | 4 X 5 | 20 | |
| | Total | | 90 | OSVE | 6 x 5 | 30 | |
| | | | 90 | Total | | 90 | |
| CIA = 120 Marks | Continuous Internal Assessment (40%) | | 60 | Continuous Internal Assessment (40%) | | 60 | 120 |
| Total Annual marks + CIA =180+120= 300 | Total Marks | | 150 | Total Marks | | 150 | 300 |
| Grand Total Marks | | | | | | | 900 |

F: 1st Professional Examination 2025(Batch 52)

Block 1 Assessment Breakup

(Foundation & MSK-1 Module)

| Themes | Discipline | Theory | | | Practical (OSPE) | | | OSVE | Marks | Total Marks per subject | |
|--|---|--------------------------|--------------------------|-----------|---------------------------------------|-------------------------------------|------------------------------------|---|-----------|-------------------------|------------|
| | | No of MCQs (1 mark each) | No of SEQs (5 mark each) | Marks | No of LabOSPE Stations (5 marks each) | No of iOSPE Stations (5 marks each) | No of OSCE Stations (5 marks each) | OSVE (5 Marks each) (1Internal+1External) | | Marks | % |
| Core & Horizontally Integrated Subjects | Anatomy & Applied /Clinical | 22 | 3 | 37 | 3 | 1 | 1 | 2 | 35 | 72 | 40 |
| | Physiology & Applied/Clinical | 10 | 2 | 20 | 1 | 1 | - | 2 | 20 | 40 | 22 |
| | Biochemistry & Applied/clinical | 11 | 1 | 16 | 1 | 1 | 1 | 2 | 25 | 41 | 23 |
| Vertically Integrated Subjects | Community Medicine & Public Health/Research | 4 | - | 4 | - | - | - | - | - | 4 | 15 |
| | Behavioural Sciences | 2 | - | 2 | - | - | - | - | - | 2 | |
| | Pathology | 2 | - | 2 | - | - | - | - | - | 2 | |
| | Radiology | 1 | - | 1 | - | - | - | - | - | 1 | |
| | Gynae & Obs | 1 | - | 1 | - | - | - | - | - | 1 | |
| | Medicine | 1 | - | 1 | - | - | - | - | - | 1 | |
| | Family Medicine | 1 | - | 1 | - | - | - | - | - | 1 | |
| | Paediatrics | 1 | - | 1 | - | - | - | - | - | 1 | |
| | Surgery | 1 | - | 1 | - | - | - | - | - | 1 | |
| | Pharmacology | 3 | - | 3 | - | - | - | - | - | 3 | |
| Spirally Integrated Subjects | ECE | - | - | - | - | - | 1 | - | 5 | 5 | |
| | ALPHA and GEC | - | - | - | - | - | 1 | - | 5 | 5 | |
| Total | | 75 | 6x5=30 | 90 | 5x5=25 | 3x5=15 | 4x5=20 | 6 x5=30 | 90 | 180 | 100 |
| Total | | 90 | | | 90 | | | | | 90+90=180 | |

G: 1st Professional Examination 2025 (Batch 52)

Block 2 Assessment

(MSK-2 & Blood/Immunity Module)

| Theme | Subject | Theory | | | Practical | | | OSVE | Marks | Total Marks per subject | |
|--|------------------------------------|--------------------------|--------------------------|-----------|---------------------------------------|-------------------------------------|------------------------------------|---------------------|-----------|-------------------------|------------|
| | | No of MCQs (1 mark each) | No of SEQs (5 mark each) | Marks | No of LabOSPE Stations (5 marks each) | No of iOSPE Stations (5 marks each) | No of OSCE Stations (5 marks each) | OSVE (5 Marks each) | | Total Marks | % |
| Core & Horizontally Integrated Subjects | Anatomy & Applied /Clinical | 18 | 3 | 33 | 3 | 1 | 1 | 2 | 35 | 68 | 37 |
| | Physiology & Applied/Clinical | 19 | 2 | 29 | 1 | 1 | 1 | 2 | 25 | 54 | 30 |
| | Biochemistry & Applied/clinical | 9 | 1 | 14 | 1 | 1 | - | 2 | 20 | 34 | 18 |
| Vertically Integrated Subjects | Community Medicine & Public Health | 2 | - | 2 | - | - | - | - | - | 2 | 13 |
| | Behavioural Sciences | 2 | - | 2 | - | - | - | - | - | 2 | |
| | Pathology | 2 | - | 2 | - | - | - | - | - | 2 | |
| | Family Medicine | 1 | - | 1 | - | - | - | - | - | 1 | |
| | Orthopedics | 2 | - | 2 | - | - | - | - | - | 2 | |
| | Radiology | 2 | - | 2 | - | - | - | - | - | 2 | |
| | Medicine | 2 | - | 2 | - | - | - | - | - | 2 | |
| | Gynae & Obs | 1 | - | 1 | - | - | - | - | - | 1 | |
| Spirally Integrated Subjects | ECE | - | - | - | - | - | 1 | - | 5 | 5 | |
| | ALPHA and GEC | - | - | - | - | - | 1 | - | 5 | 5 | |
| Total | | 60 | 6x5=30 | 90 | 5x5=25 | 3x5=15 | 4x5=20 | 6x5=30 | 90 | 180 | 100 |
| Total | | 90 | | | 90 | | | 90+90=180 | | | |

H: 1st Professional Examination 2025 (Batch 52)
Block 3 Assessment
(CVS & Respiratory Module)

| Themes | Discipline | Theory | | | Practical | | | OSVE | Marks | Total Marks per subject | |
|--|------------------------------------|--------------------------|--------------------------|------------|---------------------------------------|-------------------------------------|------------------------------------|---------------------|-----------|-------------------------|------------|
| | | No of MCQs (1 mark each) | No of SEQs (5 mark each) | Marks | No of LabOSPE Stations (5 marks each) | No of iOSPE Stations (5 marks each) | No of OSCE Stations (5 marks each) | OSVE (5 Marks each) | | Marks | % |
| Core & Horizontally Integrated Subjects | Anatomy & Applied /Clinical | 13 | 2 | 23 | 1 | 1 | 1 | 2 | 25 | 48 | 27 |
| | Physiology & Applied/Clinical | 27 | 3 | 42 | 2 | 1 | 1 | 2 | 30 | 72 | 40 |
| | Biochemistry & Applied/clinical | 8 | 1 | 13 | 1 | 1 | 1 | 2 | 25 | 38 | 21 |
| Vertically Integrated Subjects | Community Medicine & Public Health | 1 | - | 1 | - | - | - | - | - | 1 | 12 |
| | Behavioural Sciences | 1 | - | 1 | - | - | - | - | - | 1 | |
| | Pathology | 1 | - | 1 | - | - | - | - | - | 1 | |
| | Medicine | 1 | | 1 | | | | | | 1 | |
| | Family medicine | 1 | | 1 | | | | | | 1 | |
| | Gynae & Obs | 1 | | 1 | | | | | | 1 | |
| | Radiology | 1 | | 1 | | | | | | 1 | |
| | Pediatrics | 1 | | 1 | | | | | | 1 | |
| | Otorhinolaryngology | 1 | | 1 | | | | | | 1 | |
| | Ophthalmology | 1 | | 1 | | | | | | 1 | |
| | Pathology | 1 | | 1 | | | | | | 1 | |
| | Pharmacology | 1 | - | 1 | - | - | - | - | - | 1 | |
| Spirally Integrated Subjects | ECE | - | - | - | - | - | 1 | - | 5 | 5 | |
| | ALPHA and GEC | - | - | - | - | - | 1 | - | 5 | 5 | |
| Total | | 60 | 6x5=30 | 105 | 4x5=20 | 3x5=15 | 5x5=25 | 3x5=30 | 90 | 180 | 100 |
| Total | | 90 | | | 90 | | | | | 90+90=180 | |

SECTION – V

Time Table

Clinically Oriented Integrated Modular MBBS Curriculum 2026
RMU 12 - Isolation to Beyond Boundaries

Foundation Module - I Time Table

First Year MBBS

Session 2025 - 2026

Batch - 53

Foundation Module - I Team

Module Name : Foundation Module - I
 Duration of module : 06 Weeks
 Coordinator : Dr. Tayyaba Qureshi
 Co-coordinator : Dr. Zeneera Saqib
 Reviewed by : Module Committee

| Module Committee | | | Module Task Force Team | | |
|-------------------------|--|--------------------------------|--------------------------------|--|---|
| 1. | Vice Chancellor RMU | Prof. Dr. Muhammad Umar | 1. | Coordinator | Dr. Tayyaba Qureshi (Assistant Professor of Anatomy) |
| 2. | Director DME & Dean Basic Sciences | Prof. Dr. Ifra Saeed | 2. | DME Focal Person | Dr. Farzana Fatima |
| 3. | Additional Director (Assessment) DME | Dr. Arsalan Manzoor Mughal | 3. | Co-coordinator | Dr. Zenera Saqib (Senior Demonstrator of Anatomy) |
| 4. | Chairperson Physiology | Prof. Dr. Samia Sarwar | 4. | Co-Coordinator | Dr. Uzma Kiyani (Senior Demonstrator of Physiology) |
| 5. | Chairperson Anatomy | Prof. Dr. Ayesha Yousaf | 5. | Co-coordinator | Dr. Raja Khalid Yaqoob (Demonstrator of Biochemistry) |
| 6. | Chairperson Biochemistry | Dr. Aneela Jamil | DME Implementation Team | | |
| 7. | Focal Person Anatomy 1 st Year MBBS | Asso. Prof. Dr. Mohtashim Hina | | | |
| 8. | Focal Person Physiology | Dr. Sidra Hamid | DME Implementation Team | | |
| 9. | Focal Person Pharmacology | Dr. Haseeba | | | |
| 10. | Focal Person Pathology | Dr. Asiya Niazi | 1. | Director DME | Prof. Dr. Ifra Saeed |
| 11. | Focal Person Behavioral Sciences | Dr. Saadia Yasir | 2. | Implementation Incharge 1st & 2 nd Year MBBS | Dr. Arsalan Manzoor Mughal Dr. Farzana Fatima |
| 12. | Focal Person Community Medicine | Dr. Afifa Kulsoom | 3. | Assistant Director DME | Dr. Farzana Fatima |
| 13. | Focal Person Quran Translation Lectures | Dr. Uzma Zafar | 4. | Editor | Muhammad Arslan Aslam |
| 14. | Focal Person Family Medicine | Dr. Sadia Khan | | | |

Discipline Wise Details of Modular Content

| Integration | | | | | |
|--------------------|--|---|--|--|--|
| Block | Module | General Anatomy | Embryology | Histology | Gross Anatomy |
| I | <ul style="list-style-type: none"> Anatomy | Introduction to General Anatomy | General Embryology <ul style="list-style-type: none"> Introduction to Human Development Oogenesis Spermatogenesis Female Reproductive Cycles Ovulation and Fertilization Cleavage and Blastocyst Formation Development of Mammary Gland | General Histology <ul style="list-style-type: none"> Types of Epithelium Specialization of Apical Cell Surface Intercellular Junctions and Adhesions Glandular Epithelium Mammary Gland | <ul style="list-style-type: none"> Anatomicomedical Terminologies I (position & planes) Anatomicomedical Terminologies II (Anatomical Terms and Axis of Movements) Anatomicomedical Terminologies III (Cell and Tissues) Anatomicomedical Terminologies IV (Skin & Body Systems) Clavicle Scapula Humerus Anterior Axioappendicular Muscles Posterior Axioappendicular Muscles Axilla Brachial Plexus Brachial Plexus Injuries Breast Sternoclavicular and Acromioclavicular Joints Radiograph and Surface Anatomy of Axioappendicular Region |
| | <ul style="list-style-type: none"> Biochemistry | <ul style="list-style-type: none"> Cell and Cell Organelles, Cell Membrane and Transport Across Cell Membrane, Physicochemical Properties, Enzymes, Cancer, Nucleic Acid Chemistry, Genetics | | | |
| | <ul style="list-style-type: none"> Physiology | <ul style="list-style-type: none"> Functional Organization of The Human Body and Control of the “Internal Environment The Cell and Its Functions Genetic Control of Protein Synthesis, Cell Function, And Cell Reproduction Transport of Substances Through the Cell Membrane | | | |
| | Orientation Sessions | | | | |

| | |
|--|--|
| <ul style="list-style-type: none"> • Welcome Address by VC, Introduction to RMU • Introduction to Department of Medical Education & Integrated Modular System. • Assessment Model of RMU And Continuous Internal Assessment • Research Model of RMU (IUGRC), Biomedical Ethics, & Family Medicine • Introduction to Digital Services RMU • Introduction to Anatomy Department • Introduction to Physiology Department • Introduction to Biochemistry • Introduction to Behavioral Sciences • Introduction to Pharmacology • Introduction to Pathology • Introduction to Community Medicine & Research Model of RMU | |
| Spiral Courses | |
| <ul style="list-style-type: none"> • Bioethics & Professionalism | <ul style="list-style-type: none"> • Introduction to history of medical ethics • Leadership Professionalism (DME) |
| <ul style="list-style-type: none"> • Family Medicine | <ul style="list-style-type: none"> • Introduction to Family Medicine & its application in health care system |
| <ul style="list-style-type: none"> • Integrated Under Graduate Research Innovation (IUGRC) | <ul style="list-style-type: none"> • Research I Introduction of health research process • Research II characteristic of research process • Research III Basis of ethics in health research • Research IV Basics of ethics in medical research |
| <ul style="list-style-type: none"> • Behavioral Sciences | <ul style="list-style-type: none"> • Introduction to Behavioral Sciences • Stress in Medical Students & its Management |
| <ul style="list-style-type: none"> • Information Technology (IT) | <ul style="list-style-type: none"> • How to use Higher Education Commission (HEC) digital library. |
| <ul style="list-style-type: none"> • Community Medicine (Life Style and Prevention) | <ul style="list-style-type: none"> • Healthy Lifestyle: A Foundation for Medical Professionals |
| Vertical Integration | |
| <ul style="list-style-type: none"> • Pathology | <p>Clinically content relevant to Foundation Module - I</p> <ul style="list-style-type: none"> • Introduction to Pathology • Cellular Responses to Injury • Intracellular Accumulations • Pigments • Free Radicals/ Reactive Oxygen Species (Ros). • Oxidative Stress Irreversible Injury. • Necrosis Apoptosis (Irreversible Injury) |

| | | |
|--------------------------------------|---|---|
| | | <ul style="list-style-type: none"> • Genetic Disorders |
| | <ul style="list-style-type: none"> • Pharmacology | <ul style="list-style-type: none"> • Introduction to Pharmacology • Pharmacokinetic processes • Receptors and signal transduction processes |
| | <ul style="list-style-type: none"> • Community Medicine | <ul style="list-style-type: none"> • Introduction to Community Medicine & Research Model of RMU • Immunization & Vaccination • Health Determinants & Indicators • Life Style Medicine • Health Education & Communication |
| | <ul style="list-style-type: none"> • Medicine | <ul style="list-style-type: none"> • Introduction to Medicine and History of Medicine • Chromosomal Aberrations |
| | <ul style="list-style-type: none"> • Surgery | <ul style="list-style-type: none"> • History taking & its importance • CA Breast |
| | <ul style="list-style-type: none"> • Obstetrics & Gynaecology | <ul style="list-style-type: none"> • Infertility • In vitro Fertilization |
| | <ul style="list-style-type: none"> • Paediatrics | <ul style="list-style-type: none"> • Medical Genetics & Dysmorphology |
| Early Clinical Exposure (ECE) | | |
| | Departments | Skill - 1: Hand Washing |
| | <ul style="list-style-type: none"> • Medicine & Allied | Skill – 2: Wearing Gloves |
| | <ul style="list-style-type: none"> • Surgery and Trauma | Skill – 3: Providing Basic Life Support in Adults |
| | <ul style="list-style-type: none"> • Emergency Department | Skill – 4: Scrubbing for Operation Theatre |
| Clinical Relevance | | |
| | <ul style="list-style-type: none"> • Medical Ethics • Genetic Disorders • Understanding cellular and molecular mechanisms in disease (e.g., cancer and diabetes) • Importance of homeostasis in maintaining normal physiological function (e.g., dehydration and acid-base imbalances) • Application of medical ethics in real-life scenarios, such as patient confidentiality • Effective doctor-patient communication in history-taking and empathy | |

Categorization of Modular Content of Anatomy:

| Category A* | Category B** | | Category C *** | | | |
|---|---|---|--|--|---|---|
| General Embryology | General Histology | General Anatomy | Demonstrations / SGD | CBL | Practical's | Self-Directed Learning (SDL) |
| <ul style="list-style-type: none"> • Introduction to human development • Oogenesis • Spermatogenesis • Female reproductive cycles • Ovulation and fertilization • Cleavage and blastocyst formation • Development of mammary gland | <ul style="list-style-type: none"> • Types of epithelium • Specialization of apical cell surface • Intercellular junction and adhesions • Glandular epithelium • Mammary gland | <ul style="list-style-type: none"> • Introduction to General Anatomy | <ul style="list-style-type: none"> • Anatomicomedical terminologies I (planes & position) • Anatomicomedical terminologies II (Anatomical terms and axis of movements) • Anatomicomedical terminologies III (Cell and tissues) • Anatomicomedical terminologies IV (Skin & Body system) • Clavicle • Scapula • Humerus • Anterior Axioappendicular muscles • Posterior Axioappendicular muscles • Axilla • Brachial plexus & injuries • Breast • Sternoclavicular and acromioclavicular joints • Radiograph / Cross Section and surface anatomy of axioappendicular region | <ul style="list-style-type: none"> • Fracture of Clavicle • Brachial plexus injuries | <ul style="list-style-type: none"> • Introduction to microscope, Slide preparation, artifact • Simple epithelium, • Stratified epithelium • Mammary gland | <ul style="list-style-type: none"> • Green Stick Fracture of Clavicle • Applied Anatomy of Scapula • Applied Anatomy of Anterioraxioappendicular muscles • Applied Anatomy of Posterior Axioappendicular muscles • Applied Anatomy of Axilla • Injuries of Brachial Plexus • Applied Anatomy of Breast |

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resource of Department of Anatomy

| Sr. # | Designation of Teaching Staff / Human Resource | Total Number of Teaching Staff |
|-------|--|--------------------------------|
| 1. | Professor of Anatomy department | 01 |
| 2. | Associate professor of Anatomy department | 02 |
| 3. | Assistant professor of Anatomy department (AP) | 02 |
| 4. | Demonstrators of Anatomy department | 03 |

Contact Hours (Faculty)

| Sr. # | Hours Calculation for Various Type of Teaching Strategies | Total Hours |
|-------|---|---------------------|
| 1. | Large Group Interactive Session (LGIS) | 12 * 1 = 12 hours |
| 2. | Small Group Discussions (SGD) | 32 hours |
| 3. | Case Based Learning (CBL) | 2 * 1 = 2 hours |
| 4. | Practical / Skill Lab | 1.6 * 20 = 32 hours |
| 5. | Supervised Self-Directed Learning (SSDL) | 2 * 1 = 2 hours |

Contact Hours (Students)

| Sr. # | Hours Calculation for Various Type of Teaching Strategies | Total Hours |
|-------|---|-------------|
| 1. | Large Group Interactive Session (LGIS) | 12 hours |
| 2. | Small Group Discussions (SGD) | 32 hours |
| 3. | Case Based Learning (CBL) | 2 hours |
| 4. | Practical / Skill Lab | 6.4 hours |
| 5. | Supervised Self-Directed Learning (SSDL) | 2 hours |
| 6. | Self-Directed Learning (SDL) | 7 hours |

Categorization of Modular Content of Physiology:

| Category A* | Category B** | Category C*** | | | | |
|--|--|---------------|--|---|---|---|
| LGIS | LGIS | PBL | CBL | Practical's | SGD | SDL |
| Introduction To Physiology Department (By Prof Dr. Samia Sarwar) | Concept of body fluids & internal environment (By Dr. Sidra Hamid) | | Body Fluid Compartment, Cell Membrane and Cytoskeleton, Down's Syndrome | Introduction to Microscope Introduction to Wintrobe and Westergen tube Apparatus identification (Introduction to Neubauer's chamber, Red Blood Cell (RBC) pipettes & White Blood Cell (WBC) pipette 4. Apparatus identification (Introduction to centrifuge machine) | Functional Organization of Human Body and Cell Physiology Cellular Control Mechanism, Cell Cycle and programmed cell death / apoptosis | Concept of body fluids & internal environment Genetics, Transcription and Translation Receptor and signal transduction Structure of Nucleus, Ribosomes and Cell Division Cellular Control Mechanism, Cell Cycle and programmed cell death / apoptosis |
| Homeostasis Control System- I (Negative Feedback System, Concept Of Error And Gain) (By Prof Dr. Samia Sarwar) | Intracellular communication and cell junction (By Dr. Sidra Hamid) | | | | | |
| Homeostasis Control System- II (positive feedback, and concept of feed forward, adaptive control and vicious cycle) (By Prof Dr. Samia Sarwar) | Receptor and signal transduction (By Dr. Sidra Hamid) | | | | | |
| Structure of Nucleus, Ribosomes and Cell Division (By Prof Dr. Samia Sarwar) | Active Transport- Ii (Secondary Active Transport) (Dr. Sheena Tariq) | | | | | |
| Cell membrane & classification of cell organelles (by Dr. Faizania) | | | | | | |
| Cell organelles & related cell function – I (by Dr. Faizania) | | | | | | |
| Cell organelles & related cell function – II (by Dr. Faizania) | | | | | | |
| Genetics, Transcription and Translation (by Dr. Faizania) | | | | | | |
| Active Transport- I (Primary Active Transport) (by Dr. Faizania) | | | | | | |
| | | | | | | |

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resource of Department of Physiology

| Sr. # | Designation Of Teaching Staff / Human Resource | Total Number of Teaching Staff |
|-------|---|--------------------------------|
| 1. | Professor of physiology department | 01 |
| 2. | Associate professor of physiology department | 01 |
| 3. | Assistant professor of physiology department (AP) | 01 |
| 4. | Demonstrators of physiology department | 07 |
| 5. | Residents of physiology department (PGTs) | 06 |

Contact Hours (Faculty) & Contact Hours (Students)

| Sr. # | Hours Calculation for Various Type of Teaching Strategies | Total Hours |
|-------|---|---|
| 1. | Large Group Interactive Session (LECTURES) | $2 * 18 = 36$ hours |
| 2. | Small Group Discussions (SGD)/CBL | $1\text{hr } 40\text{ mint} * 20 = 33\text{ hrs.} \& 20\text{ mint} + 1\text{hr} = 34\text{hrs} \& 20\text{ minutes}$ |
| 3. | Problem Based Learning (PBL) | --- |
| 4. | Practical / Skill Lab | $1\text{ hour } 40\text{ minutes} * 20 = 33\text{ hours and } 20\text{ minutes}$ |
| 5. | Self-Directed Learning (SDL) | $1\text{ hour} * 8 = 8\text{ hours}$ |

Categorization of Modular Content of Department of Biochemistry:

| Category A* | Category B** | Category C*** | | | |
|-----------------------------------|-------------------------|---------------|---|--|---------------------------------|
| LGIS | LGIS | PBL | CBL | Practical's | SGD |
| Cell membrane | Cell & cell organelles | | Enzymes PCR (Polymerase Chain Reaction) | Introduction to glassware (pipetting) | Cell & Cell Membrane |
| Transport across cell membrane | Physicochemical aspects | | | Introduction to Lab Equipment | Physicochemical Aspects of cell |
| | Water & PH | | | Surface Tension Emulsion | |
| Nucleic acid Chemistry | Cancer | | | Adsorption Tonicity | |
| Replication | Enzymes | | | | |
| Transcription | | | | | |
| Translation | | | | | |
| Mutation | | | | | |
| Recombinant DNA/ PCR | | | | | |
| Genetics | | | | | |

Category A*: By HOD and Assistant Professors.

Category B:** By Senior Demonstrators & APWMO

Category C*:** By All Demonstrators

Teaching Staff / Human Resource of Department of Biochemistry

| Sr. # | Designation of Teaching Staff / Human Resource | Total Number of Teaching Staff |
|-------|---|--------------------------------|
| 1 | Associate Professor of Biochemistry | 01 |
| 2 | Assistant professor of biochemistry department (AP) | 02 |
| 3 | Demonstrators of biochemistry department | 06 |

Contact Hours (Faculty) & Contact Hours (Students)

| Sr. # | Hours Calculation for Various Type of Teaching Strategies | Total Hours (Faculty) | Total Hours (student) |
|-------|---|------------------------------|-----------------------|
| 1. | Large Group Interactive Session (LECTURES) | $2 * 11 = 21 + 1 = 22$ hours | 11 |
| 2. | Small Group Discussions (SGD) | $6 * 5 = 30$ hours | $1.5 * 4 = 6$ |
| 3. | Problem Based Learning (PBL) | $2 * 1 = 2$ hours | 02 |
| 4. | Practical / Skill Lab | $6 * 5 = 30$ | $15 * 4 = 6$ |
| 5. | Self-Directed Learning (SDL) | $1 * 8 = 8$ hours | 08 |

Time Table for Foundation Module - I (First Week) (02-02-2026 to 07-02-2026)

| Date/Day | Theme | 8:30 AM – 10:00 AM | 10:00 AM – 11:00AM | 11:00 AM – 12:00 PM | 12:20PM-1:20PM | 1:20PM – 02:00 PM | | |
|-------------------------|-------------|--|--|--|---|---------------------------|---|---|
| 02-02-2026 Monday | Orientation | Welcome address by VC Introduction to RMU, Allied hospitals | Orientation to RMU Curricular Reforms | | | | Introduction to Digital Services Of RMU | |
| HR | | | , Introduction to Medical Education Department & Integrated Modular System | Assessment Model of RMU & Continuous Internal Assessment | Research Model of RMU (IUGRC), Biomedical Ethics Family Medicine, | | Introduction To LMS, CMS, MS Teams (Online Component of Curriculum) | |
| Venue | | | Prof. Dr. Ifra Saeed / Dr. Farzana Fatima | Dr. Arsalan Mughal | Dr. Sidra Hamid / Dr. Sadia Azam Khan | | Director IT Hafi Shahid Rasool | |
| 03-02-2026 Tuesday | | LATIF AUDITORIUM | | | | | LATIF AUDITORIUM | |
| HR | | 8:00 AM – 9:00 AM | 9:00 AM – 10:00 AM | 10:00 AM – 11:00 AM | 11:00 AM - 12:00 PM | 12:20 PM – 1:20 PM | 1:20PM-2:00 PM | |
| Venue | | Introduction to Physiology Department | Introduction to Anatomy Department | Introduction to Biochemistry Department | BEHAVIORAL SCIENCES | COMMUNITY MEDICINE | Anatomy Bio data forms, Physiology & Biochemistry bio data forms | |
| 04-02-2026 Wednesday | | Lecture Theatre Complex Hall No 2 | | | | | Dr. Fareed, Dr. Kashif Dr. Ali Raza | |
| HR | | 8:00 AM- 10:00AM | 10:00AM - 11:00AM | 11:00 AM – 12:00 PM | 12:20 AM – 1:20 PM | | Lecture Theatre Complex Hall No 2 | |
| Venue | | DISSECTION / SGD | PHARMACOLOGY | PHYSIOLOGY (LGIS) | COMMUNITY MEDICINE | | 1:20PM - 2:00 PM | |
| 05-02-2026 Thursday | | Kashmir Solidarity Day | | | | | | |
| 06-02-2026 Friday | Orientation | 8:00 AM – 9:00 AM | 9:00 AM – 10:00 AM | 10:00 AM – 11:00 AM | 11:00 AM – 12:00 PM | Break (12:00PM – 12:20PM) | | |
| HR | | DISSECTION/SGD | ANATOMY LGIS | COMMUNITY MEDICINE (RESEARCH-I) | PHYSIOLOGY (LGIS) | | Friday Prayers | |
| Venue | | Anatomicomedical terminologies II (Anatomical terms and axis of movements) | General Anatomy Introduction to General Anatomy | Embryology Introduction to Human development | Introduction to Health Research Process and Researcher | | | Concept of Body Fluids & Internal Environment | Cell Physiology & homeostasis |
| 07-02-2026 Saturday | | 8:00 AM – 10:00 AM | 10:00 AM – 11:00 AM | 11:00 AM – 12:00 PM | 12:20 PM – 1:20 PM | | 1:20PM - 2:00 PM | |
| HR | | DISSECTION/SGD | COMMUNITY MEDICINE LGIS | ANATOMY (LGIS) | BIOCHEMISTRY (LGIS) | | PHARMACOLOGY LGIS | |
| Venue | | Anatomicomedical terminologies III (Cell and tissues) | Health Education & Communication | Embryology Introduction to Human Development | General Anatomy Introduction to General Anatomy | | Cell membrane | Cell Organelles-I |
| HR | | 2 Assistant Professors, 3 Demonstrators 5 Batches of Students | Dr. Farah Pervaiz (Odd) | Dr. Rizwana Shahid (Even) | Prof. Ayesha Yousaf / Dr. Mohtasham Hina (Even) | | Assit. Prof. Dr. Tayyaba ((Odd) | Dr. Tayaba (Even) |
| HR | | 2 Assistant Professors, 3 Demonstrators 5 Batches of Students | Dr. Farah Pervaiz (Odd) | Dr. Rizwana Shahid (Even) | Prof. Ayesha Yousaf / Dr. Mohtasham Hina (Even) | | Assit. Prof. Dr. Tayyaba ((Odd) | Dr. Tayaba (Even) |
| HR | | 2 Assistant Professors, 3 Demonstrators 5 Batches of Students | Dr. Farah Pervaiz (Odd) | Dr. Rizwana Shahid (Even) | Prof. Ayesha Yousaf / Dr. Mohtasham Hina (Even) | | Assit. Prof. Dr. Tayyaba ((Odd) | Dr. Tayaba (Even) |
| HR | | 2 Assistant Professors, 3 Demonstrators 5 Batches of Students | Dr. Farah Pervaiz (Odd) | Dr. Rizwana Shahid (Even) | Prof. Ayesha Yousaf / Dr. Mohtasham Hina (Even) | | Assit. Prof. Dr. Tayyaba ((Odd) | Dr. Tayaba (Even) |

Table No. 1 (Time: 12:20pm – 02:00pm)

| Schedule for Practical | | | | | | | | | | | | | | | |
|---|-------|-------------|-----------|---------------------|-------------------|------------------------|--------------|----------------------|--------------|----------------------|-------------------|------------------|----------------------|---|----------------|
| Batch Distribution for Practical Skills (all subjects) CBL / Small Group Discussion (Biochemistry and Physiology) | | | Day | Histology Practical | | Biochemistry Practical | | Physiology Practical | | Physiology SGD | | Biochemistry SGD | | | |
| | | | | Batch | Teacher Name | Batch | Teacher Name | Batch | Teacher Name | Batch | Teacher Name | Batch | Teacher Name | | |
| Sr. No | Batch | Roll No. | Monday | C | Supervised by HOD | B | Dr. Rahat | Supervised by HOD | E | Dr. Ali | Supervised by HOD | A | Dr. Sheena | D | Dr. Uzma Zafar |
| 1. | A | 01-70 | Tuesday | D | | C | Dr. Nayab | | A | Dr. Sheena | | B | Dr. Uzma/Dr. Afsheen | E | Dr. Rahat |
| 2. | B | 71-140 | Wednesday | E | | D | Dr. Uzma | | B | Dr. Uzma/Dr. Afsheen | | C | Dr. Farah | A | Dr. Almas |
| 3. | C | 141-210 | Thursday | B | | A | Dr. Almas | | D | Dr. Ayesha | | E | Dr. Ali | C | Dr. Nayab |
| 4. | D | 211-280 | Saturday | A | | E | Dr. Romessa | | C | Dr. Farah | | D | Dr. Ayesha | B | Dr. Romessa |
| 5. | E | 281-onwards | | | | | | | | | | | | | |

Table No. 2 Batch Distribution with Venues and Teachers Name for Problem Based Learning (PBL) Sessions

| Sr No. | Batches | Roll No | Venue | Teachers | Sr No. | Batches | Roll No | Venue | Teachers |
|--------|---------|-----------|---|--|--------|---------|---------------|---|---|
| 1. | A1 | (01-35) | Lecture Hall no.05 Physiology | Dr. Raja Khalid (Demonstrator Biochemistry) | 6. | C2 | (176-210) | New Lecture Hall Complex Lecture Theater # 03 | Dr. Ali Zain (PGT Physiology) |
| 2. | A2 | (36-70) | Lecture Hall #.04 (1st Floor Anatomy) | Dr. Farah ali Shah (Demonstrator of Physiology) | 7. | D1 | (210-245) | New Lecture Hall Complex Lecture Theater # 02 | Dr. Jawad (Demonstrator Physiology) |
| 3. | B1 | (71-105) | Anatomy Museum (First Floor Anatomy) | Dr. Nayab Ramzan (APWMO Biochemistry) | 8. | D2 | (246-280) | New Lecture Hall Complex Lecture Theater # 02 | Dr. Kashif Ashraf (Demonstrator of Anatomy) |
| 4. | B2 | (106-140) | Lecture Hall no.03 (First Floor) | Dr. Zeneara Saqib (Senior Demonstrator of Anatomy) | 9. | E1 | (281-315) | Anatomy Museum (First Floor Anatomy) | Dr. Uzma Zafar (APWMO Biochemistry) |
| 5. | C1 | (141-175) | New Lecture Hall Complex Lecture Theater # 03 | Dr. Farhat (PGT Physiology) | 10 | E2 | (315 onwards) | Lecture Hall no.04 | Dr. Najam (PGT Physiology) |

Table No. 3 Venues for Large Group Interactive Session (LGIS)

| | |
|-------------------------|---|
| Odd Roll Numbers | New Lecture Hall Complex Lecture Theater # 03 |
| Even Roll Number | New Lecture Hall Complex Lecture Theater # 02 |

| Table No. 4 Batch Distribution and Venues for Anatomy Small Group Discussion SGDs / Dissections | | | | | Table No. 5 Batch Distribution and Venues for Physiology & Biochemistry Small Group Discussion SGDs | | | | | | |
|--|-----------------|---|---|--------------------------------|--|-----------------|--|---|---------------------------|---------------------------------|-----------------------------|
| Batches | Roll No | Subgroup | Anatomy Teacher | Venue | Batches | Roll No | Subgroup | Physiology Teacher | Physiology Venue | Biochemistry Teacher | Biochemistry Venue |
| A | 01- 90 | A1: Roll No (1 – 22) A2: Roll No (23 – 44) A3: Roll No (45 – 66) A4: Roll No (67 – 90) | Dr. Zeneera (Demonstrator) | New Lecture Hall Complex 03 | A | 01-70 | A1: Roll No (1 – 14) A2: Roll No (15 – 28) A3: Roll No (29 – 42) A4: Roll No (43 – 56) A5: Roll No (57 – 70) | Dr. Sheena Tariq (APWMO) | Physiology Lecture Hall 5 | Dr. Uzma Zafar (APWMO) | Basement Lecture Hall No. 2 |
| B | 91-180 | B1: Roll No (91 – 113) B2: Roll No (114 – 135) B3: Roll No (136 – 157) B4: Roll No (158 – 180) | Dr. Sajjad Hussain (Senior. Demonstrator) | New Lecture Hall Complex 02 | B | 71-140 | B1: Roll No (71 – 84) B2: Roll No (85 – 98) B3: Roll No (99 – 112) B4: Roll No (113 – 126) B5: Roll No (127 – 140) | Dr. Uzma Kiyani (Senior Demonstrator) | Physiology Lecture Hall 5 | Dr. Rahat (APWMO) | Basement Lecture Hall No. 2 |
| C | 181-270 | C1: Roll No (181 – 202) C2: Roll No (203 – 224) C3: Roll No (225 – 246) C4: Roll No (247 – 270) | Dr. Nida (Demonstrator) | Anatomy Lecture Hall 04 | C | 141-210 | C1: Roll No (141 – 154) C2: Roll No (155 – 168) C3: Roll No (169 – 182) C4: Roll No (183 – 196) C5: Roll No (197 – 210) | Dr. Farah Shah (Demonstrator) | Physiology Lecture Hall 5 | Dr. Almas (APWMO) | Basement Lecture Hall No. 2 |
| D | 271- onwards | D1: Roll No (271 – 292) D2: Roll No (293 - 314) D3: Roll No (315 – 336) D4: Roll No (337 – onwards) | Dr. Sumyyia / Dr. Tayyaba (Assistant Professor) | Anatomy Lecture Hall 03 | D | 211-280 | D1: Roll No (211 – 224) D2: Roll No (225 – 238) D3: Roll No (239 – 252) D4: Roll No (253 – 266) D5: Roll No (267 – 280) | Dr. Aisha (Demonstrator) | Physiology Lecture Hall 5 | Dr. Nayab (APWMO) | Basement Lecture Hall No. 2 |
| Supervised by Prof. Dr. Ayesha Yousaf | | | | | E | 281- onwards | E1: Roll No (281 – 294) E2: Roll No (295 – 308) E3: Roll No (309 – 322) E4: Roll No (323 – 336) E5: Roll No (337 – onwards) | Dr. Ali Zain / Dr. Afsheen (P. G Trainee) | Physiology Lecture Hall 5 | Dr. Romessa (Demonstrator) | Basement Lecture Hall No. 2 |
| Supervised by Prof. Dr. Samia Sarwar | | | | | | | | | | Supervised by. Dr. Aneela Jamil | |

Time Table for Foundation Module - I (Second Week) (09-02-2026 to 14-02-2026)

| Date/ Day | Theme | 8:00 AM – 9:00 AM | 9:00 AM – 09:50 AM | 9:50AM – 10:10AM | 10:10 AM – 11:00 AM | 11:00 AM – 11:50 AM | 11:50 AM - 12:20 PM | 12:20 PM - 02:00PM | Home Assignment | | | | |
|---|--------------------------------|---|--------------------------------|----------------------------------|---|---|---|---|-----------------|---|---|---|---|
| 09-02-2026 Monday | The Cell Structure & Function, | DISSECTION/ SGD | | Break | PHYSIOLOGY (LGIS) | | PHYSIOLOGY (LGIS) | | Break | Practical & SGD Topics & Venue mentioned at the end (Refer to table no. 1) | SDL Physiology Homeostasis | | |
| | | Anatomicomedical Terminologies IV (Skin and body systems) | | | Cell membrane & classification of cell organelles | Intracellular communication and cell junction | Intracellular communication and cell junction | Cell membrane & classification of cell organelles | | | | | |
| | | | | | Dr. Faizania Shabir (Even) | Dr. Sidra Hamid (Odd) | Dr. Sidra Hamid (Even) | Dr. Faizania Shabir (Odd) | | | | | |
| | | DISSECTION/ SGD | | | ANATOMY CBL | | PHYSIOLOGY SGD | | | | | PHYSIOLOGY (LGIS) | |
| | | Clavicle | | | Fracture of Clavicle (Refer to table no. 1) | | Concept of Body Fluid and Internal Environment | | | | | Cell organelles & cell function - I | Receptor and signal transduction |
| | | | | | | | Refer to Table No.3 | | | | | Dr. Faizania Shabir (Even) | Dr. Sidra Hamid (Odd) |
| 10-02-2026 Tuesday | The Cell Structure & Function, | DISSECTION/ SGD | | Break | COMMUNITY MEDICINE (RESEARCH-II) | | COMMUNITY MEDICINE | | Break | Practical & SGD Topics & Venue mentioned at the end (Refer to table no. 1) | SDL Physiology Homeostatic control mechanism | | |
| | | Scapula | | | Scapula Anastomosis & its Clinical Significance | | Characteristics of Research Process and Health Research Process | | | | | Life Style Medicine | |
| | | | | | | | Prof. Rozina Shahadat Khan | | | | | Prof. Rozina Shahadat Khan | |
| | | PATHOLOGY (LGIS) | | | BIOCHEMISTRY LGIS | | PHYSIOLOGY (LGIS) | | | | | Fehm e Quran | |
| Introduction to Pathology & Cellular response to Injury | | Cell Organelle-II | Transport across cell membrane | Receptor and signal transduction | Cell organelles & related cell function - I | | | | | | | | |
| 11-02-2026 Wednesday | The Cell Structure & Function, | Dr Sara Rafi (Even) | Dr Rabbiya Khaalid (Odd) | Dr. Nayab (Even) | Dr. Tayaba (Odd) | Dr. Sidra Hamid (Even) | Dr. Faizania Shabir (Odd) | Qari Abdul Wahid | | Practical & SGD Topics & Venue mentioned at the end (Refer to table no. 1) | SDL Biochemistry Biomarkers and their clinical importance of Cell organelles | | |
| | | PATHOLOGY (LGIS) | | BIOCHEMISTRY LGIS | | PHYSIOLOGY (LGIS) | | Fehm e Quran | | | | | |
| 12-02-2026 Thursday | The Cell Structure & Function, | PATHOLOGY (LGIS) | | BIOCHEMISTRY LGIS | | PHYSIOLOGY (LGIS) | | | | Fehm e Quran | | Practical & SGD Topics & Venue mentioned at the end (Refer to table no. 1) | SDL Biochemistry Cell Membrane Transport Across Cell Membrane |
| | | Introduction to Pathology & Cellular response to Injury | | Cell Organelle-II | Transport across cell membrane | Receptor and signal transduction | Cell organelles & related cell function - I | | | | | | |
| 13-02-2026 Friday | The Cell Structure & Function, | PATHOLOGY (LGIS) | | BIOCHEMISTRY LGIS | | PHYSIOLOGY (LGIS) | | Fehm e Quran | | Practical & SGD Topics & Venue mentioned at the end (Refer to table no. 1) | SDL Biochemistry Cell Membrane Transport Across Cell Membrane | | |
| | | Introduction to Pathology & Cellular response to Injury | | Cell Organelle-II | Transport across cell membrane | Receptor and signal transduction | Cell organelles & related cell function - I | | | | | | |
| 14-02-2026 Saturday | The Cell Structure & Function, | PATHOLOGY (LGIS) | | BIOCHEMISTRY LGIS | | PHYSIOLOGY (LGIS) | | Fehm e Quran | | Practical & SGD Topics & Venue mentioned at the end (Refer to table no. 1) | SDL Biochemistry Cell Membrane Transport Across Cell Membrane | | |
| | | Introduction to Pathology & Cellular response to Injury | | Cell Organelle-II | Transport across cell membrane | Receptor and signal transduction | Cell organelles & related cell function - I | | | | | | |
| Date/ Day | Theme | 8:00 AM – 9:00 AM | | 9:00 AM – 10:00 AM | | 10:00 AM – 11:00 AM | | 11:00 AM – 12:00 PM | | SDL Anatomy Green Stick Fracture of Clavicle | | | |
| 13-02-2026 Friday | The Cell Structure & Function, | BIOCHEMISTRY LGIS | | PATHOLOGY (LGIS) | | COMMUNITY MEDICINE (RESEARCH-III) | | PBL 1 (SESSION-I) | | | | | |
| | | Transport across cell membrane | Cell organelle-II | Intra Cellular accumulation | | Basic of Ethics in Medical Research | | PBL Team | | | | | |
| Dr. Tayaba (Even) | Dr Nayab (Odd) | Dr Rabbiya Khaalid (Even) | Dr Sara Rafi (Odd) | Prof. Rozina Shahadat Khan | | | | | | | | | |
| Date/ Day | Theme | 8:00 AM – 9:50 AM | | 9:50AM – 10:10AM | | 10:10 AM – 11:00 AM | | 11:00 AM – 11:50 AM | | 11:50 AM - 12:20 PM | 12:20 PM - 02:00PM | Home Assignment | |
| 14-02-2026 Saturday | The Cell Structure & Function, | DISSECTION/ SGD | | Break | BIOCHEMISTRY (LGIS) | | CLINICO-CONCEPT CONNECT (C³) SESSIONS-I | | Break | Practical & SGD Topics & Venue mentioned at the end (Refered to table no. 1) | SDL Applied Anatomy of Scapula | | |
| | | Humerus | | | Water & PH | Physico chemical aspects-I | | A Case Dehydratuib and Disrupted Homeostasis | | | | | |
| | | | | | Dr. Uzma Zafar (Even) | Dr. Nayab (Odd) | | Physiology | | | | Dr. Uzma Kiyani | |
| | | | | | | | Biochemistry | Dr. Uzma Zafar | | | | | |
| | | | | | | | Medicine | Dr. Hina Gulzar | | | | | |
| | | | | | | | Family Medicine | Dr. Sidra Hamid | | | | | |
| | | | | Community Med | Prof. Rozina Shahadat Khan | | | | | | | | |

Table No. 1 (Time: 12:20pm – 02:00pm)

| Batch Distribution for Practical Skills (all subjects) CBL / Small Group Discussion (Biochemistry and Physiology) | | | Topics for Skill Lab with Venue | Schedule for Practical | | | | | | | | | | | | |
|--|-------|-------------|--|---|---------------------|-------------|------------------------|-----------|----------------------|-------------------|----------------------|----------------|----------------------|------------------|-----------|----------------|
| Sr. No | Batch | Roll No. | <ul style="list-style-type: none"> Introduction to Microscope and Preparation of Slide. Artifacts (Anatomy/Histology-practical) venue-Histology Laboratory (Dr. Kashif) Introduction to glass wares (Pipetting) (Biochemistry practical) venue- Biochemistry lab) Introduction to Microscope. (Physiology-Practical (Physiology Laboratory) | Day | Histology Practical | | Biochemistry Practical | | Physiology Practical | | Supervised by HOD | Physiology SGD | | Biochemistry SGD | | |
| | | | | Batch | Teacher Name | Batch | Teacher Name | Batch | Teacher Name | Batch | | Teacher Name | Batch | Teacher Name | Batch | Teacher Name |
| | | | | | Monday | C | Supervised by HOD | B | Dr. Rahat | Supervised by HOD | E | Dr. Ali | A | Dr. Sheena | D | Dr. Uzma Zafar |
| 1. | A | 01-70 | | Tuesday | D | C | | Dr. Nayab | A | | Dr. Sheena | B | Dr. Uzma/Dr. Afsheen | E | Dr. Rahat | |
| 2. | B | 71-140 | | Wednesday | E | D | | Dr. Uzma | B | | Dr. Uzma/Dr. Afsheen | C | Dr. Farah | A | Dr. Almas | |
| 3. | C | 141-210 | | Thursday | B | A | | Dr. Almas | D | | Dr. Ayesha | E | Dr. Ali | C | Dr. Nayab | |
| 4. | D | 211-280 | Saturday | A | E | Dr. Romessa | | C | Dr. Farah | | D | Dr. Ayesha | B | Dr. Romessa | | |
| 5. | E | 281-onwards | | | | | | | | | | | | | | |
| | | | | Topics for SGDs / CBL with Venue | | | | | | | | | | | | |
| | | | | <ul style="list-style-type: none"> Physiology small group discussion-Functional organization of human body and cell physiology venue-Lecture Hall 5 Biochemistry small group discussion – Cell & Cell membrane- Lecture Hall 3 Anatomy CBL: Fracture of Clavicle | | | | | | | | | | | | |

Table No. 2 Batch Distribution with Venues and Teachers Name for Problem Based Learning (PBL) Sessions

| Sr No. | Batches | Roll No | Venue | Teachers | Sr No. | Batches | Roll No | Venue | Teachers |
|--------|---------|-----------|---------------------------------------|--|--------|---------|---------------|---|---|
| 1. | A1 | (01-35) | Lecture Hall no.05 Physiology | Dr. Raja Khalid (Demonstrator Biochemistry) | 6. | C2 | (176-210) | New Lecture Hall Complex Lecture Theater # 03 | Dr. Ali Zain (PGT Physiology) |
| 2. | A2 | (36-70) | Lecture Hall #.04 (1st Floor Anatomy) | Dr. Farah ali Shah (Demonstrator of Physiology) | 7. | D1 | (210-245) | New Lecture Hall Complex Lecture Theater # 02 | Dr. Jawad (Demonstrator Physiology) |
| 3. | B1 | (71-105) | Anatomy Museum (First Floor Anatomy) | Dr. Nayab Ramzan (APWMO Biochemistry) | 8. | D2 | (246-280) | New Lecture Hall Complex Lecture Theater # 02 | Dr. Kashif Ashraf (Demonstrator of Anatomy) |
| 4. | B2 | (106-140) | Lecture Hall no.03 (First Floor) | Dr. Zeneera Saqib (Senior Demonstrator of Anatomy) | 9. | E1 | (281-315) | Anatomy Museum (First Floor Anatomy) | Dr. Uzma Zafar (APWMO Biochemistry) |
| 5. | C1 | (141-175) | Anatomy Museum (First Floor Anatomy) | Dr. Farhat (PGT Physiology) | 10 | E2 | (315 onwards) | Lecture Hall no.04 | Dr. Najam (PGT Physiology) |

Table No. 3 Venues for Large Group Interactive Session (LGIS)

| | |
|-------------------------|---|
| Odd Roll Numbers | New Lecture Hall Complex Lecture Theater # 03 |
| Even Roll Number | New Lecture Hall Complex Lecture Theater # 02 |

| Table No. 4 Batch Distribution and Venues for Anatomy Small Group Discussion SGDs / Dissections | | | | | Table No. 5 Batch Distribution and Venues for Physiology & Biochemistry Small Group Discussion SGDs | | | | | | |
|--|-----------------|---|---|--------------------------------|--|-----------------|--|---|---------------------------|---------------------------------|-----------------------------|
| Batches | Roll No | Subgroup | Anatomy Teacher | Venue | Batches | Roll No | Subgroup | Physiology Teacher | Physiology Venue | Biochemistry Teacher | Biochemistry Venue |
| A | 01- 90 | A1: Roll No (1 – 22) A2: Roll No (23 – 44) A3: Roll No (45 – 66) A4: Roll No (67 – 90) | Dr. Zeneera (Demonstrator) | New Lecture Hall Complex 03 | A | 01-70 | A1: Roll No (1 – 14) A2: Roll No (15 – 28) A3: Roll No (29 – 42) A4: Roll No (43 – 56) A5: Roll No (57 – 70) | Dr. Sheena Tariq (APWMO) | Physiology Lecture Hall 5 | Dr. Uzma Zafar (APWMO) | Basement Lecture Hall No. 2 |
| B | 91-180 | B1: Roll No (91 – 113) B2: Roll No (114 – 135) B3: Roll No (136 – 157) B4: Roll No (158 – 180) | Dr. Sajjad Hussain (Senior Demonstrator) | New Lecture Hall Complex 02 | B | 71-140 | B1: Roll No (71 – 84) B2: Roll No (85 – 98) B3: Roll No (99 – 112) B4: Roll No (113 – 126) B5: Roll No (127 – 140) | Dr. Uzma Kiyani (Senior Demonstrator) | Physiology Lecture Hall 5 | Dr. Rahat (APWMO) | Basement Lecture Hall No. 2 |
| C | 181-270 | C1: Roll No (181 – 202) C2: Roll No (203 – 224) C3: Roll No (225 – 246) C4: Roll No (247 – 270) | Dr. Nida (Demonstrator) | Anatomy Lecture Hall 04 | C | 141-210 | C1: Roll No (141 – 154) C2: Roll No (155 – 168) C3: Roll No (169 – 182) C4: Roll No (183 – 196) C5: Roll No (197 – 210) | Dr. Farah Shah (Demonstrator) | Physiology Lecture Hall 5 | Dr. Almas (APWMO) | Basement Lecture Hall No. 2 |
| D | 271- onwards | D1: Roll No (271 – 292) D2: Roll No (293 - 314) D3: Roll No (315 – 336) D4: Roll No (337 – onwards) | Dr. Sumyyia / Dr. Tayyaba (Assistant Professor) | Anatomy Lecture Hall 03 | D | 211-280 | D1: Roll No (211 – 224) D2: Roll No (225 – 238) D3: Roll No (239 – 252) D4: Roll No (253 – 266) D5: Roll No (267 – 280) | Dr. Aisha (Demonstrator) | Physiology Lecture Hall 5 | Dr. Nayab (APWMO) | Basement Lecture Hall No. 2 |
| Supervised by Prof. Dr. Ayesha Yousaf | | | | | E | 281- onwards | E1: Roll No (281 – 294) E2: Roll No (295 – 308) E3: Roll No (309 – 322) E4: Roll No (323 – 336) E5: Roll No (337 – onwards) | Dr. Ali Zain / Dr. Afsheen (P. G Trainee) | Physiology Lecture Hall 5 | Dr. Romessa (Demonstrator) | Basement Lecture Hall No. 2 |
| Supervised by Prof. Dr. Samia Sarwar | | | | | | | | | | Supervised by. Dr. Aneela Jamil | |

Time Table for Foundation Module - I (Third Week) (16-02-2025 to 21-02-2026)

19-02-2026 The Holy Month of Ramzan
Observed Timing are from 08:00AM – 01 :00PM

| Date/ Day | Theme | 8:00 AM – 9:00 AM | 9:00 AM – 09:50 AM | 9:50AM – 10:10AM | 10:10 AM – 11:00 AM | 11:00 AM – 11:50 AM | 11:50 AM - 12:20 PM | 12:20 PM - 02:00PM | Home Assignment | | | | | | | | | |
|---|---|--|--|---|--|--|-------------------------------|--|----------------------------|---|--|--|---------------------------------------|--|------------------|--|------------------|--|
| 16-02-2026 Monday | Control Systems and Communication in the Human Body | DISSECTION / SGD | | PATHOLOGY | | MEDICINE | | BIOCHEMISTRY LGIS | | | | | | | | | | |
| 17-02-2026 Tuesday | | Anterior Axioappendicular Muscles & Neurovascular Organization | | Pigments | | Evidence based medicine | | Physico chemical aspects-I | | Water & PH | | | | | | | | |
| | | | | Dr Sara Rafi (Even) | Dr Rabbiya Khaalid (Odd) | | | Dr. Sania | | | Dr. Nayab (Even) | Dr. Uzma Zafar (Odd) | | | | | | |
| 18-02-2026 Wednesday | | DISSECTION / SGD | | SUPERVISED SDL | | ANATOMY (LGIS) | | PHYSIOLOGY (LGIS) | | | | | | | | | | |
| | | Posterior Axioappendicular Muscles | | Posterior Axioappendicular Neurovascular Organization | | Histology | | Embryology | | Cell organelles & cell function - II | Control System- I (Negative Feedback System, Concept of Error and Gain) | | | | | | | |
| Types of epithelium | | | | | | Gametogenesis Spermatogenesis | Asso. Prof Dr. Arsalan (Even) | Prof. Dr. Ayesha/ Asso. Prof Dr. Mohtashim (Odd) | Dr. Faizania Shabir (Even) | | | Prof. Dr. Samia Sarwar /Dr. Afseen (Odd) | | | | | | |
| 18-02-2026 Wednesday | | BIOCHEMISTRY (LGIS) | | PBL 1 (SESSION-II) | | ANATOMY LGIS | | PHYSIOLOGY (LGIS) | | | | | | | | | | |
| | | Physico chemical aspects-II & Physico chemical aspects-III | | Cancer | | Embryology | | Histology | | Control System- I (Negative Feedback System, Concept of Error and Gain) | Cell organelles & cell function - II | | | | | | | |
| | | Dr. Nayab (Even) | Dr. Almas (Odd) | | | Gametogenesis Spermatogenesis | | Types of Epithelium | | | | Prof. Dr. Samia Sarwar /Dr. Afseen (Even) | Dr. Faizania Shabir (Odd) | | | | | |
| PBL Team | | Prof. Dr. Ayesha/ Asso. Prof Dr. Mohtashim (Even) | Asso. Prof Dr. Arsalan (Odd) | | | | | | | | | | | | | | | |
| Date/Day | | 8:00am-9:20am | 9:20am – 10:10am | 10:10am – 10:30am | 10:30am-11:10am | 11:10am-11:50am | 11:50am – 01:00pm | Home Assignments | | | | | | | | | | |
| 19-02-2026 Thursday | Control Systems and Communication in the Human Body | PATHOLOGY | | BIOCHEMISTRY | | ANATOMY LGIS | | PHYSIOLOGY (LGIS) | | | | | | | | | | |
| 19-02-2026 Thursday | | Free Radicals/ Reactive Oxygen Species (ROS) | | Cancer | | Physico chemical aspects-II & Physico chemical aspects-III | | Embryology | | Histology | Genetics, transcription & translation | Control System-II (positive feedback, and concept of feed forward, adaptive control and vicious cycle) | | | | | | |
| | | | | | | | | Gametogenesis -Oogenesis) | | | | | Specialization of Apical cell surface | | | | | |
| 20-02-2026 Friday | | Dr Sara Rafi (Even) | | Dr Rabbiya Khaalid (Odd) | | Dr. Almas (Even) | | Dr. Nayab (Odd) | | Prof. Dr. Ayesha/ Asso. Prof Dr. Mohtashim (Odd) | | Asso. Prof Dr. Arsalan (Even) | | Dr. Faizania Shabir (Even) | | Prof. Dr. Samia Sarwar /Dr. Uzma (Odd) | | |
| | | Early Clinical Exposure (ECE) | | | | | | | | | | | | SDL Applied Anatomy of Anterior axioappendicular muscles | | | | |
| Date/Day | | | 8:00am-9:20am | 9:20am – 10:10am | 10:10am – 10:30am | 10:30am-11:10am | 11:10am-11:50am | 11:50am – 01:00pm | Home Assignments | | | | | | | | | |
| 21-02-2026 Saturday | | Control Systems and Communication in the Human Body | COMMUNITY MEDICINE (RESEARCH-IV) | | CLINICO-CONCEPT CONNECT (C ⁶) SESSIONS-II | | ANATOMY (LGIS) | | PHYSIOLOGY (LGIS) | | | | | | | | | |
| 21-02-2026 Saturday | | | Basics of Ethics in Health Research (Research -IV) | | Disruption of Integrated Control and Communication Systems | | Histology | | Embryology | | Control System-II (positive feedback, and concept of feed forward, adaptive control and vicious cycle) | | Genetics, transcription & translation | | | | | |
| | | | | | | | | | | | | | | | Physiology | | Dr. Uzma Kiyani | |
| | | | | | | | | | | | | | | | Biochemistry | | Dr. Tayba Hashmi | |
| | Endocrinology | | | | | | | | | | | | | | Dr. Madiha Nazar | | | |
| | Medicine | | | | | | | | | | | | | | Dr. Waqar Cheema | | | |
| | Pathology | | | | | | | | | | | | | | Dr. Sarah Rafi | | | |
| Community Med | | Prof. Rozina Shahadat Khan | | | | | | | | | | | | | | | | |
| SDL Applied Anatomy of Postior axioappendicular muscles | | | | | | | | | | | | SDL Applied Anatomy of Postior axioappendicular muscles | | | | | | |

Mid Module Clinical / (C⁶) Sessions Foramtive Assessment

Table No. 1 (Time: 11:50am – 01:00pm)

| Batch Distribution for Practical Skills (all subjects) CBL / Small Group Discussion (Biochemistry and Physiology) | | | Topics for Skill Lab with Venue | Schedule for Practical | | | | | | | | | | | | |
|--|-------|-------------|--|-------------------------------|--|-------|------------------------|-------------|----------------------|-------|-------------------|----------------------|------------|----------------------|-------------|----------------|
| Sr. No | Batch | Roll No. | <ul style="list-style-type: none"> • Simple Epithelium (Anatomy/Histology-practical) venue-Histology Laboratory (Dr. Kashif) • Introduction to Lab Equipment (Biochemistry practical) venue-Biochemistry Lab) • Introduction to Wintrobe & Westergen tube (Physiology-Practical (Physiology Laboratory) | Day | Histology Practical | | Biochemistry Practical | | Physiology Practical | | Supervised by HOD | Physiology SGD | | Biochemistry SGD | | |
| | | | | Batch | Teacher Name | Batch | Teacher Name | Batch | Teacher Name | Batch | | Teacher Name | Batch | Teacher Name | Batch | Teacher Name |
| 1. | A | 01-70 | | Supervised by HOD | Monday | C | | B | Dr. Rahat | | E | Dr. Ali | A | Dr. Sheena | D | Dr. Uzma Zafar |
| 2. | B | 71-140 | | | Tuesday | D | | C | Dr. Nayab | | A | Dr. Sheena | B | Dr. Uzma/Dr. Afsheen | E | Dr. Rahat |
| 3. | C | 141-210 | | | Wednesday | E | | D | Dr. Uzma | | B | Dr. Uzma/Dr. Afsheen | C | Dr. Farah | A | Dr. Almas |
| 4. | D | 211-280 | | | Thursday | B | | A | Dr. Almas | | D | Dr. Ayesha | E | Dr. Ali | C | Dr. Nayab |
| 5. | E | 281-onwards | Saturday | | A | | E | Dr. Romessa | | C | Dr. Farah | D | Dr. Ayesha | B | Dr. Romessa | |
| | | | | | <p align="center">Topics for SGDs / CBL with Venue</p> <ul style="list-style-type: none"> • Physiology CBL –Body fluid compartment, cell membrane & cytoskeletal-venue-Lecture Hall 5 (First Floor) • Biochemistry Small Group Discussion - Physico chemical aspects of cell membrane - Lecture Hall 3 (First Floor) Cell & Cell membrane- Lecture Hall 3 | | | | | | | | | | | |

Table No. 2 Batch Distribution with Venues and Teachers Name for Problem Based Learning (PBL) Sessions

| Sr No. | Batches | Roll No | Venue | Teachers | Sr No. | Batches | Roll No | Venue | Teachers |
|--------|---------|-----------|---------------------------------------|--|--------|---------|---------------|---|---|
| 1. | A1 | (01-35) | Lecture Hall no.05 Physiology | Dr. Raja Khalid (Demonstrator Biochemistry) | 6. | C2 | (176-210) | New Lecture Hall Complex Lecture Theater # 03 | Dr. Ali Zain (PGT Physiology) |
| 2. | A2 | (36-70) | Lecture Hall #.04 (1st Floor Anatomy) | Dr. Farah ali Shah (Demonstrator of Physiology) | 7. | D1 | (210-245) | New Lecture Hall Complex Lecture Theater # 02 | Dr. Jawad (Demonstrator Physiology) |
| 3. | B1 | (71-105) | Anatomy Museum (First Floor Anatomy) | Dr. Nayab Ramzan (APWMO Biochemistry) | 8. | D2 | (246-280) | New Lecture Hall Complex Lecture Theater # 02 | Dr. Kashif Ashraf (Demonstrator of Anatomy) |
| 4. | B2 | (106-140) | Lecture Hall no.03 (First Floor) | Dr. Zeneara Saqib (Senior Demonstrator of Anatomy) | 9. | E1 | (281-315) | Anatomy Museum (First Floor Anatomy) | Dr. Uzma Zafar (APWMO Biochemistry) |
| 5. | C1 | (141-175) | Anatomy Museum (First Floor Anatomy) | Dr. Farhat (PGT Physiology) | 10 | E2 | (315 onwards) | Lecture Hall no.04 | Dr. Najam (PGT Physiology) |

Table No. 3 Venues for Large Group Interactive Session (LGIS)

| | |
|-------------------------|---|
| Odd Roll Numbers | New Lecture Hall Complex Lecture Theater # 03 |
| Even Roll Number | New Lecture Hall Complex Lecture Theater # 02 |

| Table No. 4 Batch Distribution and Venues for Anatomy Small Group Discussion SGDs / Dissections | | | | | Table No. 5 Batch Distribution and Venues for Physiology & Biochemistry Small Group Discussion SGDs | | | | | | |
|--|-----------------|---|---|--------------------------------|--|-----------------|--|---|---------------------------|---------------------------------|-----------------------------|
| Batches | Roll No | Subgroup | Anatomy Teacher | Venue | Batches | Roll No | Subgroup | Physiology Teacher | Physiology Venue | Biochemistry Teacher | Biochemistry Venue |
| A | 01- 90 | A1: Roll No (1 – 22) A2: Roll No (23 – 44) A3: Roll No (45 – 66) A4: Roll No (67 – 90) | Dr. Zeneera (Demonstrator) | New Lecture Hall Complex 03 | A | 01-70 | A1: Roll No (1 – 14) A2: Roll No (15 – 28) A3: Roll No (29 – 42) A4: Roll No (43 – 56) A5: Roll No (57 – 70) | Dr. Sheena Tariq (APWMO) | Physiology Lecture Hall 5 | Dr. Uzma Zafar (APWMO) | Basement Lecture Hall No. 2 |
| B | 91-180 | B1: Roll No (91 – 113) B2: Roll No (114 – 135) B3: Roll No (136 – 157) B4: Roll No (158 – 180) | Dr. Sajjad Hussain (Senior. Demonstrator) | New Lecture Hall Complex 02 | B | 71-140 | B1: Roll No (71 – 84) B2: Roll No (85 – 98) B3: Roll No (99 – 112) B4: Roll No (113 – 126) B5: Roll No (127 – 140) | Dr. Uzma Kiyani (Senior Demonstrator) | Physiology Lecture Hall 5 | Dr. Rahat (APWMO) | Basement Lecture Hall No. 2 |
| C | 181-270 | C1: Roll No (181 – 202) C2: Roll No (203 – 224) C3: Roll No (225 – 246) C4: Roll No (247 – 270) | Dr. Nida (Demonstrator) | Anatomy Lecture Hall 04 | C | 141-210 | C1: Roll No (141 – 154) C2: Roll No (155 – 168) C3: Roll No (169 – 182) C4: Roll No (183 – 196) C5: Roll No (197 – 210) | Dr. Farah Shah (Demonstrator) | Physiology Lecture Hall 5 | Dr. Almas (APWMO) | Basement Lecture Hall No. 2 |
| D | 271- onwards | D1: Roll No (271 – 292) D2: Roll No (293 - 314) D3: Roll No (315 – 336) D4: Roll No (337 – onwards) | Dr. Sumyyia / Dr. Tayyaba (Assistant Professor) | Anatomy Lecture Hall 03 | D | 211-280 | D1: Roll No (211 – 224) D2: Roll No (225 – 238) D3: Roll No (239 – 252) D4: Roll No (253 – 266) D5: Roll No (267 – 280) | Dr. Aisha (Demonstrator) | Physiology Lecture Hall 5 | Dr. Nayab (APWMO) | Basement Lecture Hall No. 2 |
| Supervised by Prof. Dr. Ayesha Yousaf | | | | | E | 281- onwards | E1: Roll No (281 – 294) E2: Roll No (295 – 308) E3: Roll No (309 – 322) E4: Roll No (323 – 336) E5: Roll No (337 – onwards) | Dr. Ali Zain / Dr. Afsheen (P. G Trainee) | Physiology Lecture Hall 5 | Dr. Romessa (Demonstrator) | Basement Lecture Hall No. 2 |
| Supervised by Prof. Dr. Samia Sarwar | | | | | | | | | | Supervised by. Dr. Aneela Jamil | |

Time Table for Foundation Module - I (Fourth Week)
(23-02-2026 to 28-02-2026)

| Date/Day | Theme | 8:00am-9:20am | 9:20am – 10:10am | 10:10am – 10:30am | 10:30am-11:10am | 11:10am-11:50am | 11:50am – 01:00pm | Home Assignments | | | |
|--|--|---|---|--|---|---|--|--|---|--|---|
| 23-02-2026 Monday | Genetics, Cell Division, and Human Development | BIOCHEMISTRY (LGIS) | | ANATOMY(LGIS) | | BIOCHEMISTRY (LGIS) | | PHYSIOLOGY (LGIS) | | | |
| | | Introduction & Classification of Enzymes | Nucleic Acid Chemistry-I | Female Reproductive Cycles | Intra cellular junctions & adhesions | Nucleic Acid Chemistry-I | Introduction & Classification of Enzymes | Cell membrane ion channels, transport across cell membrane | Structure of nucleus, ribosomes and cell division | Practical &CBL Topics & Venue mentioned at the end (Referred to table no. 1) | SDL Physiology Genetics, transcription & translation |
| Dr. Raja Khalid (Even) | | Dr. Tayaba (Odd) | Prof. Dr. Ayesha/ Asso. Prof Dr. Mohtashim (Even) | Asso. Prof. Dr. Arsalan (Odd) | Dr. Tayaba (Even) | Dr. Raja Khalid (Odd) | Dr. Faizania Shabir (Even) | Dr. Afsheen / Dr. Ayesha (Odd) | | | |
| PATHOLOGY (LGIS) | | BIOCHEMISTRY (LGIS) | | ANATOMY LGIS | | PHYSIOLOGY (LGIS) | | Practical &CBL Topics & Venue mentioned at the end (Referred to table no. 1) | SDL Physiology Structure of nucleus ribosome's & cell division | | |
| Irreversible injury / Necrosis & Apoptosis | | Nucleic Acid Chemistry-II | Properties / Factors of Enzymes | Histology | Embryology | Structure of nucleus, ribosomes and cell division | Cell membrane ion channels, transport across cell membrane | | | | |
| 24-02-2026 Tuesday | | Dr Sara Rafi (Odd) | Dr Rabbiya Khaalid (Even) | Dr. Tayaba (Even) | Dr. Raja Khalid (Odd) | Asso. Prof. Dr. Arsalan (Even) | Prof. Dr. Ayesha/ Asso. Prof Dr. Mohtashim (Odd) | Dr. Afsheen / Dr. Ayesha (Even) | Dr. Faizania Shabir (Odd) | | |
| 25-02-2026 Wednesday | | DISSECTION / SGD | | PBL 2 (SESSION-I) | | BIOCHEMISTRY (LGIS) | | PHYSIOLOGY (LGIS) | | Practical &CBL Topics & Venue mentioned at the end (Referred to table no. 1) | SDL Biochemistry Nuclotide Derivatives and their importance |
| | | Axilla | | PBL Team | | Properties / Factors of Enzymes | Nucleic Acid Chemistry-II | Transport across cell membrane, Osmosis | Cellular control mechanism, cell cycle programmed cell death/ apoptosis | | |
| 26-02-2026 Thursday | | DISSECTION / SGD | | BIOCHEMISTRY (LGIS) | | PBL 2 (SESSION -II) | | PHYSIOLOGY (LGIS) | | Practical &CBL Topics & Venue mentioned at the end (Referred to table no. 1) | SDL Biochemistry Causes and Repair of DNA Damage |
| Axilla | | MM Equation, Coenzymes, Co Factors | Replication | PBL Team | | Cellular control mechanism, cell cycle programmed cell death/ apoptosis | Transport across cell membrane, Osmosis | | | | |
| | | | Dr. Raja Khalid (Even) | Dr. Aneela (Odd) | | | Dr. Afsheen / Dr. Ayesha (Even) | Dr. Faizania Shabir (Odd) | | | |
| Date/ Day | | | 8:00 AM – 9:00 AM | 9:00 AM – 10:00 AM | 10:00 AM – 11:00 AM | 11:00 AM – 12:00 PM | | | | | |
| 27-02-2026 Friday | | CLINICO-CONCEPT CONNECT (C³) SESSIONS-III | | BIOCHEMISTRY (LGIS) | | ANATOMY (LGIS) | | PHYSIOLOGY (LGIS) | | SDL Applied Anatomy of Axilla | |
| | | Infertility | | Replication | MM Equation, Coenzymes, Co Factors | Embryology | | Active Transport I | Active Transport II | | |
| | Anatomy | Dr. Tayyaba Querashi | Ovulation & Fertilization | | | Glands | | | | | |
| | Physiology | Dr. Uzma kiyani | Dr. Aneela (Even) | Dr. Raja Khalid (Odd) | Prof. Dr. Ayesha/ Asso. Prof Dr. Mohtashim (Even) | | Asso. Prof. Dr Arsalan (Odd) | Dr. Faizania Shabir (Even) | Dr. Sheena (Odd) | | |
| Gynae & Obs | Dr. Farah Deeba | | | | | | | | | | |
| Date/Day | | 8:00am-10:10am | 10:10am – 10:30am | 10:30am-11:10am | 11:10am-11:50am | 11:50am – 01:00pm | Home Assignments | | | | |
| 28-02-2026 Saturday | DISSECTION / SGD | | Break | CLINICO-CONCEPT CONNECT (C³) SESSIONS - IV | | PHYSIOLOGY (LGIS) | | Practical &CBL Topics & Venue mentioned at the end (Referred to table no. 1) | SDL Applied Anatomy of Brachial plexus | | |
| | Brachial plexus | | | Disorder of Growth and Development | | Active Transport II | Active Transport I | | | | |
| | Anatomy | Dr. Summyia Bashir | | Dr. Sheena (Even) | Dr. Faizania Shabir (Odd) | | | | | | |
| | Biochemistry | Dr. Kanwal | | | | | | | | | |
| | | | | Peads | Dr. Hina Sattar | | | | | | |

Table No. 1 (Time: 11:50am – 01:00pm)

| Batch Distribution for Practical Skills (all subjects) CBL / Small Group Discussion (Biochemistry and Physiology) | | | Topics for Skill Lab with Venue | Schedule for Practical | | | | | | | | | | | | |
|--|--------------|-----------------|---|-------------------------------|----------------------------|---------------------|-------------------------------|---------------------|-----------------------------|---------------------|-----------------------|-------------------------|---------------------|----------------------|---------------------|----------------|
| | | | | Day | Histology Practical | | Biochemistry Practical | | Physiology Practical | | Physiology SGD | Biochemistry SGD | | | | |
| Sr. No | Batch | Roll No. | | | Batch | Teacher Name | Batch | Teacher Name | Batch | Teacher Name | | Batch | Teacher Name | Batch | Teacher Name | |
| | | | <ul style="list-style-type: none"> Stratified epithelium & transitional epithelium (Anatomy/Histology-practical) venue-Histology Laboratory (Dr. kashif) Physiochemical Aspects of Cell - Surface Tension and Emulsion (Biochemistry practical) venue-Biochemistry Lab) Apparatus identification (Introduction to Neubauer's chamber, Red Blood Cell (RBC) pipettes & White Blood Cell (WBC) pipette (Physiology-Practical (Physiology Laboratory) | Monday | C | Supervised by HOD | B | Dr. Rahat | Supervised by HOD | E | Dr. Ali | Supervised by HOD | A | Dr. Sheena | D | Dr. Uzma Zafar |
| 1. | A | 01-70 | | Tuesday | D | | C | Dr. Nayab | | A | Dr. Sheena | | B | Dr. Uzma/Dr. Afsheen | E | Dr. Rahat |
| 2. | B | 71-140 | | Wednesday | E | | D | Dr. Uzma | | B | Dr. Uzma/Dr. Afsheen | | C | Dr. Farah | A | Dr. Almas |
| 3. | C | 141-210 | | Thursday | B | | A | Dr. Almas | | D | Dr. Ayesha | | E | Dr. Ali | C | Dr. Nayab |
| 4. | D | 211-280 | | Saturday | A | | E | Dr. Romessa | | C | Dr. Farah | | D | Dr. Ayesha | B | Dr. Romessa |
| 5. | E | 281-onwards | | | | | | | | | | | | | | |
| | | | Topics for SGDs / CBL with Venue | | | | | | | | | | | | | |
| | | | <ul style="list-style-type: none"> Physiology CBL Down's syndrome – (venue-Lecture Hall 5) Biochemistry CBL – Enzymes-Lecture Hall 3 | | | | | | | | | | | | | |

Table No. 2 Batch Distribution with Venues and Teachers Name for Problem Based Learning (PBL) Sessions

| Sr No. | Batches | Roll No | Venue | Teachers | Sr No. | Batches | Roll No | Venue | Teachers |
|---------------|----------------|----------------|---------------------------------------|--|---------------|----------------|----------------|---|---|
| 1. | A1 | (01-35) | Lecture Hall no.05 Physiology | Dr. Raja Khalid (Demonstrator Biochemistry) | 6. | C2 | (176-210) | New Lecture Hall Complex Lecture Theater # 03 | Dr. Ali Zain (PGT Physiology) |
| 2. | A2 | (36-70) | Lecture Hall #.04 (1st Floor Anatomy) | Dr. Farah ali Shah (Demonstrator of Physiology) | 7. | D1 | (210-245) | New Lecture Hall Complex Lecture Theater # 02 | Dr. Jawad (Demonstrator Physiology) |
| 3. | B1 | (71-105) | Anatomy Museum (First Floor Anatomy) | Dr. Nayab Ramzan (APWMO Biochemistry) | 8. | D2 | (246-280) | New Lecture Hall Complex Lecture Theater # 02 | Dr. Kashif Ashraf (Demonstrator of Anatomy) |
| 4. | B2 | (106-140) | Lecture Hall no.03 (First Floor) | Dr. Zeneera Saqib (Senior Demonstrator of Anatomy) | 9. | E1 | (281-315) | Anatomy Museum (First Floor Anatomy) | Dr. Uzma Zafar (APWMO Biochemistry) |
| 5. | C1 | (141-175) | Anatomy Museum (First Floor Anatomy) | Dr. Farhat (PGT Physiology) | 10 | E2 | (315 onwards) | Lecture Hall no.04 | Dr. Najam (PGT Physiology) |

Table No. 3 Venues for Large Group Interactive Session (LGIS)

| | |
|-------------------------|---|
| Odd Roll Numbers | New Lecture Hall Complex Lecture Theater # 03 |
| Even Roll Number | New Lecture Hall Complex Lecture Theater # 02 |

| Table No. 4 Batch Distribution and Venues for Anatomy Small Group Discussion SGDs / Dissections | | | | | Table No. 5 Batch Distribution and Venues for Physiology & Biochemistry Small Group Discussion SGDs | | | | | | |
|---|-----------------|---|---|--------------------------------|---|-----------------|--|---|---------------------------|---------------------------------|-----------------------------|
| Batches | Roll No | Subgroup | Anatomy Teacher | Venue | Batches | Roll No | Subgroup | Physiology Teacher | Physiology Venue | Biochemistry Teacher | Biochemistry Venue |
| A | 01- 90 | A1: Roll No (1 – 22) A2: Roll No (23 – 44) A3: Roll No (45 – 66) A4: Roll No (67 – 90) | Dr. Zeneera (Demonstrator) | New Lecture Hall Complex 03 | A | 01-70 | A1: Roll No (1 – 14) A2: Roll No (15 – 28) A3: Roll No (29 – 42) A4: Roll No (43 – 56) A5: Roll No (57 – 70) | Dr. Sheena Tariq (APWMO) | Physiology Lecture Hall 5 | Dr. Uzma Zafar (APWMO) | Basement Lecture Hall No. 2 |
| B | 91-180 | B1: Roll No (91 – 113) B2: Roll No (114 – 135) B3: Roll No (136 – 157) B4: Roll No (158 – 180) | Dr. Sajjad Hussain (Senior. Demonstrator) | New Lecture Hall Complex 02 | B | 71-140 | B1: Roll No (71 – 84) B2: Roll No (85 – 98) B3: Roll No (99 – 112) B4: Roll No (113 – 126) B5: Roll No (127 – 140) | Dr. Uzma Kiyani (Senior Demonstrator) | Physiology Lecture Hall 5 | Dr. Rahat (APWMO) | Basement Lecture Hall No. 2 |
| C | 181-270 | C1: Roll No (181 – 202) C2: Roll No (203 – 224) C3: Roll No (225 – 246) C4: Roll No (247 – 270) | Dr. Nida (Demonstrator) | Anatomy Lecture Hall 04 | C | 141-210 | C1: Roll No (141 – 154) C2: Roll No (155 – 168) C3: Roll No (169 – 182) C4: Roll No (183 – 196) C5: Roll No (197 – 210) | Dr. Farah Shah (Demonstrator) | Physiology Lecture Hall 5 | Dr. Almas (APWMO) | Basement Lecture Hall No. 2 |
| D | 271- onwards | D1: Roll No (271 – 292) D2: Roll No (293 - 314) D3: Roll No (315 – 336) D4: Roll No (337 – onwards) | Dr. Sumyyia / Dr. Tayyaba (Assistant Professor) | Anatomy Lecture Hall 03 | D | 211-280 | D1: Roll No (211 – 224) D2: Roll No (225 – 238) D3: Roll No (239 – 252) D4: Roll No (253 – 266) D5: Roll No (267 – 280) | Dr. Aisha (Demonstrator) | Physiology Lecture Hall 5 | Dr. Nayab (APWMO) | Basement Lecture Hall No. 2 |
| Supervised by Prof. Dr. Ayesha Yousaf | | | | | E | 281- onwards | E1: Roll No (281 – 294) E2: Roll No (295 – 308) E3: Roll No (309 – 322) E4: Roll No (323 – 336) E5: Roll No (337 – onwards) | Dr. Ali Zain / Dr. Afsheen (P. G Trainee) | Physiology Lecture Hall 5 | Dr. Romessa (Demonstrator) | Basement Lecture Hall No. 2 |
| Supervised by Prof. Dr. Samia Sarwar | | | | | | | | | | Supervised by. Dr. Aneela Jamil | |

Time Table for Foundation Module - I (Fifth Week)
(02-03-2026 to 07-03-2026)

| Date/Day | Theme | 8:00am-9:20am | 9:20am – 10:10am | 10:10am – 10:30am | 10:30am-11:10am | 11:10am-11:50am | 11:50am – 01:00pm | Home Assignments | | | |
|--|---|--|------------------|---|--|--|--|------------------|--|--|---|
| 02-03-2026 Monday | From Molecules to Medicine: Clinical Applications of Molecular Biology and Genetics | DISSECTION / CBL | | Break | ANATOMY (LGIS) | | BIOCHEMISTRY (LGIS) | | | | |
| 03-03-2026 Tuesday | | DISSECTION | | | BIOCHEMISTRY (LGIS) | | Down Syndrome Guest Lecture | | Practical & SGD Topics & Venue mentioned at the end (Referred to table no. 1) | | |
| 04-03-2026 Wednesday | | BIOCHEMISTRY (LGIS) | | | CLINICO-CONCEPT CONNECT (C ⁶) SESSIONS - V | | DISSECTION / SGD | | | Practical & SGD Topics & Venue mentioned at the end (Referred to table no. 1) | |
| 05-03-2026 Thursday | | PATHOLOGY (LGIS) | | | CA Breast | | Dissection/spotting | | SDL Biochemistry Clinical Applications of PCR & Recombinant DNA Technology | | |
| | | Genetic disorder | | | Anatomy | | | | | | |
| | | Translation | | | Biochemistry | | | | | | |
| 06-03-2026 Friday | | DISSECTION / SGD | | | ANATOMY (LGIS) | | BIOCHEMISTRY (LGIS) | | | Practical & SGD Topics & Venue mentioned at the end (Referred to table no. 1) | SDL Biochemistry Diagonistic role of Enzymes |
| | | Sternoclavicular and acromioclavicular joints | | | Histology | | Embryology | | | | |
| | | | | | Histology & Development of Mammary Gland | | Cleavage and formation of blastocyst | | | | |
| Asso. Prof. Dr. Arsalan (Even) | | | | | Prof. Dr. Ayesha/ Asso. Prof Dr. Mohtashim (Odd) | | | | | | |
| DISSECTION / SGD | | BIOCHEMISTRY (LGIS) | | CLINICO-CONCEPT CONNECT (C ⁶) SESSIONS - VI | | SDL Applied Anatomy of Brachial plexus injuries (Referred to table no. 1) | | | | | |
| Radiograph/Cross Section of axioapendicular region | | Recombinant DNA/ PCR (Polymerase Chain Reaction) | | Clinical Enzymology | | | | | | | |
| | | Dr. Kanwal (Even) | | Dr. Raja Khalid / Dr. Aneela (Odd) | | | | | | | |
| | | Anatomy | | Dr. Tayyaba Querashi | | | | | | | |
| | | Biochemistry | | Dr. Nayab | | | | | | | |
| Medicine | | Dr. Unaiza | | Surgery | | Dr. Mamoona | | | | | |
| 07-03-2026 Saturday | Surface Anatomy of Axioapendicular Region | DISSECTION / SGD | | Break | ANATOMY (LGIS) | | BIOCHEMISTRY (LGIS) | | Practical & SGD Topics & Venue mentioned at the end (Referred to table no. 1) | SDL Applied Anatomy of Breast End Module Clinical / (C⁶) Sessions Foramtime Assessment | |
| Histology | | Embryology | | | Clinical Enzymology | | Recombinant DNA/ PCR (Polymerase Chain Reaction) | | | | |
| Histology & Development of Mammary Gland | | Cleavage and formation of blastocyst | | | Dr. Raja Khalid / Dr. Aneela (Even) | | Dr. Kanwal (Odd) | | | | |
| Asso. Prof. Dr. Arsalan (Odd) | | Prof. Dr. Ayesha/ Asso. Prof Dr. Mohtashim (Odd) | | | | | | | | | |

Table No. 1 (Time: 11:50am – 01:00pm)

| Batch Distribution for Practical Skills (all subjects) CBL / Small Group Discussion (Biochemistry and Physiology) | | | Topics for Skill Lab with Venue | Schedule for Practical | | | | | | | | | | | | |
|--|-------|-------------|---|---|---------------------|-------------------|------------------------|-------------|----------------------|-------|----------------------|-------------------|-------|----------------------|-------|----------------|
| Sr. No | Batch | Roll No. | <ul style="list-style-type: none"> Mammary Gland (Anatomy/Histology-practical) Venue-Histology Laboratory (Dr. Kashif) Physiochemical aspects of cell-Adsorption & Tonicity (Biochemistry practical) venue-Biochemistry laboratory) Apparatus identification (Introduction to centrifuge machine) (Physiology-Practical) Venue-Physiology Laboratory | Day | Histology Practical | | Biochemistry Practical | | Physiology Practical | | Supervised by HOD | Physiology SGD | | Biochemistry SGD | | |
| | | | | Batch | Teacher Name | Batch | Teacher Name | Batch | Teacher Name | Batch | | Teacher Name | Batch | Teacher Name | Batch | Teacher Name |
| 1. | A | 01-70 | | Monday | C | Supervised by HOD | B | Dr. Rahat | Supervised by HOD | E | Dr. Ali | Supervised by HOD | A | Dr. Sheena | D | Dr. Uzma Zafar |
| 2. | B | 71-140 | | Tuesday | D | | C | Dr. Nayab | | A | Dr. Sheena | | B | Dr. Uzma/Dr. Afsheen | E | Dr. Rahat |
| 3. | C | 141-210 | | Wednesday | E | | D | Dr. Uzma | | B | Dr. Uzma/Dr. Afsheen | | C | Dr. Farah | A | Dr. Almas |
| 4. | D | 211-280 | | Thursday | B | | A | Dr. Almas | | D | Dr. Ayesha | | E | Dr. Ali | C | Dr. Nayab |
| 5. | E | 281-onwards | | Saturday | A | | E | Dr. Romessa | | C | Dr. Farah | | D | Dr. Ayesha | B | Dr. Romessa |
| | | | Topics for SGDs / CBL with Venue | <ul style="list-style-type: none"> Physiology SGD – Cellular control mechanism, cell cycle, programmed cell death, Apoptosis Lecture Hall 5 Biochemistry CBL – Genetics (PCR) - Lecture Hall 3 Anatomy CBL - Brachial Plexus injuries and winging Of Scapula | | | | | | | | | | | | |

Table No. 2 Batch Distribution with Venues and Teachers Name for Problem Based Learning (PBL) Sessions

| Sr No. | Batches | Roll No | Venue | Teachers | Sr No. | Batches | Roll No | Venue | Teachers |
|--------|---------|-----------|---------------------------------------|--|--------|---------|---------------|---|---|
| 1. | A1 | (01-35) | Lecture Hall no.05 Physiology | Dr. Raja Khalid (Demonstrator Biochemistry) | 6. | C2 | (176-210) | New Lecture Hall Complex Lecture Theater # 03 | Dr. Ali Zain (PGT Physiology) |
| 2. | A2 | (36-70) | Lecture Hall #.04 (1st Floor Anatomy) | Dr. Farah ali Shah (Demonstrator of Physiology) | 7. | D1 | (210-245) | New Lecture Hall Complex Lecture Theater # 02 | Dr. Jawad (Demonstrator Physiology) |
| 3. | B1 | (71-105) | Anatomy Museum (First Floor Anatomy) | Dr. Nayab Ramzan (APWMO Biochemistry) | 8. | D2 | (246-280) | New Lecture Hall Complex Lecture Theater # 02 | Dr. Kashif Ashraf (Demonstrator of Anatomy) |
| 4. | B2 | (106-140) | Lecture Hall no.03 (First Floor) | Dr. Zeneera Saqib (Senior Demonstrator of Anatomy) | 9. | E1 | (281-315) | Anatomy Museum (First Floor Anatomy) | Dr. Uzma Zafar (APWMO Biochemistry) |
| 5. | C1 | (141-175) | Anatomy Museum (First Floor Anatomy) | Dr. Farhat (PGT Physiology) | 10 | E2 | (315 onwards) | Lecture Hall no.04 | Dr. Najam (PGT Physiology) |

Table No. 3 Venues for Large Group Interactive Session (LGIS)

| | |
|-------------------------|---|
| Odd Roll Numbers | New Lecture Hall Complex Lecture Theater # 03 |
| Even Roll Number | New Lecture Hall Complex Lecture Theater # 02 |

| Table No. 4 Batch Distribution and Venues for Anatomy Small Group Discussion SGDs / Dissections | | | | | Table No. 5 Batch Distribution and Venues for Physiology & Biochemistry Small Group Discussion SGDs | | | | | | |
|--|----------------|--|---|--------------------------------|--|----------------|---|---|---------------------------|---------------------------------|-----------------------------|
| Batches | Roll No | Subgroup | Anatomy Teacher | Venue | Batches | Roll No | Subgroup | Physiology Teacher | Physiology Venue | Biochemistry Teacher | Biochemistry Venue |
| A | 01- 90 | A1: Roll No (1 – 22) A2: Roll No (23 – 44) A3: Roll No (45 – 66) A4: Roll No (67 – 90) | Dr. Zeneera (Demonstrator) | New Lecture Hall Complex 03 | A | 01-70 | A1: Roll No (1 – 14) A2: Roll No (15 – 28) A3: Roll No (29 – 42) A4: Roll No (43 – 56) A5: Roll No (57 – 70) | Dr. Sheena Tariq (APWMO) | Physiology Lecture Hall 5 | Dr. Uzma Zafar (APWMO) | Basement Lecture Hall No. 2 |
| B | 91-180 | B1: Roll No (91 – 113) B2: Roll No (114 – 135) B3: Roll No (136 – 157) B4: Roll No (158 – 180) | Dr. Sajjad Hussain (Senior. Demonstrator) | New Lecture Hall Complex 02 | B | 71-140 | B1: Roll No (71 – 84) B2: Roll No (85 – 98) B3: Roll No (99 – 112) B4: Roll No (113 – 126) B5: Roll No (127 – 140) | Dr. Uzma Kiyani (Senior Demonstrator) | Physiology Lecture Hall 5 | Dr. Rahat (APWMO) | Basement Lecture Hall No. 2 |
| C | 181-270 | C1: Roll No (181 – 202) C2: Roll No (203 – 224) C3: Roll No (225 – 246) C4: Roll No (247 – 270) | Dr. Nida (Demonstrator) | Anatomy Lecture Hall 04 | C | 141-210 | C1: Roll No (141 – 154) C2: Roll No (155 – 168) C3: Roll No (169 – 182) C4: Roll No (183 – 196) C5: Roll No (197 – 210) | Dr. Farah Shah (Demonstrator) | Physiology Lecture Hall 5 | Dr. Almas (APWMO) | Basement Lecture Hall No. 2 |
| D | 271- onwards | D1: Roll No (271 – 292) D2: Roll No (293 - 314) D3: Roll No (315 – 336) D4: Roll No (337 – onwards) | Dr. Sumyyia / Dr. Tayyaba (Assistant Professor) | Anatomy Lecture Hall 03 | D | 211-280 | D1: Roll No (211 – 224) D2: Roll No (225 – 238) D3: Roll No (239 – 252) D4: Roll No (253 – 266) D5: Roll No (267 – 280) | Dr. Aisha (Demonstrator) | Physiology Lecture Hall 5 | Dr. Nayab (APWMO) | Basement Lecture Hall No. 2 |
| Supervised by Prof. Dr. Ayesha Yousaf | | | | | E | 281- onwards | E1: Roll No (281 – 294) E2: Roll No (295 – 308) E3: Roll No (309 – 322) E4: Roll No (323 – 336) E5: Roll No (337 – onwards) | Dr. Ali Zain / Dr. Afsheen (P. G Trainee) | Physiology Lecture Hall 5 | Dr. Romessa (Demonstrator) | Basement Lecture Hall No. 2 |
| Supervised by Prof. Dr. Samia Sarwar | | | | | | | | | | Supervised by. Dr. Aneela Jamil | |

Tentative Schedule for LMS Based Weekly Online Assessments for First Year MBBS (Foundation Module - I) Batch - 53

The Online Assessment for Foundation Module - I for First Year MBBS will be as per following schedule:

| Class | Module | Day & Date | Time of Assessment | Focal person | Department Responsible |
|-----------------|-----------------------|-------------------------|---------------------------|------------------------|-------------------------------|
| First Year MBBS | Foundation Module - I | 16-02-2026 Monday | 7:00 pm-7:40pm | Prof. Dr Ayesha Yousaf | Anatomy |
| | | 17-02-2026 Tuesday | 7:00 pm-7:40pm | Prof. Dr Samia Sarwar | Physiology |
| | | 18-02-2026 Wednesday | 7:00 pm-7:40pm | Dr Aneela Jamil | Biochemistry |
| | | 23-02-2026 Monday | 7:00 pm-7:40pm | Prof. Dr Ayesha Yousaf | Anatomy |
| | | 24-02-2026 Tuesday | 7:00 pm-7:40pm | Prof. Dr Samia Sarwar | Physiology |
| | | 25-02-2026 Wednesday | 7:00 pm-7:40pm | Dr Aneela Jamil | Biochemistry |

Note: All dates are subject to change.

**End of Foundation Module - I Assessment
(09-03-2026 to 14-03-2026)**

| Date / Days | Tentative Datesheet | Time |
|-------------------------|----------------------------|-------------|
| 09-03-2026 Monday | Assessment Week | |
| 10-03-2026 Tuesday | | |
| 11-03-2026 Wednesday | | |
| 12-03-2026 Thursday | | |
| 13-03-2026 Friday | | |
| 14-03-2026 Saturday | | |

*All dates are subject to change.

*Details will be shared separately.

SECTION – VI

Annexures

Templates for Theory Paper

- **MCQ, SEQ Paper, & EMQ**

Templates for AV OSPE/OSPE

Templates for Structured Viva

Rawalpindi Medical University Rawalpindi
Department of Anatomy, Physiology & Biochemistry
MCQs & EMQ Paper for _____ Module, First Year MBBS Batch - 53
Date: 00-00-0000

Total Marks: 30 (MCQs: 25, EMQ: 5)

Roll No. _____

Total Time: 30 Minutes

Name. _____

Each MCQ carries 1 mark and EMQ carries 5 marks

Encircle the single best response

| Q.# | Integrated & Clinically Oriented Assessment of the Subject Anatomy, Physiology & Biochemistry Section A: Core Knowledge of Anatomy / Physiology / Biochemistry (70%) | Level of Cognition |
|---|---|---------------------------|
| 1. | Question a. b. c. d. e. USMLE: Type Question Reference: Ganong 25 th Edition Page No. 101 | C1 |
| Section – B: Integrations (30%) | | |
| Horizontal Integration Anatomy / Physiology / Biochemistry (5%) | | |
| 2. | Horizontal Integration with Anatomy (2.5%) Questions a. b. c. d. e. USMLE: Type Question Reference: Ganong 25 th Edition Page No. 101 | C1 |
| Vertical Integration with Medicine / Surgery / Gynae Obs etc (15%) | | |
| 3. | Question a. b. c. d. e. USMLE: Type Question Reference: Ganong 25 th Edition Page No. 101 | C3 |

| Spiral Integration (10%) | | |
|---------------------------------|---|----|
| Medical Bioethics | | |
| 4. | Question a. b. c. d. e. USMLE: Type Question Reference: Ganong 25 th Edition Page No. 101 | C2 |
| Family Medicine | | |
| 5. | Question a. b. c. d. e. USMLE: Type Question Reference: Ganong 25 th Edition Page No. 101 | |

Rawalpindi Medical University Rawalpindi
Department of Anatomy, Physiology & Biochemistry
SEQ & SAQ Paper for _____ Module, _____ Year MBBS Batch _____
Date: 00-00-0000

Total Marks: 70
 Each SAQ carries 5 marks
 Each SEQ carries 9 marks

Time allowed: 1 hour & 30 minutes
 Each SAQ: 5 minutes, SEQ: 10 minutes

Attempt all Questions

| Integrated & Clinically Oriented Assessment of the Subject of Anatomy, Physiology & Biochemistry | | | | | |
|---|---|------------|-------------------|----------------|-----------------------|
| Domain | | | Percentage | | |
| • Core Knowledge (CK) of Anatomy/Physiology Biochemistry | | | (70%) | | |
| • Integration | | | (30%) | | |
| ○ Horizontal Integration (HI) | | | (05%) | | |
| ○ Vertical Integration (VI) | | | (15%) | | |
| ○ Spiral Integration (SI) | | | (10%) | | |
| Q.# | Construct your Answers according to the given Scenarios and Questions | Domain | Marks | % Weightage | Level of Cognition |
| Short Answer Questions (SAQs) Total Marks: 25 (Each SAQ carries marks) | | | | | |
| SAQ 1 | A 55 years Male, known case of Coronary Artery Disease, presented to..... | CK & VI | ..... | ..... | ..... |
| | a. | CK | 2 | 8% | C2 |
| | b. | CK | 2 | 12% | C2 |
| | c. | CK | 2 | 8% | C2 |

| | | | | | |
|--|---|----|---|-----|----|
| | d. | CK | 2 | 12% | C2 |
| | e. USMLE Question. References: Part a: Guyton & Hall 14 th Edition page # 114 Part b: Guyton & Hall 14 th Edition Page # 116 | CK | 1 | 8% | C2 |

| Q.# | Construct your Answers according to the given Scenarios and Questions | Domain | Marks | % Weightage | Level of Cognition |
|--|--|-----------------|-------|-------------|--------------------|
| Short Essay Question (SEQs) Total Marks: 45 | | | | | |
| SEQ 1 | A 55 years Male, known case of Coronary Artery Disease, presented to..... | CK & VI | ..... | ..... | ..... |
| | a. | HI with Anatomy | 2 | 6.66% | C2 |
| | b. | CK | 3 | 6.66% | C2 |
| | c. | CK | 2 | 6.66% | C2 |
| | d. | CK | 1 | 6.66% | C2 |
| | e. USMLE Style Question. References: • Part a: Guyton & Hall 14 th Edition page # 101 • Part b: Guyton & Hall 14 th Edition Page # 103 • Part c: Guyton & Hall 14 th Edition Page # 103 | CK | 1 | 6.66% | C2 |

Rawalpindi Medical University Rawalpindi
Department of Anatomy / Physiology / Biochemistry
Clinically Oriented Audio Visual Objective Structured Practical Examination (OSPE)
_____ Module 2025
_____ Year MBBS (Batch _____)

Day: _____

Date: _____

10 AV OSPE Slides

Time Allowed: 50 minutes

05 minutes for each slide

Chairperson

Department of _____
Rawalpindi Medical University, Rawalpindi

Additional Director Assessment

Rawalpindi Medical University
Rawalpindi

Director DME

Rawalpindi Medical University
Rawalpindi

Vice Chancellor

Rawalpindi Medical University
Rawalpindi

Slide 1

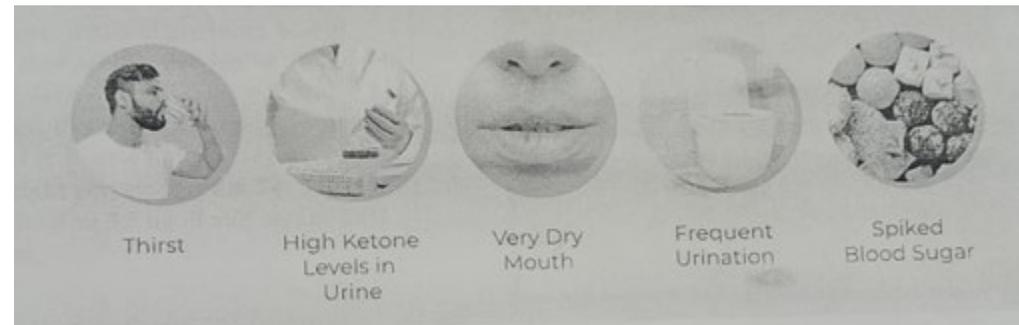
Core Knowledge with Horizontal / Vertical / Spiral Integration

Topic:

Teaching Strategy:

Requirements: Answer sheet, Pen

Objective: _____



- 1. (01)
- 2. (01)
- 3. (01)
- 4. (01)
- 5. (01)

Slide 1

Key for Examiner

- 1.
- 2.
- 3.
- 4.
- 5.

Rawalpindi Medical University
1st Year MBBS Model MCQS (USMLE Format)

| | |
|---|---------------------------------|
| <p>1. A 45-year-old woman presents to the clinic with a palpable lump in her left breast. On physical examination, there is no skin erythema or dimpling, but there is noticeable enlargement of the axillary lymph nodes on the left side. A biopsy of the breast lump reveals invasive ductal carcinoma. The surgeon is concerned about the possible spread of cancer to the lymph nodes. Which of the following is the most likely primary route of lymphatic drainage for this patient's breast cancer?</p> <p>A) Left subclavian lymph nodes B) Internal thoracic (mammary) lymph nodes C) Left axillary lymph nodes D) Right axillary lymph nodes E) Left supraclavicular lymph nodes</p> | Anatomy |
| <p>2. A 52-year-old male presents with muscle weakness, fatigue, and poor exercise tolerance. His laboratory results reveal elevated lactate levels, suggesting a mitochondrial dysfunction. The patient is diagnosed with a disorder affecting the mitochondrial respiratory chain. Which part of the mitochondria is primarily responsible for housing the enzymes involved in oxidative phosphorylation?</p> <p>A) Cristae B) Mitochondrial matrix C) Outer membrane D) Inner membrane E) Outer chamber</p> | Physiology |
| <p>3. A 25-year-old female with a history of genetic disorders presents with symptoms of muscle weakness and fatigue. Her genetic counselor explains that a defect in protein synthesis could be contributing to her condition. The counselor explains that one of the RNA molecules plays a crucial role in delivering amino acids to the ribosome for protein assembly. Which of the following is the primary function of transfer RNA (tRNA) in this process?</p> <p>A) Transfers information from DNA to ribosomes B) Transfers information from mRNA to cytosol C) Transfers amino acids from cytosol to ribosomes D) Transfers proteins from cytosol to ribosomes E) Transfers proteins from ribosomes to the Golgi apparatus</p> | Biochemistry |
| <p>4. A 60-year-old patient is diagnosed with a chronic condition and given several treatment options, each with varying degrees of risk and benefit. The patient carefully considers the options and decides to pursue a less invasive treatment, despite the doctor's recommendation for a more aggressive approach. The doctor provides all the necessary information, ensuring the patient understands the potential outcomes and respects their decision.</p> <p>A) Beneficence B) Justice C) Autonomy D) Non-maleficence E) Paternalism</p> | Spiral Courses Bioethics |

Rawalpindi Medical University
1st Year MBBS Model EMQ

1. A 35-year-old male presents to the emergency department following a fall onto an outstretched arm during a football match. He reports pain in the upper arm, and upon examination, he is unable to extend his wrist or fingers. There is localized tenderness and swelling over the mid-shaft of the humerus, and he has difficulty moving his arm. Upon further examination, he also has sensory loss on the dorsum of his hand. X-rays confirm a mid-shaft humeral fracture.

Match the options (A to H) with the statements (1 to 8) given below:

List of Options (A to H):

- A) Radial nerve
- B) Median nerve
- C) Ulnar nerve
- D) Axillary nerve
- E) Pain localized to the shoulder
- F) Wrist drops
- G) Loss of sensation over the dorsum of the hand
- H) Weakness in elbow flexion

Statements:

- 1. This nerve is most commonly injured in a mid-shaft humerus fracture and is responsible for causing wrist drop.
- 2. A common sign seen with this injury is localized pain and tenderness directly over the fracture site.
- 3. Injury to this nerve can result in difficulty extending the fingers and wrist, leading to the inability to fully extend the hand.
- 4. This nerve, when injured, can cause sensory loss over the dorsum of the hand and difficulty extending the wrist and fingers.
- 5. Injury to this nerve might result in a loss of sensation over the lateral aspect of the shoulder and difficulty abducting the arm.
- 6. This nerve injury may lead to weakness in elbow flexion and loss of sensation in the anterior forearm.
- 7. Loss of sensation in the medial side of the hand and inability to flex the fingers are indicative of injury to this nerve.
- 8. This nerve is not typically injured in a mid-shaft humerus fracture but can cause weakness in shoulder abduction when injured in other upper arm fractures.

Answer Key:

- A) Radial nerve
- E) Pain over the fracture site
- F) Wrist drops
- G) Loss of sensation over the dorsum of the hand
- D) Axillary nerve
- B) Median nerve
- C) Ulnar nerve
- D) Axillary nerve

Rawalpindi Medical University
1st Year MBBS Model SEQs & SAQs (USMLE Format)

| | |
|---|--------------|
| <p>1. A female patient of 42 years of age presented to hospital with painless swelling of left breast along that was firm and adherent to chest wall. On examination, oedematous skin was also present around the swelling</p> <ol style="list-style-type: none"> What is the most likely diagnosis for a painless, firm, and adherent swelling in the breast with oedematous skin? (1) What is the clinical sign that describes the oedematous skin around the breast swelling, commonly seen in inflammatory breast cancer? (1) At what age is a woman most likely to present with breast cancer, as seen in this 42-year-old patient? (1) What is the significance of the swelling being adherent to the chest wall in the context of breast cancer? (1) Which condition should be ruled out when a patient presents with painless breast swelling and skin oedema? (1) | Anatomy |
| <p>2. A 40 years old male presented in medical emergency with complaints of severe headache, confusions and fatigue. On examination his blood pressure was 180/110?</p> <ol style="list-style-type: none"> What is the most likely diagnosis for a 40-year-old male presenting with severe headache, confusion, fatigue, and high blood pressure (180/110)? What is the significance of the blood pressure reading of 180/110 in this patient? Which condition should be considered in a patient with severe headache and confusion, especially with elevated blood pressure? What is the potential risk associated with untreated blood pressure of 180/110? What is the first-line management for a patient presenting with hypertensive emergency, as suggested by this scenario? | Physiology |
| <p>3. A biochemist studies an enzyme breaking down a carbohydrate. The enzyme stabilizes the transition state, forms a covalent bond with the substrate, requires metal ions, and facilitates proton transfer during the reaction.</p> <ol style="list-style-type: none"> Which mechanism involves stabilizing the transition state more than the substrate? What does covalent catalysis entail in enzyme reactions? How do metal ions aid in the enzyme's catalytic activity? Why is proton transfer important in enzyme catalysis? What mechanism helps the enzyme facilitate the breakdown of the carbohydrate through proton transfer? | Biochemistry |

**Rawalpindi Medical University
1st Year MBBS Model AV OSPE**

Slide 1 / Video

Core Knowledge with Horizontal / Vertical / Spiral Integration

Topic: Erbs Palsy

Teaching Strategy: Small Group Discussion

Requirements: Answer sheet, Pen

Objective: To Assess the Knowledge of Students Regarding Nerves Injuries in Upper Limb



1. Name the clinical condition shown in video / slide? (01)
2. What is the primary cause of this clinical condition? (01)
3. Which muscles are most commonly affected? (01)
4. Which clinical sign is often associated with this condition in newborns? (01)
5. What is the characteristic posture? (01)