Integrated Modular
MBBS Curriculum 2026
Isolation to Beyond Boundaries

Neurosurgery

4th Year MBBS

A Competency-Based, Thematically Integrated Clinical Learning Framework

Integrated Modular Curriculum 2026

Rawalpindi Medical University

2026

Rawalpindi Medical University

Department of Urology

Integrated Modular Curriculum
4th year MBBS

	Rawalpindi Medical University			
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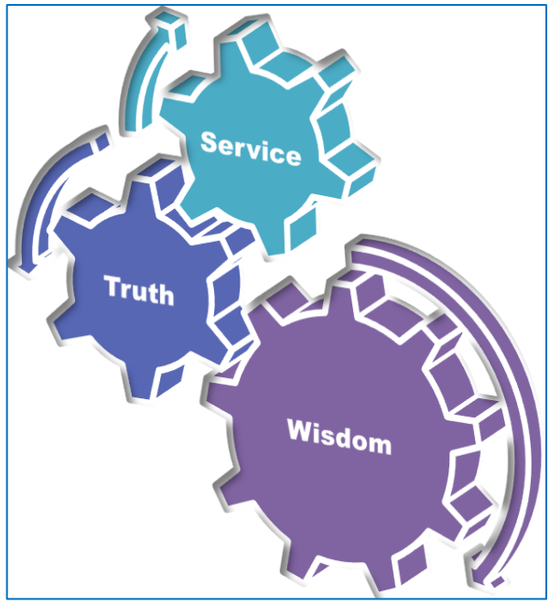
RMU
Motto



Curriculum Mission and Vision

Mission Statement

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

Vision and Values

Highly recognized and accredited center of excellence in Medical Education, using evidence-based training techniques for development of highly competent health professionals, who are lifelong experiential learner and are socially accountable.

Goals of the Undergraduate Integrated Modular Curriculum

The Undergraduate Integrated Learning Program is geared to provide you with quality medical education in an environment 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

Figure 1

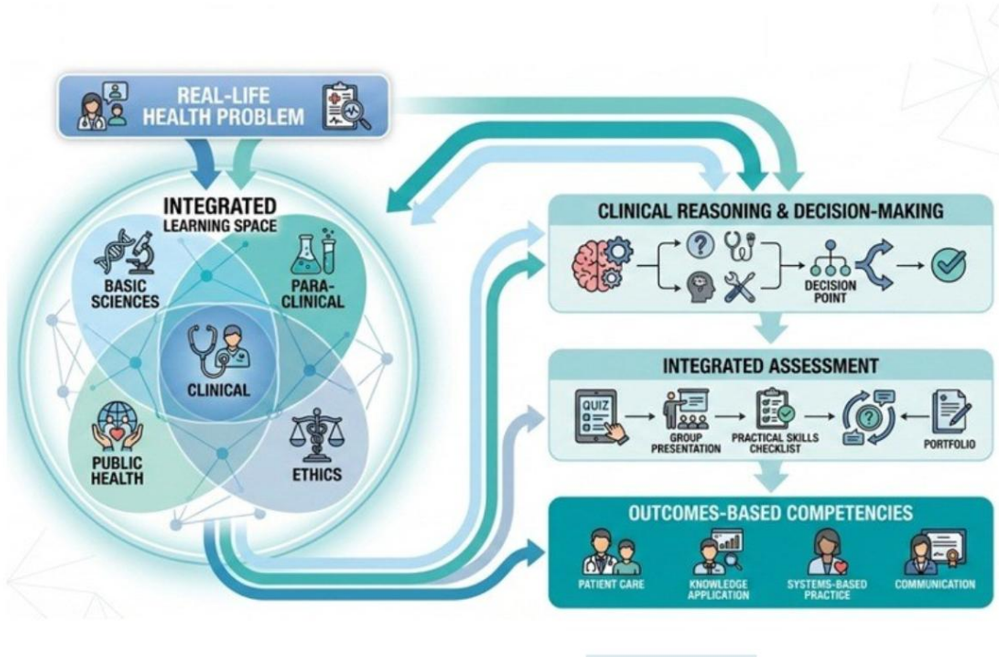
References

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

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

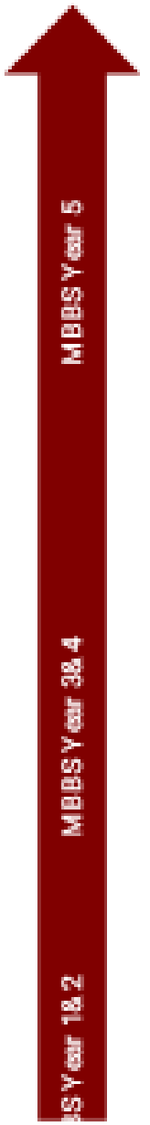


Founadion	The Bridge	The Workplace Entrustment	Embeded Internship
• Pre-clinical sciences • Harden Level 8 (Complementary) MBBS Year (1 & 2)	• Para-clinical sciences • Harden Level 9,10 (Multidiciplinary & Interdiciplinary) MBBS Year (3 & 4)	• Clinical sciences • Harden Level 11 (Transdiciplinary) MBBS Year 5	

Figure 2

Structured Framework of Clinically Oriented Integrated Modular MBBS Curriculum 2026
RMU 12 - Isolation to Internship

Phase	Curricular Highlights
Pre House-job Internship	**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.
Clinical Sciences The Workplace Entrustment	**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.
Paraclinical Sciences The Bridge	**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.
Pre-Clinical The Foundation	**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.



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 Integration level 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 joint 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 familiarize students with performance-based expectations. Assessment strategies emphasize 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 centered 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 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**

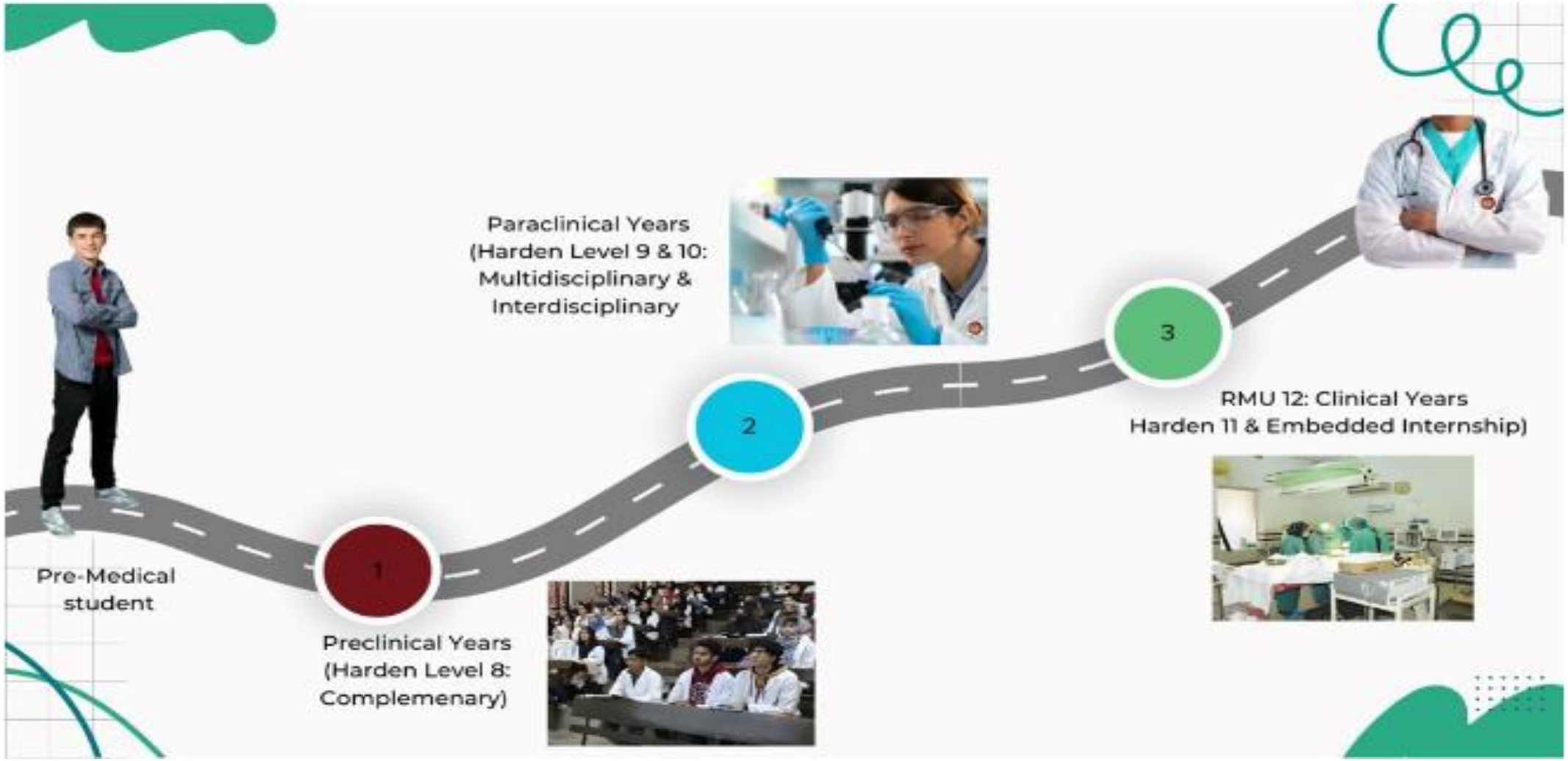
The Undergraduate Internship is a structured, supervised transition phase designed to consolidate clinical competence and ensure readiness for the statutory house job. It provides learners with protected, workplace-based exposure focused on authentic patient care tasks, guided by clearly defined Entrustable Professional Activities aligned with international standards. Teaching emphasizes 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

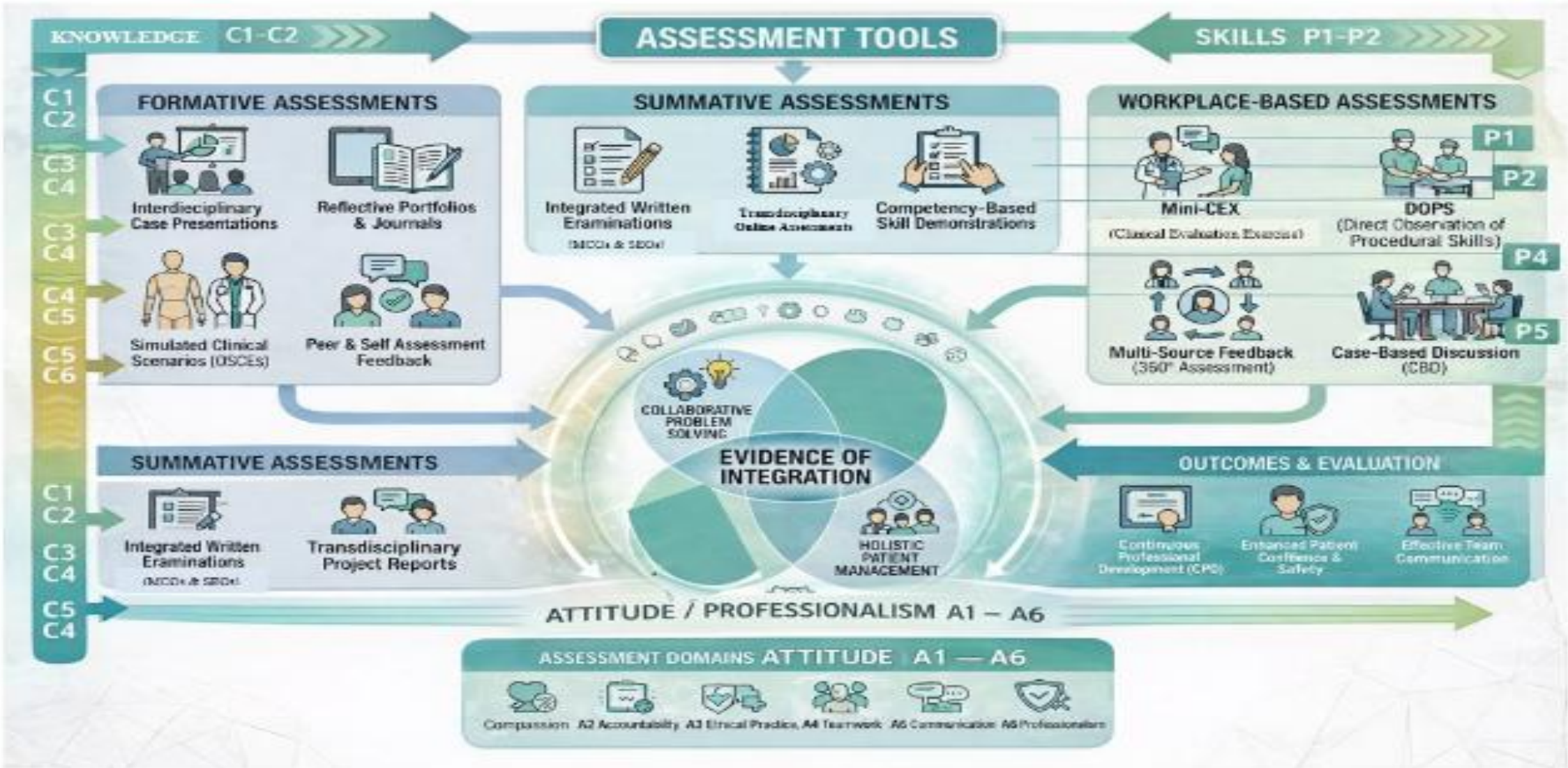
real clinical environments. This integrated and progressive design reflects contemporary best practices in medical education and aligns the educational experience with the expectations of modern healthcare systems.

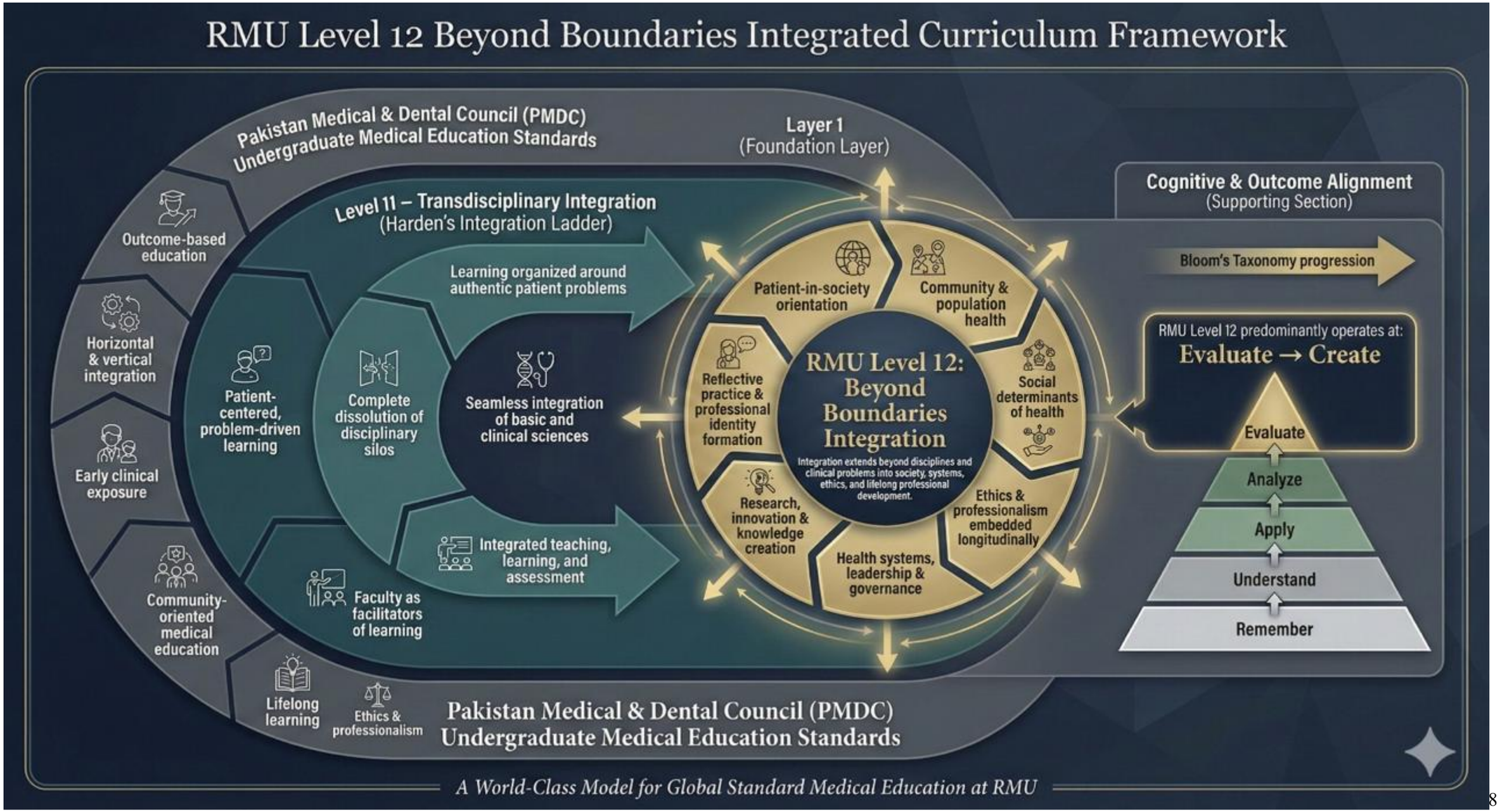
Structured Framework of RMU – 12 Integrated Modular MBBS Curriculum 2026

Isolation to Beyond Boundaries



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




RMU Level 12 Beyond Boundaries Integrated Curriculum Framework
Pakistan Medical & Dental Council (PMDC)
Undergraduate Medical Education Standards
Outcome-based education
Horizontal & vertical integration
Early clinical exposure
Community-oriented medical education
Lifelong learning
Ethics & professionalism
Level 11 – Transdisciplinary Integration
(Harden's Integration Ladder)
Patient-centered, problem-driven learning
Complete dissolution of disciplinary silos
Learning organized around authentic patient problems
Seamless integration of basic and clinical sciences
Integrated teaching, learning, and assessment
Faculty as facilitators of learning
Layer 1
(Foundation Layer)
Patient-in-society orientation
Community & population health
Social determinants of health
Ethics & professionalism embedded longitudinally
Health systems, leadership & governance
Research, innovation & knowledge creation
Reflective practice & professional identity formation
RMU Level 12: Beyond Boundaries Integration
Integration extends beyond disciplines and clinical problems into society, systems, ethics, and lifelong professional development.
Cognitive & Outcome Alignment
(Supporting Section)
Bloom's Taxonomy progression
RMU Level 12 predominantly operates at:
Evaluate → Create
Evaluate
Analyze
Apply
Understand
Remember
Pakistan Medical & Dental Council (PMDC)
Undergraduate Medical Education Standards
A World-Class Model for Global Standard Medical Education at RMU

RMU Level 12 Trans-Contextual Integration Framework

Introduction

Modern medical education emphasizes integration as a cornerstone for producing competent, reflective, and patient-centered physicians. Harden's Integration Ladder provides a structured framework to assess the degree of integration within a medical curriculum, ranging from isolated teaching (Level 1) to full transdisciplinary integration (Level 11). Rawalpindi Medical University (RMU), through its MBBS curriculum design, teaching strategies, and assessment framework, demonstrates clear alignment with PMDC's undergraduate medical education standards and fulfills the criteria for Level 11 on Harden's Integration Ladder and even beyond boundaries corresponding to ***RMU Level 12 Integration***. Furthermore, RMU's curriculum promotes higher-order thinking skills as defined by Bloom's Taxonomy, thereby extending beyond mere integration to the development of competent, reflective, and adaptive physicians.

Rawalpindi Medical University in the Context of Harden's Integration Ladder: Level 11 and Beyond Boundaries

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Rawalpindi Medical University (RMU), through its undergraduate MBBS curriculum and evolving educational strategies, demonstrates characteristics that place it at Level 11 of Harden's Ladder and, in several aspects, even beyond that RMU Level 12(beyond boundaries/internship). This is evident in RMU's holistic curriculum design, clinical immersion, problem-based learning, community-oriented education, and outcome-driven assessment strategies.

Key Highlights

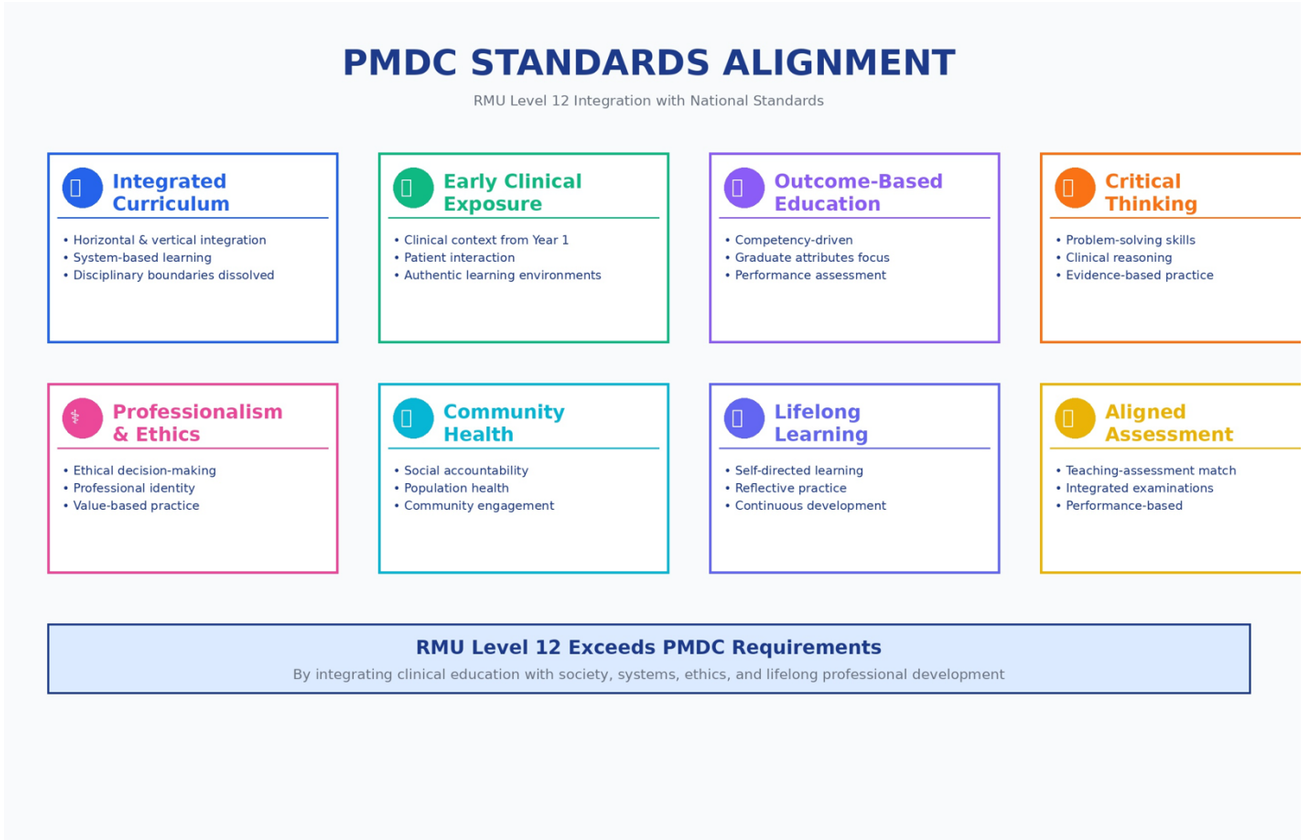
- Transcends Harden's Level 11 through integration with society, systems, ethics, and lifelong learning
- Fully aligned with PMDC undergraduate medical education standards
- Emphasizes higher-order thinking: Analysis, Evaluation, and Creation (Bloom's Taxonomy)
- Produces socially accountable, adaptive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

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**

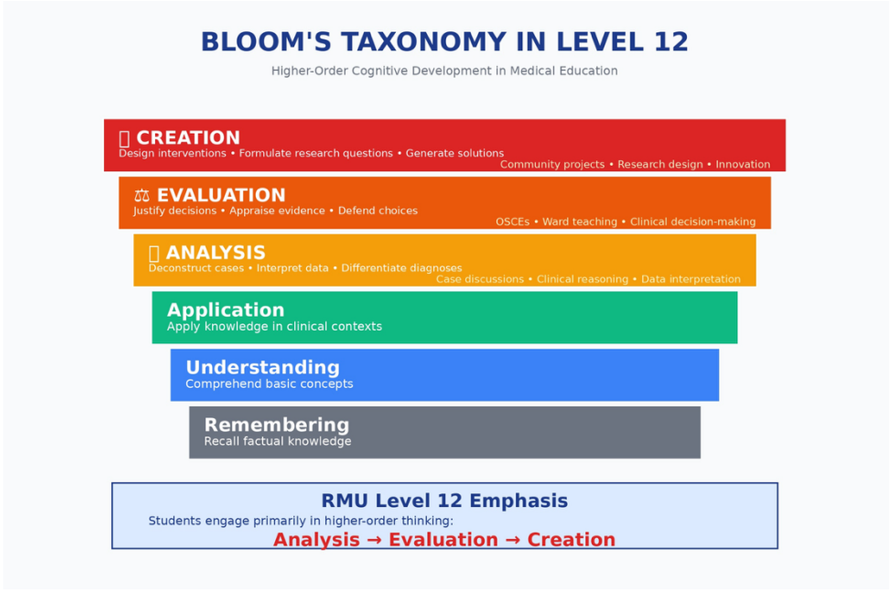
4. Bloom's Taxonomy & Higher-Order Thinking

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

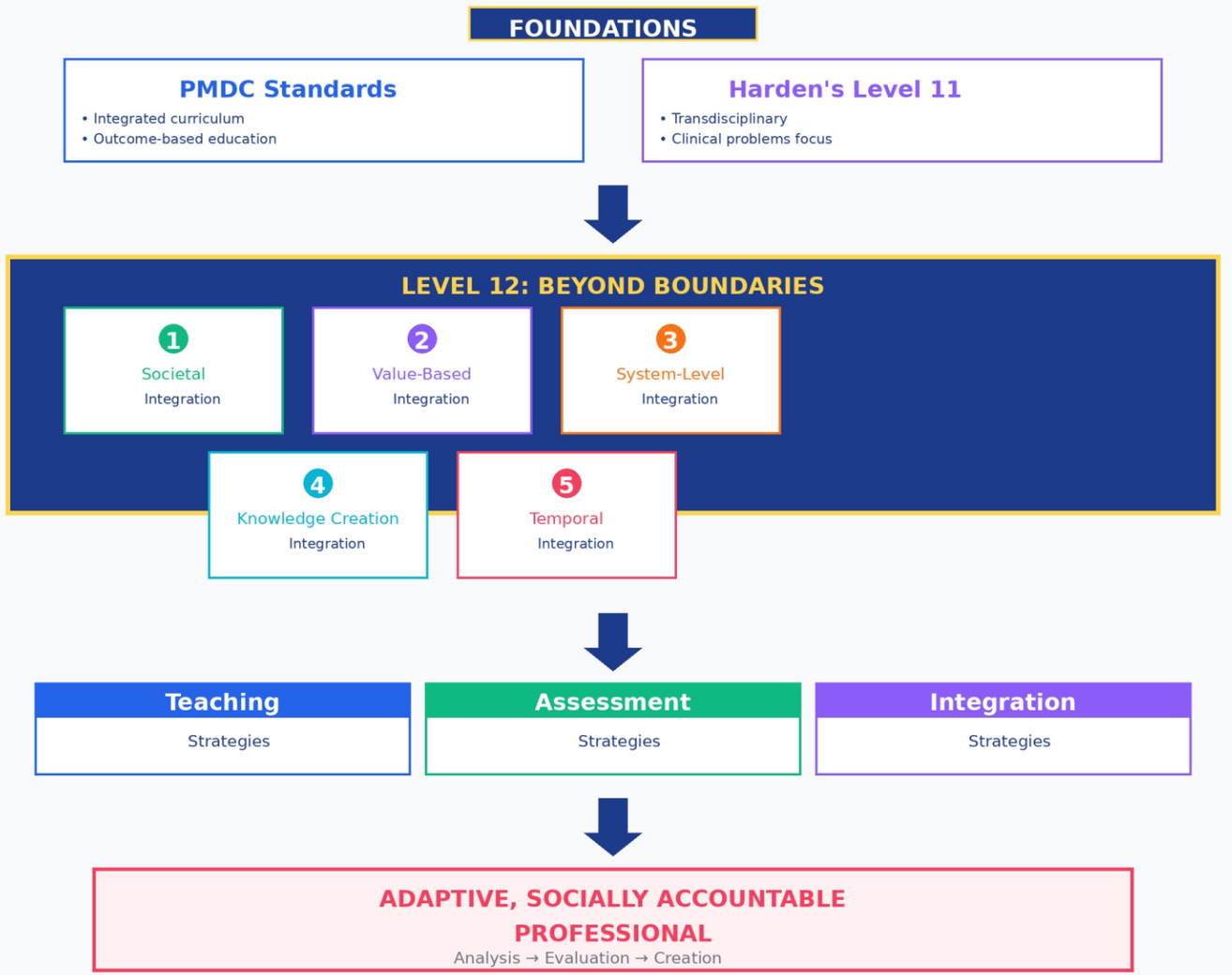
Lifelong Learning
- Self-directed growth
- Reflective practice
- Adaptive expertise

Leadership
- Innovation
- Change management
- Team development

ADAPTIVE, SOCIALLY ACCOUNTABLE PROFESSIONAL

RMU LEVEL 12 FRAMEWORK

Complete Conceptual Flow



Conclusion

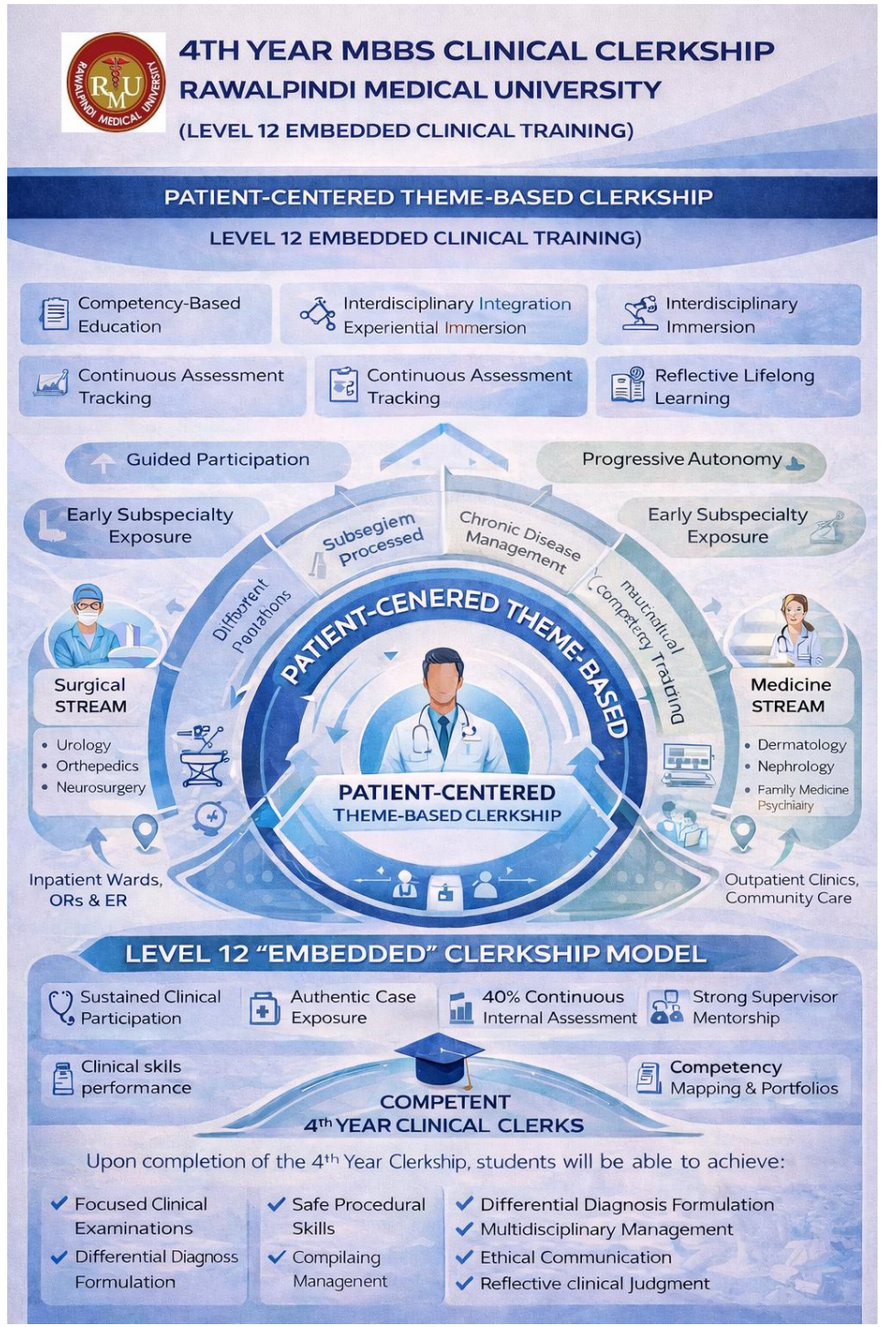
Rawalpindi Medical University's curriculum exemplifies a transformational approach to medical education that extends beyond traditional disciplinary integration. By achieving **Level 12: Beyond Boundaries Integration**, RMU demonstrates that modern medical education must prepare graduates not only as 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


4TH YEAR MBBS CLINICAL CLERKSHIP
RAWALPINDI MEDICAL UNIVERSITY
(LEVEL 12 EMBEDDED CLINICAL TRAINING)
PATIENT-CENTERED THEME-BASED CLERKSHIP
LEVEL 12 EMBEDDED CLINICAL TRAINING)
Competency-Based Education
Interdisciplinary Integration Experiential Immersion
Interdisciplinary Immersion
Continuous Assessment Tracking
Continuous Assessment Tracking
Reflective Lifelong Learning
Guided Participation
Progressive Autonomy
Early Subspecialty Exposure
Early Subspecialty Exposure
Subsegiem Processed
Chronic Disease Management
Different Populations
PATIENT-CENERED THEME-BASED
PATIENT-CENTERED THEME-BASED CLERKSHIP
Surgical STREAM
Urology
Orthepedics
Neurosurgery
Medicine STREAM
Dermatology
Nephrology
Family Medicine
Inpatient Wards, ORs & ER
Outpatient Clinics, Community Care
LEVEL 12 "EMBEDDED" CLERKSHIP MODEL
Sustained Clinical Participation
Authentic Case Exposure
40% Continuous Internal Assessment
Strong Supervisor Mentorship
Clinical skills performance
Competency Mapping & Portfolios
COMPETENT 4th YEAR CLINICAL CLERKS
Upon completion of the 4th Year Clerkship, students will be able to achieve:
Focused Clinical Examinations
Differential Diagnoss Formulation
Safe Procedural Skills
Compilaing Managenent
Differential Diagnosis Formulation
Multidisciplinary Management
Ethical Communication
Reflective clinical Judgment

Clinical Clerkship

Rawalpindi Medical University

Level 12 Embedded Clerkship Model

(Theme-Based Integrated Clinical Training)

1. Program Overview

The 4th Year MBBS Clinical Clerkship at Rawalpindi Medical University (RMU) is designed as a structured, competency-driven, Level 12 embedded clinical training model.

At this stage, students transition from supervised academic learners to progressively independent clinical participants. The program emphasizes immersive patient care exposure, deliberate practice, interdisciplinary integration, reflective learning, and longitudinal competency tracking.

Unlike traditional block rotations that isolate disciplines, RMU adopts a **theme-based embedded structure**, where allied specialties are integrated within broader clinical streams. This ensures continuity in clinical reasoning, patient care responsibility, and professional identity formation.

The clerkship prioritizes:

- Authentic clinical participation
- Early subspecialty exposure
- Competency-based progression
- Structured formative feedback
- Reflective practice
- Continuous internal assessment
- Longitudinal skill development

Students are expected to function as active members of clinical teams rather than passive observers.

2. Educational Philosophy

The RMU Level 12 Embedded Clerkship is grounded in:

- Competency-Based Medical Education (CBME)
- Experiential learning through clinical immersion
- Progressive scaffolding of autonomy
- Continuous formative assessment
- Reflective and self-directed learning
- Interdisciplinary integration
- Patient-centered professionalism

Clinical learning is organized around **patient presentations and themes**, not isolated subject boundaries. Students develop clinical reasoning across systems rather than within silos.

3. Theme-Based Integrated Structure

The clerkship is organized into **integrated clinical themes** embedded within two major streams:

3.1 Surgical Stream (Allied Rotations – 2 Weeks Each)

Themes emphasize procedural exposure, surgical reasoning, and perioperative care.

Specialties include:

- Urology
- Orthopedics
- Neurosurgery

Students experience:

- Acute surgical presentations
- Trauma and emergency care
- Operative indications
- Post-operative monitoring
- Procedural skill development under supervision

3.2 Medicine Stream (Allied Rotations – 1 Week Each)

Themes emphasize chronic disease management, systemic evaluation, and community-based care.

Specialties include:

- Dermatology
- Nephrology
- Family Medicine
- Psychiatry (3 weeks integrated exposure)

Students engage in:

- Outpatient clinics
- Ward rounds
- Multidisciplinary discussions
- Community and psychosocial assessments
- Longitudinal patient follow-up

The theme-based structure ensures exposure to:

- Acute conditions
- Chronic diseases
- Surgical decision-making
- Medical management
- Community care
- Mental health integration

4. Core Learning Outcomes (Level 12 Competency Expectations)

Upon completion of the 4th Year Clerkship, students will be able to:

1. Conduct focused clinical history and examination across subspecialties

2. Perform selected procedural skills safely under supervision
3. Formulate prioritized differential diagnoses
4. Develop rational investigation plans
5. Participate in multidisciplinary case discussions
6. Communicate effectively with patients and healthcare teams
7. Apply ethical and professional standards consistently
8. Demonstrate reflective clinical learning
9. Show emerging independent clinical judgment

These outcomes align with Level 12 expectations of embedded participation and progressive autonomy.

5. Assessment Model – 40% Continuous Internal Assessment (CIA)

RMU distinguishes itself through a robust Continuous Internal Assessment system.

CIA Structure:

- **30% Theory & Clinical Assessments**
- **10% LMS-based assessments**

CIA evaluates:

- Clinical skills performance
- Case presentations
- Bedside participation
- Procedural competence
- Professionalism
- Logbook completion
- Reflective portfolio entries
- Mini-CEX and DOPS
- Supervisor feedback

Continuous assessment ensures:

- Sustained engagement
- Real-time feedback
- Early identification of learning gaps
- Remediation opportunities
- Skill consolidation over time

Competence is evaluated longitudinally rather than through a single high-stakes examination.

6. Progressive Scaffolding of Autonomy

The Level 12 clerkship follows a structured autonomy model:

Stage 1 — Guided Participation

Students observe and assist in patient care.

Stage 2 — Supervised Performance

Students perform clinical tasks with structured faculty oversight.

Stage 3 — Supported Independence

Students lead patient encounters with supervision available.

Each rotation increases responsibility while maintaining safety and accountability.

This scaffolding:

- Builds confidence
- Reduces cognitive overload
- Encourages reflective learning
- Reinforces mastery through repetition
- Develops clinical judgment

Competence emerges through repeated exposure, structured feedback, and deliberate practice.

7. Level 12 Embedded Clerkship Model

The RMU Level 12 model integrates:

- Vertical curriculum alignment
- Interdisciplinary collaboration
- Competency mapping
- Longitudinal evaluation
- Reflective learning cycles

Students follow patients across services, linking classroom knowledge to real clinical decision-making.

This embedded design:

- Prevents fragmented learning
- Promotes continuity of care understanding
- Encourages systems thinking
- Strengthens teamwork skills
- Supports professional identity formation

Students learn not only clinical content but also how to function within healthcare systems.

8. Development of Self-Directed Lifelong Learners

The clerkship intentionally cultivates:

- Self-assessment skills
- Adaptive expertise
- Curiosity-driven inquiry
- Evidence-based reasoning
- Professional resilience

Students maintain portfolios, set learning goals, and engage in guided reflection.

They learn to:

- Identify personal knowledge gaps
- Seek evidence independently
- Critically appraise information
- Update clinical reasoning continuously

The goal is transformation from exam-focused learners into evolving, self-sustaining professionals.

9. Distinctive Features of the RMU Level 12 Model

Compared to traditional clerkship systems, RMU stands out by:

- Early subspecialty integration
- Embedded participation within clinical teams
- Strong 40% continuous internal assessment
- Structured scaffolding of independence
- Longitudinal competency tracking
- Emphasis on reflective growth
- Alignment with national and international competency frameworks

The outcome is a graduate who is:

- Clinically competent
- Adaptable
- Ethical
- Reflective
- Team-oriented
- Prepared for increasing responsibility in final year and house job

Neurosurgery Block Team

Block Name : Neurosurgery Block
Duration of module : 02 Weeks

	Block Committee			Block Task Force Team	
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar	1	Coordinator	Dr. Fraz Mehmood
			2	Co-Coordinator	Dr. Rumaisaa Saman
2.	Director DME	Prof. Dr. Rai Muhammad Asghar	3	DME Focal Person	Dr. Maryum Batool
3.	Convener Curriculum	Prof. Dr. Naeem Akhter			
4.	Dean Surgery	Prof. Dr. Waqas Raza			
5.	Additional Director DME	Prof. Dr. Ifra Saeed			
6.	Chairperson / HOD Neurosurgery HFH	Assis. Prof . Dr. Soban Sarwar Gondal			
7.	Chairperson Community Medicine	Associate Prof Dr Khola		**DME Implementation Team**	
			1.	Director DME	Prof. Dr. Rai Muhammad Asghar
8.	Focal Person Neurosurgery	Dr. Fraz Mehmood	2.	Add. Director DME	Prof. Dr. Ifra Saeed
			3.	Deputy Director DME	Dr Shazia Zaib
			4.	Module planner & Implementation Coordinator	Dr. Omaima Asif
			5.	Editor	Dr Omaima Asif

Preamble

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

1. Foundation for Advancement of International Medical Education and Research (FAIMER)
2. Accreditation Council for Graduate Medical Education (ACGME)
3. World Federation for Medical Education (WFME)
4. Undergraduate Education Policy 2023 from Higher Education Commission (HEC)
5. Pakistan Medical and Dental Council (PMDC) guidelines for undergraduate Medical Education Curriculum (MBBS) 2022

It is based on **SPICES** model of educational strategies which is student centered, problem based, integrated, community oriented and systematic. *

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

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

Reference Documents

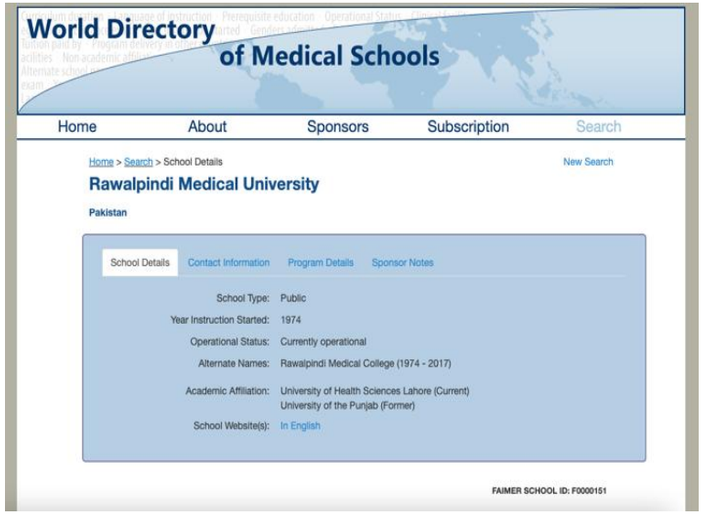
FAIMER™
A Division of Intealth

Foundation for Advancement of International Medical Education and Research

https://search.wdoms.org/?_gl=1*b2ddww*_ga*MTQyNTAwNzIxMi4xNzA2ODEwNjcx*_ga_R5BJZG5EYE*MTcwNjgzNjg3Ni4yLjAuMTcwNjgzNjg3Ni4wLjAuMA..

https://wfme.org/wp-content/uploads/2020/12/WFME-BME-Standards-2020.pdf

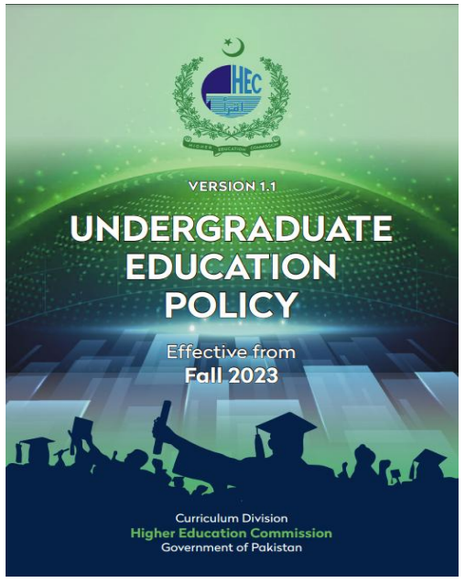
ACGME
Accreditation Council for Graduate Medical Education



2022

GUIDELINES
FOR

UNDERGRADUATE
MEDICAL EDUCATION
CURRICULUM (MBBS)



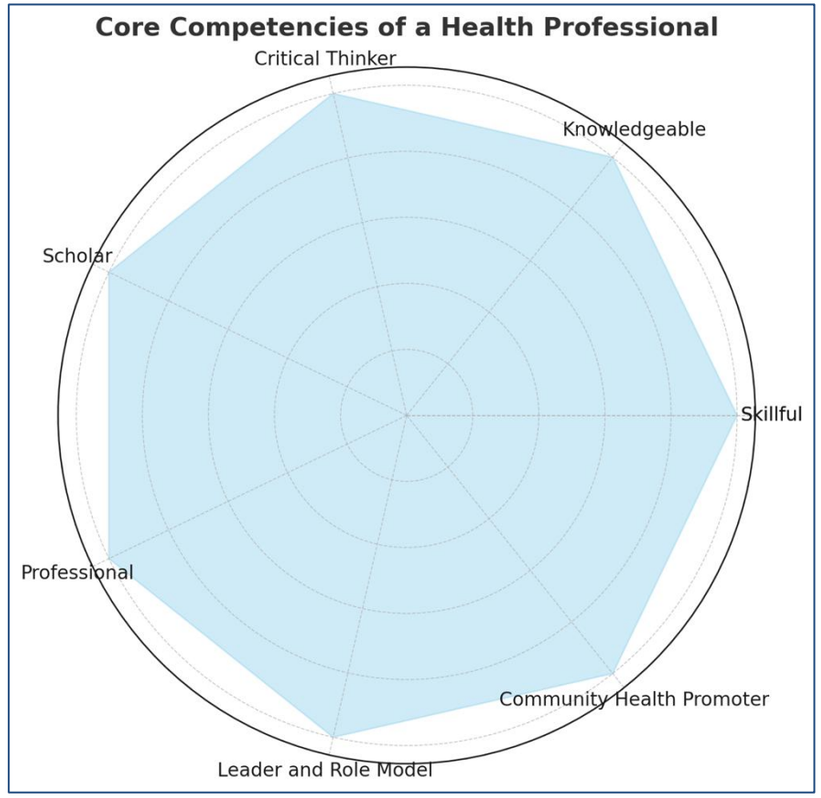
https://pmc.gov.pk/Documents/Examinations/Guidelines%20for%20Undergraduate%20Medical%20Education%20Curriculum%20(MBBS).pdf

https://www.hec.gov.pk/english/services/students/UEP/Documents/UGE-Policy.pdf

According to Pakistan Medical and Dental Council (PMDC) guidelines for undergraduate Medical Education Curriculum (MBBS) 2022

Seven-star doctor

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



1. Skillful (Clinical, Cognitive and Patient Care Skills)

Takes a focused history	Perform physical and psychological examination
Formulates a provisional diagnosis	Orders appropriate investigations
Performs various common procedures	Debates, formulates management plans
Manages time and prioritizes tasks	Ensures patient safety.

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

2. Knowledgeable (Scientific Knowledge for Good Medical Practice)

Differentiates, relates, applies and ensures knowledge is gained.

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

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

4. Critical thinker (Problem Solving and Reflective Practice)

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

5. Professional (Behavior and Professionalism)

Life long, self-directed learner Demonstrates continuous learning
Seeks peer feedback Manages information effectively
Provides evidence of continuing career advancement Functions effectively as a mentor and a trainer,
responds positively to appraisals and feedback Altruistic and empathetic
Ethical, Collaborator, Communicator.

6. Scholar and Researcher

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

7. Leader and Role Model

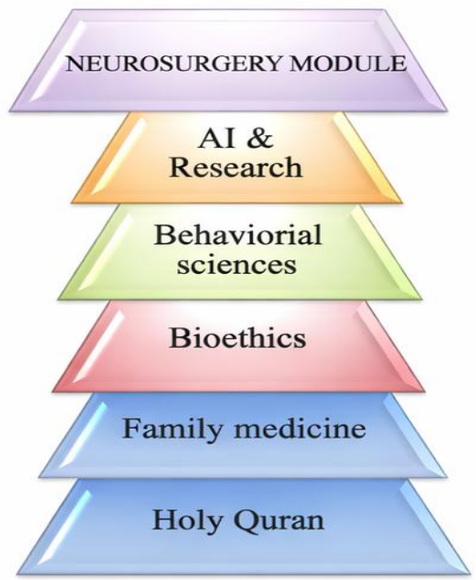
Demonstrates exemplary conduct and leadership potential in a. advancing healthcare b. enhancing medical education c. initiating, participating in and adapting to change, using scientific evidence and approaches d. Enhancing the trust of the public in the medical profession by being exceptional role model at work and when away e. accepting leadership roles f. Providing leadership in issues concerning society.

- Appreciate concepts & importance of
- **Research**

- **Biomedical ethics**
- **Family medicine**
- **Artificial Intelligence**

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

Integration of Disciplines in Neurosurgery Block / Spirally Integrated Disciplines

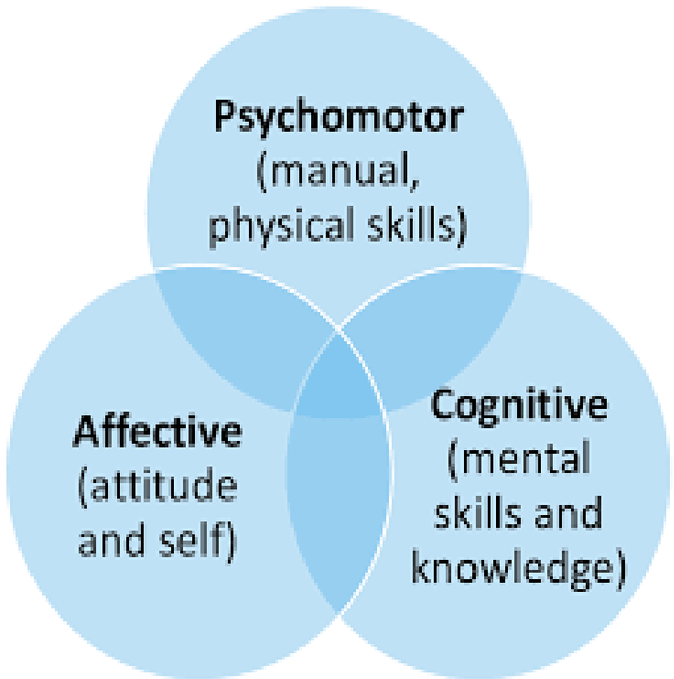


Study Guide: Terms & Abbreviations

Contents

Tables & Figures

Domains of learning according to Blooms Taxonomy



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

SECTION-I

Teaching and Learning Methodologies / Strategies

1. Large Group Interactive Session (LGIS)

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

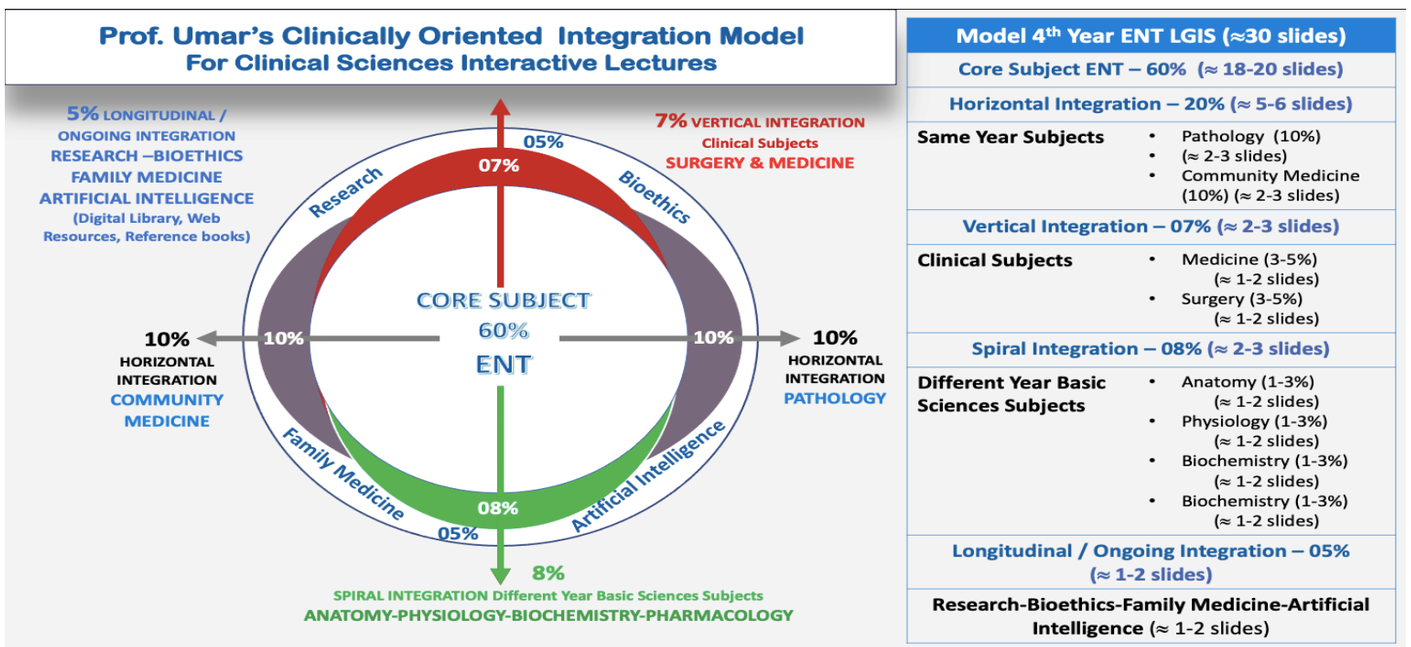


Figure 1. Prof Umar's Model of Integrated Lecture

2. Small Group Discussion (SGD)

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

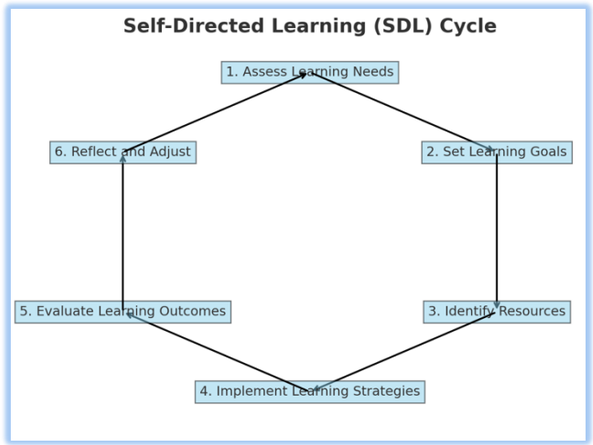
Step 1	Sharing of Learning objectives by using students Study guides	First 5 minutes
Step 2	Asking students pre-planned questions from previous teaching session to develop co-relation (these questions will be standardized)	5minutes
Step 3	Students divided into groups of three and allocation of learning 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 logbook	5 min
Step 16	Ending remarks	

Table 2. Standardization of teaching content in Small Group Discussion

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

Table 3. Steps of taking Small Group Discussions

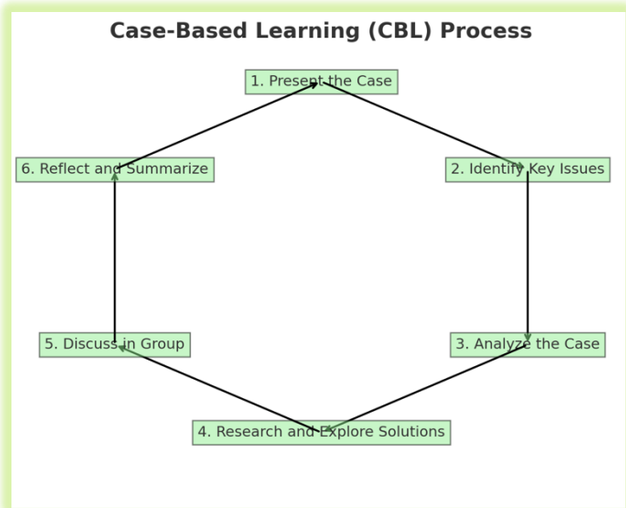
3. Self-Directed Learning (SDL)



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

  ii. OSPE station

4. Case Based Learning (CBL)



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

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.

SECTION-II

Learning Objectives, Themes, Transdisciplinary Joint sessions

Contents

Symptom-Oriented Integrated Clinical Clerkship (SOICC) Neurosurgery

4th Year MBBS Clinical Clerkship

Surgery Allied

1. Orthopedics (2 Weeks)
2. Urology (2 Weeks)
3. Neurosurgery (2 Weeks)
4. Anaesthesia (2 Weeks)

ENT Cluster

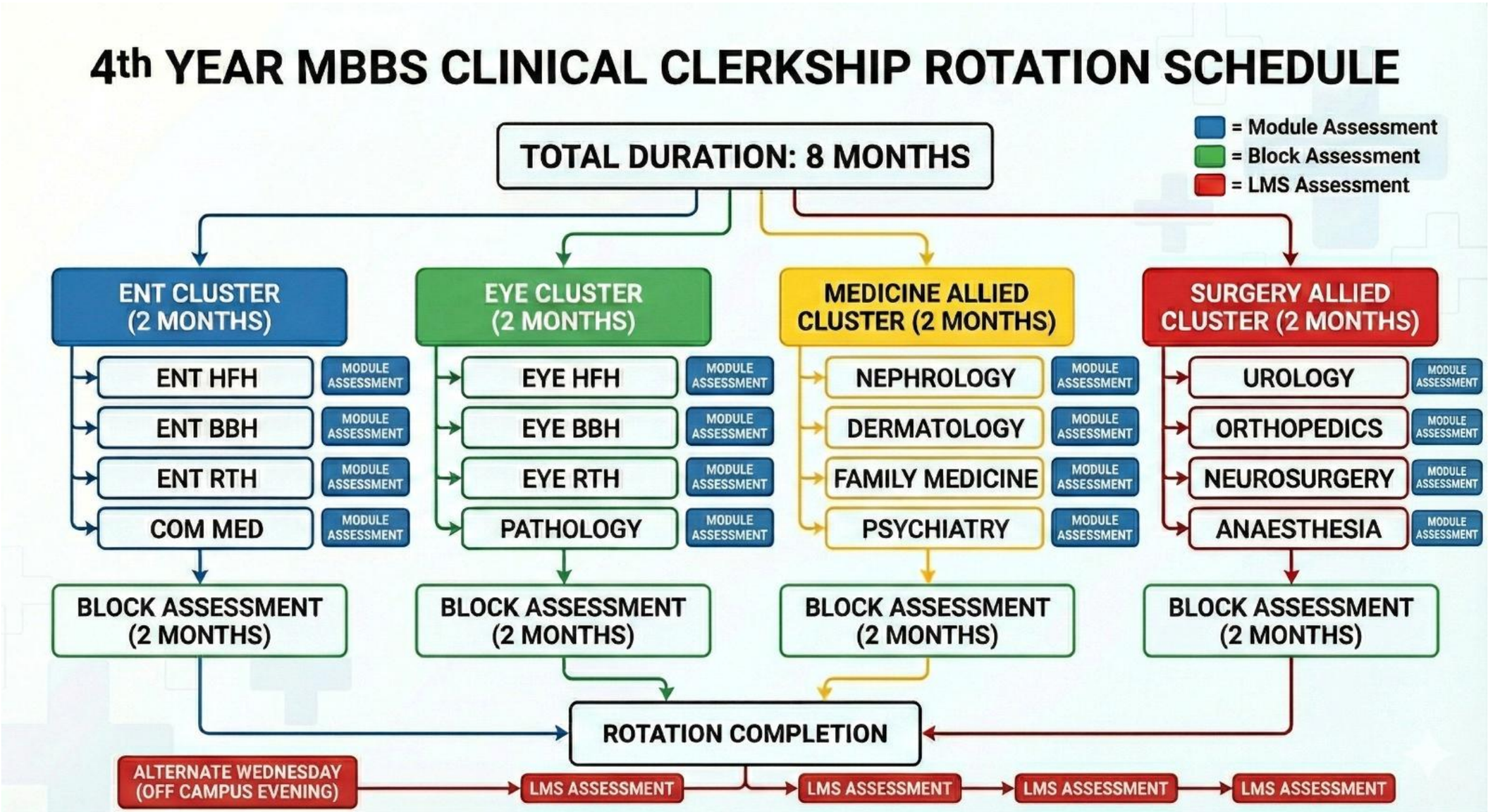
1. ENT HFH (2 weeks)
2. ENT BBH (2 weeks)
3. ENT RTH (2 weeks)
4. COM.MED (2 weeks)

Medicine Allied

1. Nephrology (2 weeks)
2. Dermatology (2 weeks)
3. Fam.Med (2 weeks)
4. Psychiatry (2 weeks)

EYE Cluster

1. EYE HFH (2 weeks)
2. EYE BBH (2 weeks)
3. EYE RTH (2 weeks)
4. Pathology (2 weeks)


4th YEAR MBBS CLINICAL CLERKSHIP ROTATION SCHEDULE
= Module Assessment
= Block Assessment
= LMS Assessment
TOTAL DURATION: 8 MONTHS
ENT CLUSTER (2 MONTHS)
ENT HFH
ENT BBH
ENT RTH
COM MED
MODULE ASSESSMENT
BLOCK ASSESSMENT (2 MONTHS)
EYE CLUSTER (2 MONTHS)
EYE HFH
EYE BBH
EYE RTH
PATHOLOGY
MODULE ASSESSMENT
BLOCK ASSESSMENT (2 MONTHS)
MEDICINE ALLIED CLUSTER (2 MONTHS)
NEPHROLOGY
DERMATOLOGY
FAMILY MEDICINE
PSYCHIATRY
MODULE ASSESSMENT
BLOCK ASSESSMENT (2 MONTHS)
SURGERY ALLIED CLUSTER (2 MONTHS)
UROLOGY
ORTHOPEDICS
NEUROSURGERY
ANAESTHESIA
MODULE ASSESSMENT
BLOCK ASSESSMENT (2 MONTHS)
ROTATION COMPLETION
ALTERNATE WEDNESDAY (OFF CAMPUS EVENING)
LMS ASSESSMENT
LMS ASSESSMENT
LMS ASSESSMENT
LMS ASSESSMENT

RATIONALE OF THE NEUROSURGERY CLINICAL CLERKSHIP PROGRAM

The 4th Year MBBS NEUROSURGERY Clinical Clerkship is an intensive 2-week program structured around five high-frequency presenting complaints: **Head injury, Severe headache, Worsening neurological deficit (e.g., limb weakness), Spine pain, and Seizures.** This thematic, symptom-oriented design reflects authentic clinical practice, where patients present with complaints rather than organ-based categories. The structure supports hypothesis-driven diagnostic thinking rather than rote memorization, specifically optimized for the high-acuity nature of neurosurgical emergencies.

Educationally, the program aligns with:

- **Harden's Integration Ladder (Levels 9–11)** by integrating basic sciences with clinical disciplines and encouraging interdisciplinary reasoning.
- **Miller's Pyramid,** progressing from "Knows How" to "Shows How" and approaching "Does" under supervision.
- **Competency-Based Medical Education (CBME)** through observable, measurable clinical competencies.

GENERAL LEARNING OBJECTIVES

NEUROSURGERY Integrated Clinical Clerkship (4th Year MBBS)

By the end of the 2-week clerkship, students will be able to:

Learning Objective	Competency Type	Domain Description
1. History Taking (Head injury, severe headache, etc.)	Psychomotor / Cognitive	Communication skills backed by clinical knowledge.
2. Physical Examination (Full Neurological Exam, Cranial Nerves, GCS, etc.)	Psychomotor (P)	The manual dexterity and technical ability to perform exams.
3. Differential Diagnosis	Cognitive (C)	High-level mental synthesis and logical reasoning.
4. Red-Flag Recognition	Cognitive (C)	Pattern recognition and analytical thinking.
5. Emergency Recognition (Herniation Syndromes, Status Epilepticus, etc.)	Cognitive (C)	Rapid clinical assessment and knowledge of urgency.
6. Investigation Planning/Interpretation (CT/MRI Brain, Spine, etc.)	Cognitive (C)	Applying scientific knowledge to diagnostic data.
7. Management Strategies (Trauma algorithms, surgical indication, medical stabilization)	Cognitive (C)	Knowledge of protocols and treatment pathways.
8. Urgent Referral Identification	Cognitive / Affective	Knowing the limit of one's skill and prioritizing safety.
9. Antibiotic/Anticonvulsant Stewardship	Cognitive / Affective	Medical knowledge and ethical responsibility.
10. Ward Rounds / Minor Procedures (e.g., suture removal, observing drain insertion)	Psychomotor (P)	Hands-on participation in clinical tasks.
11. Patient Counselling	Affective / Psychomotor	Communication skills and empathy/patience.
12. Breaking Bad News (e.g., Malignancy, Spinal Cord Injury)	Affective (A)	Emotional intelligence and sensitive communication.
13. Confidentiality & Conduct	Affective (A)	Professional ethics, values, and integrity.
14. Basic Science Integration (Brain anatomy, neurophysiology, neuropathology)	Cognitive (C)	Deep theoretical understanding of anatomy and pathology.
15. Multidisciplinary Collaboration (with Neurology, Neuroradiology, Physiatry, etc.)	Affective (A)	Interpersonal skills and teamwork values.

Theme	Clinical Scenario	Key Learning Focus
Theme 1	Patient presenting with **Head Injury**	History taking, neurological examination skills, identification of red flag signs, assessment using Glasgow Coma Scale (GCS), decision-making for neuroimaging (CT head), and principles of initial trauma management
Theme 2	Patient presenting with **Spinal Injury**	History taking, neurological examination skills, identification of red flag signs, localization of spinal cord injury, formulation of differential diagnosis, and principles of emergency stabilization and management
Theme 3	**Pediatric patient** presenting with **Hydrocephalus / Neural Tube Defects**	Pediatric history taking, neurological and developmental examination, identification of red flag signs, interpretation of neuroimaging, and principles of surgical decision-making and management
Theme 4	Patient presenting with **Headache / Fits / Weakness (Brain or Spinal SOL)**	Focused neurological history and examination, identification of red flag signs, formulation of differential diagnoses, interpretation of neuroimaging findings, and suspicion and evaluation of brain or spinal space-occupying lesions

WEEK 1 – THEME 1 & 2: Neuroimaging & Neurotrauma (Head and Spine)

Day	Clinical case	Core Teaching Points	Harden Integration Level	Multidisciplinary (Level 11)	Skills	Attitude
Day 1	35-year-old patient with sudden severe headache and altered consciousness	Principles of CT vs MRI, indications for each modality, basic neuroanatomy on imaging, identification of hemorrhage, hydrocephalus and mass effect	Steps 1–4: Applied anatomy & imaging physiology	Neurosurgery, Radiology, Anatomy	Basic CT brain interpretation, recognizing ventricles, midline shift and hemorrhage	Appreciation of the role of rapid imaging in neurological emergencies
Day 2	25-year-old patient involved in road traffic accident with head injury	Primary vs secondary brain injury, Glasgow Coma Scale (GCS), classification of traumatic brain injury, EDH vs SDH vs SAH, indications for CT	Level 8–9: Clinical reasoning & diagnostic integration	Neurosurgery, Emergency Medicine, Radiology	GCS scoring, focused neurological examination in trauma, CT trauma interpretation	Calm and systematic emergency assessment
Day 3	Trauma patient with suspected cervical spine injury	Mechanisms of spinal trauma, spinal cord injury presentation, cervical spine protection, imaging of spinal trauma, basics of management	Level 9–10: Interdisciplinary clinical correlation	Neurosurgery, Orthopedics, Emergency Medicine, Radiology	Spinal immobilization principles, neurological level assessment, motor and sensory examination	Patient safety mindset and team-based trauma care
Day 4	Infant with progressive head enlargement	CSF circulation and physiology, causes of hydrocephalus in children, clinical signs (bulging	Level 9–10: Clinical integration	Neurosurgery, Pediatrics, Radiology	Head circumference measurement, recognizing	Early detection and preventive care mindset

		fontanelle, sunset sign, macrocephaly), principles of management			signs of hydrocephalus, basic imaging interpretation	Compassionate communication with parents

Specialty	Skill-Based Clerkship Learning Outcomes (LOs)
Neurosurgery (Primary Discipline)	• Perform focused neurological history in patients presenting with **head injury or spinal trauma** • Assess level of consciousness using **Glasgow Coma Scale (GCS)** • Perform focused **neurological examination in trauma patients** • Identify signs of **raised intracranial pressure (ICP)** • Demonstrate systematic **approach to head injury assessment** • Demonstrate correct **spinal immobilization principles in suspected spinal trauma** • Identify clinical signs of **spinal cord injury and neurological deficit** • Formulate differential diagnoses for **traumatic brain injuries (EDH, SDH, SAH, diffuse axonal injury)** • Interpret **initial CT brain findings in trauma cases** • Present a structured **trauma case with initial management plan** • Identify and escalate **red flag findings (deteriorating GCS, unequal pupils, focal deficits)** • Demonstrate awareness of **urgent neurosurgical referral indications**
Radiology	• Identify indications for **CT brain in trauma** • Recognize basic **CT findings of EDH, SDH, SAH, skull fracture, and midline shift** • Differentiate **CT vs MRI indications in neurosurgical conditions** • Identify **basic MRI sequences (T1, T2, FLAIR)** and their clinical relevance • Correlate imaging findings with clinical presentation
Pathology	• Explain pathophysiology of **primary vs secondary brain injury** • Describe pathological differences between **EDH, SDH, and intracerebral hemorrhage** • Explain mechanisms of **diffuse axonal injury** • Correlate traumatic pathology with imaging findings
Pharmacology	• Explain mechanism and indications of **osmotic agents (mannitol, hypertonic saline)** in raised ICP • Identify commonly used medications in **acute neurotrauma management** • Recognize drugs that may **alter neurological assessment (sedatives, analgesics)** • Counsel regarding **medication monitoring and side effects**
Medicine / Neurology	• Perform **systematic neurological examination** including cranial nerves and motor power grading • Differentiate **central vs peripheral neurological deficits** • Assess systemic factors influencing neurological status (hypoxia, hypotension, metabolic disturbances) • Integrate comorbid conditions affecting neurological outcomes
Emergency Medicine	• Recognize **traumatic brain injury and spinal trauma as medical emergencies** • Perform **primary trauma survey (ABCDE approach)** • Demonstrate safe **cervical spine stabilization** • Initiate early stabilization including **airway protection and monitoring** • Recognize signs of **neurological deterioration requiring urgent escalation**

WEEK 2 THEME 3 & 4: Pediatric Neurosurgery & Brain/Spinal SOL

Day	Theme / Session	Core Teaching Points	Harden Integration Level	Multidisciplinary (Level 11)	Skills	Attitude
Day 1	Newborn with lumbosacral swelling (myelomeningocele)	Embryology of neural tube development, types of neural tube defects (spina bifida occulta, meningocele, myelomeningocele), prevention with folic acid	Steps 1–4: Applied embryology & anatomy	Neurosurgery, Pediatrics, Anatomy, Community Medicine	Neonatal spine examination, identification of dysraphism	Preventive medicine mindset and sensitive counseling
Day 2	Adult with new onset seizures and focal deficit	Concept of space occupying lesions, tumor red flags, raised ICP features, primary vs metastatic brain tumors, role of CT/MRI	Level 9–10: Diagnostic reasoning	Neurosurgery, Neurology, Radiology, Pathology	Neurological examination, lesion localization, CT/MRI comparison	Structured evaluation of neurological symptoms
Day 3	45 year old male with severe backache	Disc degeneration, prolapsed intervertebral disc, spinal tumors, cord compression symptoms, indications for surgery	Level 9–11: Interdisciplinary clinical reasoning	Neurosurgery, Orthopedics, Radiology, Medicine	Sensory level identification, reflex testing, straight leg raise test, case discussion	Holistic approach to chronic spinal disease
Day 4	Ward Test	Assessment of knowledge from neurosurgery module themes including imaging, trauma, pediatric neurosurgery, tumors and spine disorders	Level 10–11: Clinical integration	Neurosurgery Faculty	Case-based MCQs, OSCE style clinical reasoning, imaging interpretation	Professionalism, academic integrity

Specialty	Skill-Based Clerkship Learning Outcomes (LOs)
Neurosurgery (Primary Discipline)	• Perform focused neurological history in patients presenting with **headache, seizures, or limb weakness** • Identify **red flag symptoms suggesting intracranial space-occupying lesions (SOL)** • Perform focused **neurological examination including cranial nerve and motor assessment** • Identify clinical signs of **raised intracranial pressure** • Perform structured **localization of neurological lesions** based on examination findings • Recognize clinical features of **brain tumors and spinal tumors** • Identify features of **spinal cord compression and radiculopathy** • Examine neonates for **neural tube defects (spina bifida, myelomeningocele)** • Measure and interpret **head circumference in suspected hydrocephalus** • Present structured **case discussions of brain tumors and spinal degenerative disease** • Identify and escalate **neurological emergencies (progressive deficit, cord compression, seizures)**
Radiology	• Interpret **CT brain findings suggestive of space-occupying lesions** • Identify imaging features of **brain tumors and hydrocephalus** • Recognize indications for **MRI brain and spine in neurological deficits** • Identify **MRI features of spinal cord compression and degenerative disc disease** • Correlate imaging findings with clinical localization
Pathology	• Differentiate basic pathology of **primary brain tumors vs metastatic tumors** • Recognize pathological basis of **gliomas, meningiomas, and spinal tumors** • Explain embryological basis of **neural tube defects** • Correlate tumor pathology with clinical presentation and imaging findings
Pharmacology	• Explain role of **antiepileptic drugs in seizure management** • Identify medications used in **management of raised intracranial pressure** • Describe pharmacological principles in **pain management for spinal disorders** • Counsel regarding **antiepileptic medication adherence and side effects**
Medicine / Neurology	• Perform detailed **neurological examination for lesion localization** • Differentiate **central vs peripheral causes of weakness** • Recognize neurological causes of **headache and seizures** • Integrate systemic illnesses affecting neurological presentation
Pediatrics	• Identify clinical features of **neural tube defects in neonates** • Recognize early signs of **hydrocephalus in infants** • Understand preventive strategies including **folic acid supplementation** • Counsel parents regarding **congenital neurological disorders**
Emergency Medicine	• Recognize **acute neurological deterioration and seizure emergencies** • Initiate **initial stabilization in patients with seizures or raised ICP** • Recognize **spinal cord compression as a neurological emergency** • Initiate early referral and multidisciplinary management

This clerkship achieves:

- **Level 1–4** → Foundational applied sciences
- **Level 7–8** → Temporal coordination
- **Level 9** → Multidisciplinary integration
- **Level 10** → Interdisciplinary problem-solving
- **Level 11** → Transdisciplinary clinical decision-making

Trans-Disciplinary Clinical Connect Session – NEUROSURGERY THEME

Theme: Head Injury with Raised Intracranial Pressure

Week 1 & 2 Integrated Case

Clinical Case Scenario

"Managing Traumatic Brain Injury with Neurological Deterioration"

A **28-year-old male** is brought to the emergency department after a **road traffic accident**. He had a brief loss of consciousness at the scene but regained awareness. Over the next few hours he develops **worsening headache, vomiting, and increasing drowsiness**.

On examination:

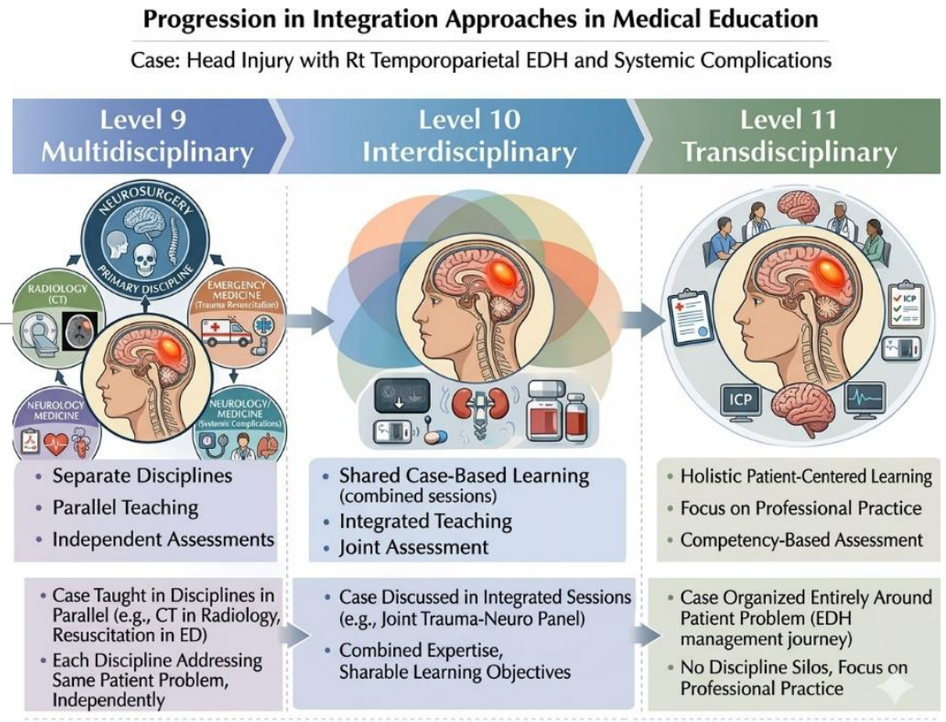
• **GCS: 11/15** (E3 V3 M5)
• **Unequal pupils** with sluggish reaction on the right side
• **BP: 170/100 mmHg**

• **Pulse: 54/min**

Investigations show:

• **CT Brain:** Right temporoparietal **epidural hematoma with midline shift**
• **Skull fracture** over temporal bone

The patient requires **urgent neurosurgical evaluation and possible surgical decompression**.



Student Task (Problem-Based Trigger)

Students are asked to:

1. Identify **life-threatening neurological concerns** in this patient.
2. Explain the **pathophysiology of traumatic brain injury and raised intracranial pressure**.
3. Interpret **CT brain findings and correlate them with clinical deterioration**.
4. Differentiate **epidural hematoma from other intracranial hemorrhages**.
5. Develop a **comprehensive management plan (initial stabilization and surgical intervention)**.
6. Anticipate complications such as **brain herniation, seizures, and secondary brain injury**.
7. Discuss **preventive strategies for trauma and long-term neurological rehabilitation**.

What Makes This RMU Level-12?

• No subject-based headings
• Knowledge domains embedded within **clinical reasoning**
• Learning organized around a **real patient problem**
• Students integrate **diagnosis, imaging interpretation, and management decisions**
• Simulates **authentic emergency neurosurgical decision-making**

Students Integrate

• Clinical reasoning in **traumatic brain injury**
• **Neuroimaging interpretation**
• **Pathophysiology of raised intracranial pressure**
• **Emergency stabilization and critical care**
• **Surgical decision-making**
• **Communication with family regarding prognosis**
• **Trauma prevention and rehabilitation**

Trans-Disciplinary Clinical Connect Session – NEUROSURGERY THEME

Subject / Discipline	Nature of Contribution	Approximate Integration Weight (%)
Radiology	Interpretation of CT brain, identification of epidural hematoma, midline shift, skull fractures	25%
Emergency Medicine	Trauma resuscitation (ABCDE approach), airway protection, stabilization of head injury patient	20%
Neurology / Medicine	Neurological assessment, GCS monitoring, seizure prevention, management of systemic complications	15%
Neurosurgery	Surgical management of intracranial hematoma, decompressive procedures, postoperative care	40%

CLINICO-CONCEPT CONNECT SESSION – NEUROSURGERY THEME

Theme: Traumatic Brain Injury & Acute Intracranial Hypertension

Clinical Case Scenario

"Managing Acute Epidural Hematoma with Systemic Secondary Insults"

A 28-year-old male is brought to the ER following a high-speed motor vehicle accident. He initially had a brief loss of consciousness, followed by a "lucid interval," but is now rapidly deteriorating. He is currently GCS 8 (E2, V2, M4) with a blown right pupil.

On examination:

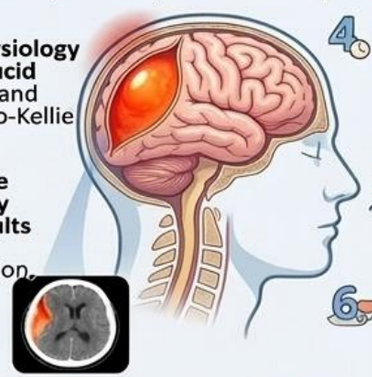
- Right-sided scalp hematoma in the temporal region.
- Cushing's Triad: BP 180/100 mmHg, HR 50 bpm, irregular respirations.
- Stridor noted; patient is struggling to maintain airway.

Investigations show:

- CT Brain: Large biconvex (lens-shaped) hyperdense collection in the right temporoparietal region with 10mm midline shift.
- Labs: Low hemoglobin, deranged ABGs (Hypoxia and Hypercapnia).
- C-Spine X-ray: Pending, but trauma protocol initiated.

Student Task (Problem-Based Trigger)

1. **Identify life-threatening clinical concerns** (Herniation syndromes).
2. **Explain pathophysiology of the "Lucid Interval"** and the Monro-Kellie Doctrine.
3. Interpret **CT findings to determine the source of** (Middle Meningeal Artery).
4. **Develop an urgent management plan** (ER stabilization vs. OR decompression).
5. **Counsel family regarding** the prognosis and intervention.
6. **Counsel family** the prognosis and **"Golden Hour"** intervention.
7. **Suggest long-term rehabilitation** and **seizure prophylaxis** strategies.



4. Achieve urgent neurrsurgical decompression; evacuate the hematoma and stabilize ICP.

SUBJECT CONTRIBUTION IN CLINICO-CONCEPT CONNECT SESSION – NEUROSURGERY

Subject / Discipline	Nature of Contribution	Approximate Integration (%) Weight (%)
Radiology (Neuroradiology)	CT interpretation, identifying hematoma volume and midline shift.	**20%**
Emergency Medicine	Trauma resuscitation (ABCDEs), airway management, and Osmotherapy.	**25%**
Internal Medicine/ Neuro-ICU	Management of systemic complications (ventilation, BP targets, glycemic control).	**15%**
Neurosurgery	Surgical anatomy of the pterion, craniotomy techniques, and ICP physiology.	**40%**

Note: Percentages are illustrative for session design.

LIST OF LGIS TOPICS

Topic	Learning Objectives (At the end of the lecture the student should be able to)	Learning Domain	Teaching Strategy	Assessment Tool
Introduction to CT and MRI Imaging	Define Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) and describe their basic principles. Differentiate between CT and MRI in terms of indications, advantages, and limitations. Identify common neurosurgical conditions where CT scan is preferred such as head trauma and intracranial hemorrhage. Recognize situations where MRI provides superior diagnostic information such as brain tumors and spinal cord lesions. Interpret basic CT brain findings including hemorrhage, skull fractures, mass effect, and midline shift. Identify key MRI findings in brain tumors, spinal cord pathology, and degenerative spine disease. Correlate clinical presentation with appropriate imaging modality. Understand the role of imaging in diagnosis, surgical planning, and follow-up in neurosurgical patients.	C1 C2 C3	LGIS	SAQ MCQ OSCE
Approach to a Patient with Head Injury	Define traumatic brain injury and classify severity using the Glasgow Coma Scale (GCS). Describe common mechanisms and causes of head injury. Take a focused history including mechanism of injury, loss of consciousness, vomiting, seizures, and amnesia. Perform a systematic neurological examination including GCS, pupillary response, and focal neurological deficits. Identify indications for urgent CT brain in head trauma. Differentiate between common intracranial hemorrhages such as epidural, subdural, subarachnoid, and intracerebral hemorrhage. Outline the initial management of head injury following trauma stabilization principles. Recognize red flag signs requiring urgent neurosurgical referral. Discuss complications such as raised intracranial pressure and brain herniation.	C1 C2 C3	LGIS	SAQ MCQ OSCE

Approach to a Patient with Spinal Injury	Define spinal trauma and spinal cord injury. Classify spinal injuries according to level and neurological deficit. Take a focused trauma history including mechanism of injury and neurological symptoms. Perform a systematic neurological examination assessing motor, sensory, and reflex functions. Recognize clinical features of spinal shock and neurogenic shock. Identify relevant investigations including X-ray spine, CT scan, and MRI spine. Outline the principles of initial management including spinal immobilization and stabilization. Recognize indications for urgent neurosurgical intervention. Discuss complications such as paralysis, bladder dysfunction, and pressure ulcers.	C1 C2 C3	LGIS	SAQ MCQ OSCE
Pediatric Neurosurgery – Hydrocephalus	Define hydrocephalus and classify it into communicating and non-communicating types. Describe the physiology of cerebrospinal fluid (CSF) circulation and absorption. Explain common causes of hydrocephalus in children including congenital malformations, infection, tumors, and hemorrhage. Recognize clinical features such as increasing head circumference, bulging fontanelle, vomiting, and developmental delay. Take a focused pediatric history including antenatal and developmental history. Perform relevant examination including head circumference measurement and neurological assessment. Identify appropriate diagnostic investigations including ultrasound, CT brain, and MRI brain. Outline management options including ventriculoperitoneal shunting and endoscopic third ventriculostomy. Discuss complications such as shunt obstruction and infection.	C1 C2 C3	LGIS	SAQ MCQ OSCE
Neural Tube Defects	Define neural tube defects and describe their embryological basis. List common types including spina bifida occulta, meningocele, and myelomeningocele. Explain risk factors and the preventive role of folic acid supplementation. Recognize clinical presentations in newborns including spinal swelling and neurological deficits. Take a focused history including antenatal history and prenatal screening findings. Perform relevant examination assessing neurological deficits and associated anomalies. Identify diagnostic investigations including prenatal ultrasound and MRI	C1 C2 C3	LGIS	SAQ MCQ OSCE

	spine. Outline principles of management including surgical repair and multidisciplinary care. Discuss complications such as hydrocephalus and motor disability.			
Approach to a Patient with Headache / Fits / Weakness – Brain SOL	Define space-occupying lesion (SOL) of the brain. List common causes including tumors, abscess, hematoma, and granulomas. Explain the pathophysiology of raised intracranial pressure due to intracranial lesions. Take a detailed history in patients presenting with headache, seizures, or focal neurological deficits. Perform a focused neurological examination including cranial nerve and motor examination. Recognize red flag symptoms suggestive of intracranial mass lesions. Identify appropriate investigations including CT brain and MRI brain. Differentiate between various intracranial lesions based on clinical and imaging findings. Outline general principles of management including surgery, radiotherapy, and chemotherapy.	C1 C2 C3	LGIS	SAQ MCQ OSCE
Introduction to Degenerative Spine Disease and Spinal SOLs	Define degenerative spine disease and spinal space occupying lesions. Describe common degenerative conditions including disc herniation, spinal stenosis, and spondylosis. List common spinal SOLs such as tumors and infections. Recognize clinical presentations including back pain, radiculopathy, weakness, and sensory disturbance. Take a focused history including pain characteristics and neurological symptoms. Perform a targeted examination including spinal and neurological assessment. Identify appropriate investigations including X-ray spine, CT scan, and MRI spine. Differentiate degenerative conditions from spinal SOLs using clinical and imaging findings. Outline management principles including conservative treatment and surgical intervention.	C1 C2 C3	LGIS	SAQ MCQ OSCE

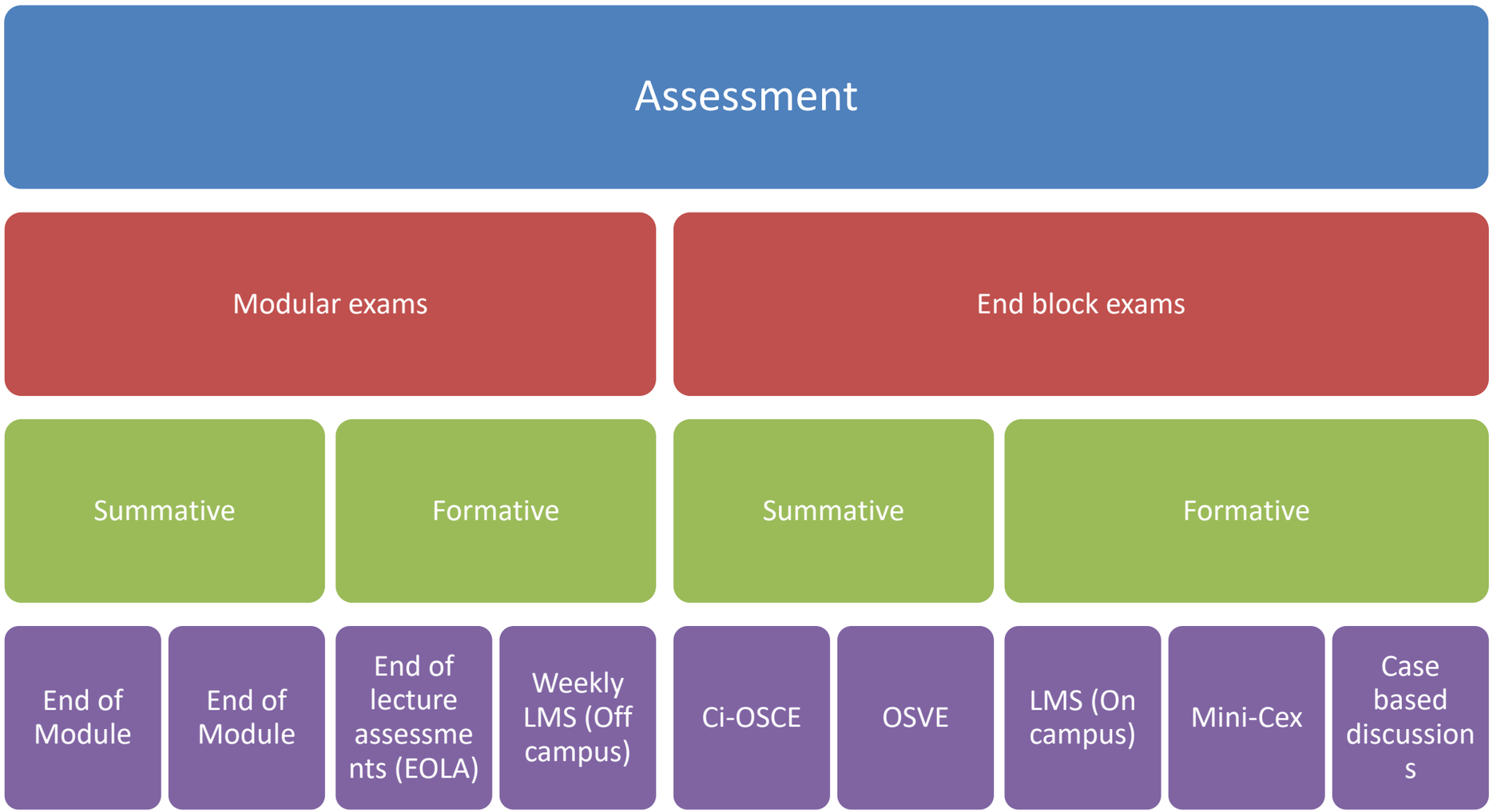
Neurosurgery Block

WEEK	TOPICS OF LGIS & SGD	TOPICS OF SDL	LEARNING OBJECTIVES OF SDL	LEARNING RESOURCES	MODE OF ASSESSMENT
Week 1 (Neuroimaging & Head Injury)	- Introduction to neuroimaging modalities in neurosurgery - Basic principles of CT and MRI imaging - CT scan in head trauma and intracranial hemorrhage - Types of intracranial hemorrhage (epidural, subdural, subarachnoid, intracerebral) - Mechanisms and classification of traumatic brain injury - Glasgow Coma Scale assessment - Initial management of head injury and trauma protocols - Complications of head injury including raised intracranial pressure and brain herniation	- Radiological anatomy of brain on CT and MRI - Identification of intracranial hemorrhage on CT scan - Indications for CT vs MRI in neurosurgical conditions - Basics of GCS assessment and neurological examination	By the end of this theme, students should be able to: • Describe the principles of CT and MRI imaging in neurosurgery • Identify common intracranial pathologies on CT scan • Assess severity of traumatic brain injury using GCS • Correlate clinical findings with neuroimaging • Recognize neurosurgical emergencies in head trauma • Outline the initial management of head injury	Bailey & Love , Principles and Practice of Surgery	LMS Based MCQs
Week 1 (Spinal Trauma & Degenerative Spine Disease)	- Anatomy and biomechanics of the spine - Mechanisms and causes of spinal trauma - Classification of spinal cord injuries - Clinical presentation of spinal cord injury - Initial stabilization and immobilization in spinal trauma - Neurogenic shock and spinal shock - Introduction to degenerative spine diseases - Lumbar disc herniation and spinal stenosis	- Radiological anatomy of the spine - Imaging in spinal trauma (X-ray spine, CT spine, MRI spine) - Identification of disc prolapse and spinal cord compression on MRI - Neurological examination in spinal cord injury	By the end of this theme, students should be able to: • Describe the anatomy and biomechanics of the spine • Identify mechanisms and types of spinal cord injury • Perform neurological assessment in spinal trauma • Interpret basic spinal imaging findings • Recognize signs of spinal cord compression • Outline principles of initial management of spinal trauma	Bailey & Love , Principles and Practice of Surgery	LMS Based MCQs
Week 2 (Pediatric Neurosurgery – Hydrocephalus &	- Overview of pediatric neurosurgical disorders - Physiology of cerebrospinal fluid circulation - Hydrocephalus: causes, classification, and clinical presentation -	- Imaging in pediatric neurosurgery (cranial ultrasound, CT, MRI) - Measurement of head	By the end of this theme, students should be able to: • Explain the physiology of CSF circulation • Identify causes and clinical features of	Bailey & Love , Principles and Practice of Surgery	LMS Based MCQs

Neural Tube Defects)	Congenital causes of hydrocephalus - Neural tube defects (spina bifida, meningocele, myelomeningocele) - Antenatal diagnosis and prevention with folic acid - Surgical management including VP shunt and repair of neural tube defects - Complications and long-term follow-up	circumference and developmental assessment - Radiological features of hydrocephalus - Prenatal diagnosis of neural tube defects	hydrocephalus • Recognize neural tube defects and associated complications • Interpret imaging findings in pediatric neurosurgical conditions • Understand principles of surgical management of hydrocephalus and NTDs • Discuss preventive strategies such as folic acid supplementation		
Week (Brain and Spinal Space Occupying Lesions)	- Introduction to intracranial space occupying lesions (SOL) - Common causes: tumors, abscess, hematoma, granuloma - Clinical presentation: headache, seizures, focal neurological deficit - Pathophysiology of raised intracranial pressure - Diagnostic evaluation of brain tumors - Introduction to spinal SOLs (tumors, infections, epidural abscess) - Principles of surgical and medical management	- Radiological identification of brain tumors on CT and MRI - Imaging characteristics of spinal cord tumors - Differential diagnosis of intracranial lesions on imaging - Clinical examination for focal neurological deficits	By the end of this theme, students should be able to: • Define brain and spinal space occupying lesions • Recognize clinical features suggestive of intracranial mass lesions • Interpret basic neuroimaging findings of tumors and other lesions • Formulate differential diagnoses for headache, seizures, and weakness • Understand principles of management including surgery and radiotherapy	Bailey & Love , Principles and Practice of Surgery	LMS Based MCQs

SECTION- III

Assessment Strategies


Assessment
Modular exams
End block exams
Summative
Formative
Summative
Formative
End of Module
End of Module
End of lecture assessments (EOLA)
Weekly LMS (Off campus)
Ci-OSCE
OSVE
LMS (On campus)
Mini-Cex
Case based discussions

FOURTH YEAR MBBS

Clinical Clerkship Programme

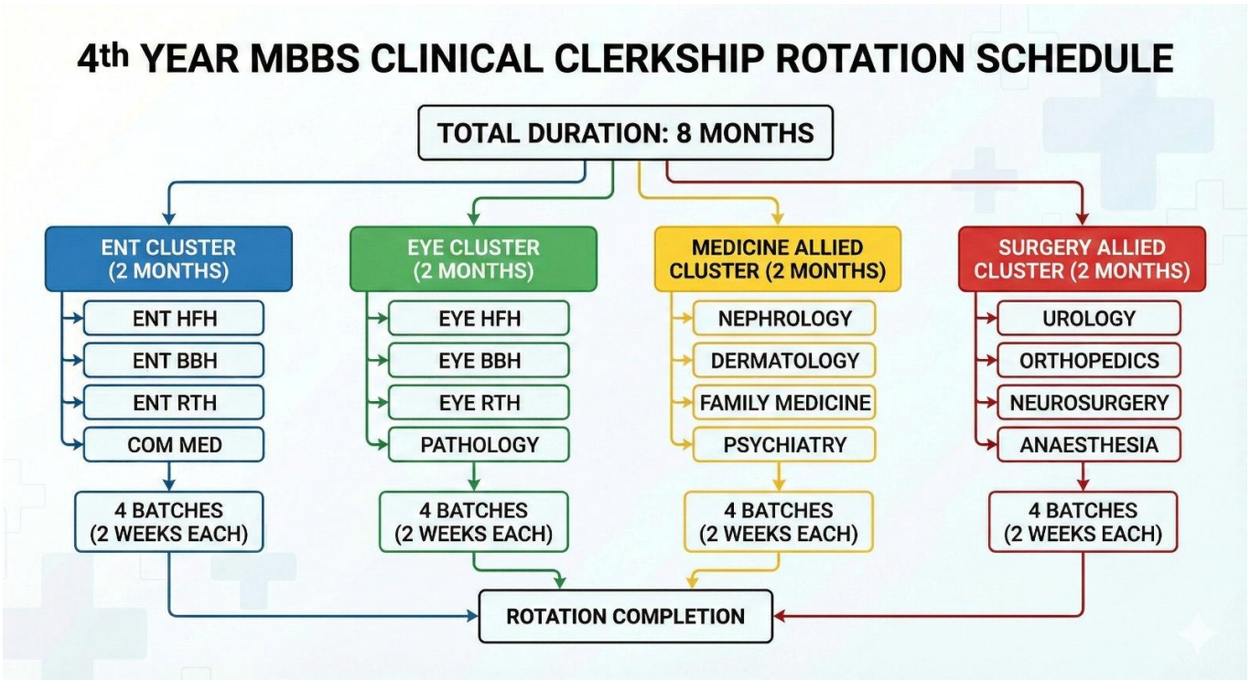
Cluster-Based Rotation Framework with Assessment Guidelines

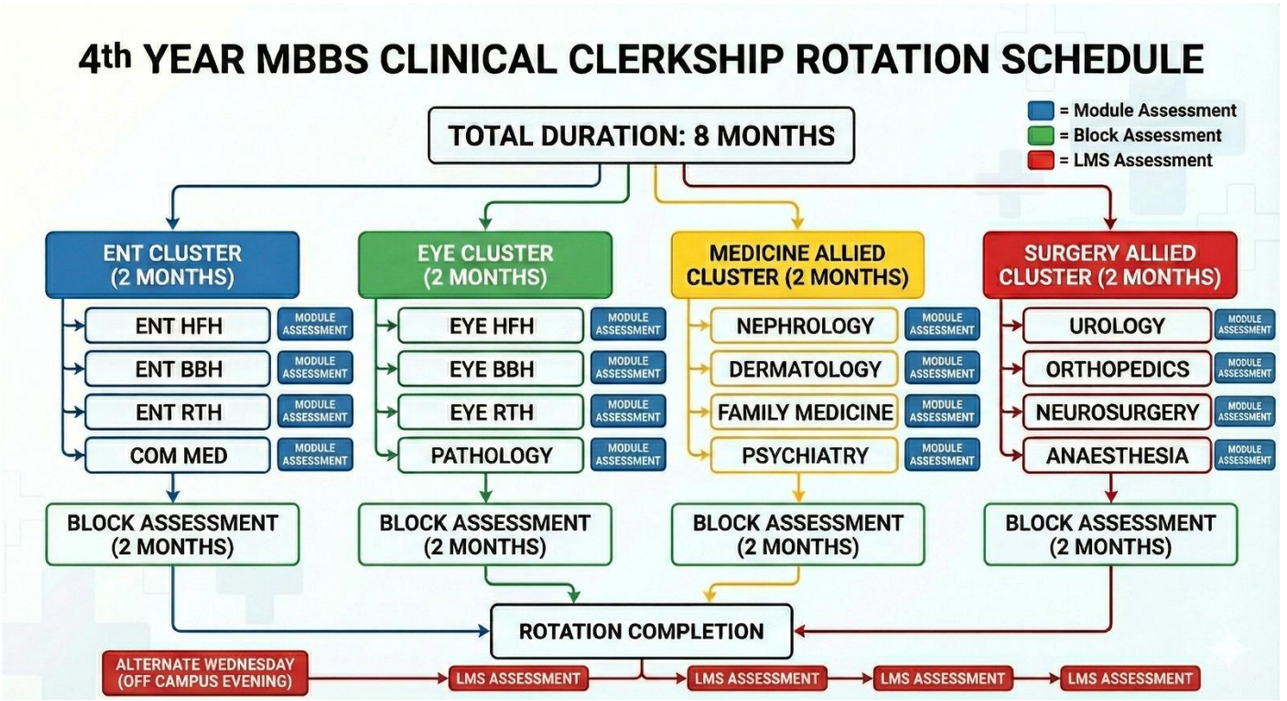
Four Clinical Clusters | Four Batch Rotations | 2-Week Modules

End Module Assessments + End Block Assessments

Department of Medical Education

Faculty of Medicine


4th YEAR MBBS CLINICAL CLERKSHIP ROTATION SCHEDULE
TOTAL DURATION: 8 MONTHS
ENT CLUSTER (2 MONTHS)
ENT HFH
ENT BBH
ENT RTH
COM MED
4 BATCHES (2 WEEKS EACH)
EYE CLUSTER (2 MONTHS)
EYE HFH
EYE BBH
EYE RTH
PATHOLOGY
4 BATCHES (2 WEEKS EACH)
MEDICINE ALLIED CLUSTER (2 MONTHS)
NEPHROLOGY
DERMATOLOGY
FAMILY MEDICINE
PSYCHIATRY
4 BATCHES (2 WEEKS EACH)
SURGERY ALLIED CLUSTER (2 MONTHS)
UROLOGY
ORTHOPEDICS
NEUROSURGERY
ANAESTHESIA
4 BATCHES (2 WEEKS EACH)
ROTATION COMPLETION


4th YEAR MBBS CLINICAL CLERKSHIP ROTATION SCHEDULE
TOTAL DURATION: 8 MONTHS
= Module Assessment
= Block Assessment
= LMS Assessment
ENT CLUSTER (2 MONTHS)
EYE CLUSTER (2 MONTHS)
MEDICINE ALLIED CLUSTER (2 MONTHS)
SURGERY ALLIED CLUSTER (2 MONTHS)
ENT HFH
ENT BBH
ENT RTH
COM MED
EYE HFH
EYE BBH
EYE RTH
PATHOLOGY
NEPHROLOGY
DERMATOLOGY
FAMILY MEDICINE
PSYCHIATRY
UROLOGY
ORTHOPEDICS
NEUROSURGERY
ANAESTHESIA
MODULE ASSESSMENT
BLOCK ASSESSMENT (2 MONTHS)
ROTATION COMPLETION
ALTERNATE WEDNESDAY (OFF CAMPUS EVENING)
LMS ASSESSMENT
LMS ASSESSMENT
LMS ASSESSMENT
LMS ASSESSMENT

1. Programme Overview

The Fourth Year MBBS Clinical Clerkship Programme is structured around a cluster-based rotation framework designed to provide comprehensive, systematic, and equitable clinical exposure across all major medical and surgical specialties. Students are organized into four batches that rotate concurrently across four defined clinical clusters, ensuring that all batches complete exposure to all clusters over the academic year.

Each cluster comprises four affiliated departments or hospital units, with each rotation lasting two (2) weeks. Upon completion of all four rotations within a cluster, a full block of two (2) months is completed. This cycle then repeats, allowing for structured progression through all clusters.

1.1 Programme Structure at a Glance

Parameter	Details
Academic Level	Fourth Year MBBS (Final Clinical Year — Phase I)
Total Clusters	4 Clusters running concurrently
Total Batches	4 Batches rotating simultaneously across clusters
Rotation Duration	2 Weeks per department/module
Block Duration	2 Months per cluster (4 × 2-week rotations)
Departments per Cluster	4 Departments / Venues
End Module Assessment	After every 2-week rotation
End Block Assessment	After every 2-month cluster block
Cycle	Repeating — all batches complete all clusters

2. Clinical Clusters and Batch Allocation

The programme is divided into four (4) clinical clusters. Each cluster is assigned one (1) batch at any given time. All four batches rotate concurrently, one per cluster, and the cycle repeats so that every batch completes every cluster.

#	Cluster Name	Batch	Departments / Venues	Duration
1	**ENT Cluster**	Batch A	ENT-HFH | ENT-BBH | ENT-RTH | Com Med	2 months (4 × 2 wks)
2	**EYE & Pathology Cluster**	Batch B	EYE-HFH | EYE-BBH | EYE-RTH | Pathology	2 months (4 × 2 wks)
3	**Medicine Allied Cluster**	Batch C	Dermatology | Nephrology | Family Medicine | Psychiatry	2 months (4 × 2 wks)
4	**Surgery Allied Cluster**	Batch D	Orthopedics | Anaesthesia | Neurosurgery | Urology	2 months (4 × 2 wks)

Note: Batches A, B, C, and D rotate through all four clusters sequentially. The cluster assigned to each batch changes at the start of every new 2-month block. After four complete cycles, all batches will have completed all four clusters.

3. Cluster 1: ENT Cluster

Batch Assigned: Batch A | Total Duration: 2 Months | Rotations: 4 × 2 Weeks

The ENT Cluster provides students with structured clinical exposure across three major teaching hospitals and the Community Medicine department. The inclusion of Community Medicine within the ENT cluster enables students to contextualise ENT disorders within a public health and primary care framework, addressing preventive, rehabilitative, and community-based aspects of ear, nose, and throat diseases.

3.1 Rotation Schedule — ENT Cluster

Week	Period	Rotation / Department	Hospital / Venue
Wk 1–2	Module 1 (Weeks 1–2)	ENT Department	Holy Family Hospital (HFH)
Wk 3–4	Module 2 (Weeks 3–4)	ENT Department	Benazir Bhutto Hospital (BBH)
Wk 5–6	Module 3 (Weeks 5–6)	ENT Department	Rawalpindi Teaching Hospital (RTH)
Wk 7–8	Module 4 (Weeks 7–8)	Community Medicine	Community Medicine Department / Field Sites

3.2 Clinical Competencies — ENT Cluster

Students rotating through the ENT Cluster are expected to develop competencies in history-taking, clinical examination, and basic procedural skills pertaining to diseases of the ear, nose, throat, head, and neck. The Community Medicine module contextualises these conditions within epidemiological, preventive, and health systems frameworks.

4. Cluster 2: EYE & Pathology Cluster

Batch Assigned: Batch B | Total Duration: 2 Months | Rotations: 4 × 2 Weeks

The EYE and Pathology Cluster provides students with clinical exposure to ophthalmology across three major teaching hospitals, supplemented by a dedicated Pathology rotation. The Pathology module reinforces laboratory-based diagnostic reasoning and integrates histopathological, microbiological, and haematological perspectives that underpin clinical decision-making in ophthalmology and beyond.

4.1 Rotation Schedule — EYE & Pathology Cluster

Week	Period	Rotation / Department	Hospital / Venue
Wk 1–2	Module 1 (Weeks 1–2)	Ophthalmology (EYE) Department	Holy Family Hospital (HFH)
Wk 3–4	Module 2 (Weeks 3–4)	Ophthalmology (EYE) Department	Benazir Bhutto Hospital (BBH)
Wk 5–6	Module 3 (Weeks 5–6)	Ophthalmology (EYE) Department	Rawalpindi Teaching Hospital (RTH)
Wk 7–8	Module 4 (Weeks 7–8)	Pathology Department	Pathology Department / Laboratory

4.2 Clinical Competencies — EYE & Pathology Cluster

Students are expected to master the ophthalmic examination including visual acuity, slit-lamp biomicroscopy, fundoscopy, and tonometry. The Pathology module reinforces competencies in interpretation of histopathology slides, haematological indices, urinalysis, and laboratory quality control principles relevant to clinical practice.

5. Cluster 3: Medicine Allied Cluster

Batch Assigned: Batch C | Total Duration: 2 Months | Rotations: 4 × 2 Weeks

The Medicine Allied Cluster integrates four allied medical specialties that are essential for comprehensive clinical practice: Dermatology, Nephrology, Family Medicine, and Psychiatry. Each sub-batch within Batch C rotates through all four specialties over the 2-month block, developing clinical competencies in both outpatient and inpatient settings across diverse patient populations.

5.1 Rotation Schedule — Medicine Allied Cluster

Week	Period	Rotation / Department	Hospital / Venue
Wk 1–2	Module 1 (Weeks 1–2)	Dermatology & Venereology	Teaching Hospital / Dermatology OPD
Wk 3–4	Module 2 (Weeks 3–4)	Nephrology	Teaching Hospital / Nephrology Unit
Wk 5–6	Module 3 (Weeks 5–6)	Family Medicine	Family Medicine Department / Community Clinic
Wk 7–8	Module 4 (Weeks 7–8)	Psychiatry	Psychiatry Department / Mental Health Unit

5.2 Clinical Competencies — Medicine Allied Cluster

Dermatology: Systematic skin examination, morphological description of lesions, management of common dermatoses, and dermoscopy basics. Nephrology: Fluid and electrolyte management, interpretation of renal function tests, renal replacement therapy principles, and management of glomerular and tubular diseases. Family Medicine: Patient-centred consultation skills, chronic disease management, preventive care, and the family as a unit of care. Psychiatry: Mental state examination (MSE), diagnosis of common psychiatric disorders, biopsychosocial formulation, and safe prescribing of psychotropic agents.

6. Cluster 4: Surgery Allied Cluster

Batch Assigned: Batch D | Total Duration: 2 Months | Rotations: 4 × 2 Weeks

The Surgery Allied Cluster exposes students to four critical surgical subspecialties: Orthopedics, Anaesthesia, Neurosurgery, and Urology. These specialties collectively cover the full perioperative pathway, trauma and musculoskeletal medicine, neurological surgery, and urological disorders. Students participate in ward rounds, operating theatre sessions, outpatient clinics, and emergency assessments under appropriate supervision.

6.1 Rotation Schedule — Surgery Allied Cluster

Week	Period	Rotation / Department	Hospital / Venue
Wk 1–2	Module 1 (Weeks 1–2)	Orthopedics & Trauma Surgery	Teaching Hospital / Ortho Ward & OT
Wk 3–4	Module 2 (Weeks 3–4)	Anaesthesia & Perioperative Medicine	Teaching Hospital / Anaesthesia Department & OT
Wk 5–6	Module 3 (Weeks 5–6)	Neurosurgery	Teaching Hospital / Neurosurgery Unit
Wk 7–8	Module 4 (Weeks 7–8)	Urology	Teaching Hospital / Urology Ward & OT

6.2 Clinical Competencies — Surgery Allied Cluster

Orthopedics: Musculoskeletal examination, fracture management, splinting, and interpretation of orthopaedic imaging. Anaesthesia: Pre-operative assessment, airway management principles, monitoring parameters, and post-operative pain management. Neurosurgery: Neurological examination, Glasgow Coma Scale, management of head injuries and raised intracranial pressure, and interpretation of neuroimaging. Urology: Urological history and examination, catheterisation, urinalysis interpretation, and management of common urological emergencies.

7. Assessment Framework

The assessment system is designed on a two-tier model: End Module Assessments (EMA) following every 2-week rotation, and End Block Assessments (EBA) following every 2-month cluster block. Both tiers are mandatory, formative feedback is provided after each assessment, and results contribute to the overall summative academic record.

7.1 Assessment Cycle Summary

Cycle	Duration	Assessment Type	Format	Total Marks
Every 2 Weeks	After each department rotation	**End Module Assessment**	25 MCQs + 5 OSCE	**50 Marks**
Every 2 Months	After completion of all 4 rotations in cluster	**End Block Assessment**	25 MCQs + 5 AV OSPE + 5 OSCE	**100 Marks**

7.2 End Module Assessment (EMA)

Conducted After Every 2-Week Rotation | Total: 50 Marks

The End Module Assessment is administered at the conclusion of each 2-week departmental rotation. It evaluates the module-specific knowledge, clinical reasoning, and practical skills acquired during that rotation. The EMA comprises two components: a written component using LMS-based Multiple Choice Questions and a clinical skills component via OSCE stations.

Table of Specification (TOS) — End Module Assessment

Assessment Component	Format	No. of Items	Marks per Item / Total
Written Component	LMS MCQs	25	1 mark each / 25 marks
Clinical Skills Component	OSCE Stations	5 Stations	5 marks each / 25 marks
TOTAL		**30 Items**	**50 Marks**

EMA Component	Specifications
LMS MCQs	25 single-best-answer MCQs delivered via the Learning Management System (LMS). Questions are mapped to the module's clinical competencies. Each MCQ carries 1 mark. No negative marking. Time allowed: 30 minutes.
OSCE Stations	5 stations, each carrying 5 marks (Total: 25 marks). Stations are competency-based and may include history-taking, clinical examination, procedural skills, data interpretation, and clinical communication. Duration: 5–7 minutes per station.
Pass Mark	50% overall (25/50 marks) with no individual component failure threshold at module level. However, attendance at both components is mandatory.

7.3 End Block Assessment (EBA)
Conducted After Every 2-Month Block | Total: 100 Marks

The End Block Assessment is a comprehensive summative examination conducted at the end of each 2-month cluster block. It integrates knowledge, diagnostic reasoning, and clinical skills across all four departments within the cluster. The EBA is a high-stakes assessment and carries greater weighting in the academic record. It comprises three components: LMS MCQs, Audio-Visual OSPE (AV OSPE), and OSCE stations.

THEME -BASED LMS Assessment Document
4th yr MBBS 2026

Introduction:

A Learning Management System (LMS) is a software application or platform used to deliver, manage, and track educational content and training programs. It helps organizations, institutions, or businesses deliver learning experiences to learners in an organized, scalable, and accessible way.

1.Course Creation & Management:
•Allows instructors or administrators to create and organize courses, modules, lessons, and assessments.
•Supports multimedia content such as videos, quizzes, PDFs, and presentations.

2.User Management:

Facilitates the creation of user profiles for learners, instructors, and administrators. Allows tracking of individual progress, achievements, and performance.

3.Assessment & Testing:
Includes features for creating and administering quizzes, assignments, and exams. Provides automated grading and feedback to learners.

4.Reporting & Analytics:
•Tracks learner performance, course completion rates, and engagement levels.
•Provides insights to instructors and administrators for informed decision-making.

5.Communication Tools:

•Integrates discussion boards, chat features, and email to facilitate communication between learners and instructors.
•Supports notifications and announcements.

6.Scalability & Flexibility:

•Can accommodate a growing number of learners or users.
•Supports a variety of learning styles, including synchronous (live) and asynchronous (self-paced) learning.

7.Mobile Access:

Many LMS platforms are mobile-friendly or offer mobile apps to support learning on the go.

Implementation of LMS:

To ensure the effective implementation of the Learning Management System (LMS), the following steps will be undertaken:

1.Infrastructure Setup:

The LMS will be hosted on a well-equipped platform capable of handling multiple users simultaneously, ensuring reliability and performance during peak usage times.

2.IT Department Support:

A dedicated IT department will be responsible for managing the system, providing technical support, and ensuring smooth operation.

3.User Credentials:

Unique IDs and passwords will be issued to each student by the IT department, granting secure access to the LMS. Students will be guided on how to use the platform effectively.

4.Exam Scheduling:

Dates and times for exams will be pre-set within the LMS, allowing students to prepare accordingly. The scheduling system will ensure timely availability of test materials and instructions.

5.Automated Notifications:

Automated messages will be sent to students to inform them of upcoming exams, deadlines, or important updates. These notifications will ensure students remain informed and prepared.

6.Test Notices:

Detailed test notices, including exam guidelines, formats, and schedules, will be shared with students through the LMS to ensure clarity and readiness.

This structured implementation plan will enable the LMS to function effectively, fostering a productive and organized learning environment for both students and faculty.

LEARNING MANAGEMENT SYSTEM RMU

- A campus management system is being utilized as a learning resource.
- Faculty members from all disciplines, both basic and clinical, have been actively involved and trained in using these systems to deliver lectures effectively.
- The faculty is responsible for uploading lectures, assignments, and weekly assessments.
    - Each student has been provided with a unique login to access the lectures and resources on the LMS.
    - Attendance for each academic activity—lectures, interactive sessions, quizzes, and assignments—is recorded separately.
    - Faculty members are required to mark attendance immediately after each lecture

Objectives of a Learning Management System (LMS) for Undergraduate Medical Students

The primary objective of a Learning Management System (LMS) for undergraduate medical students is to enhance the quality of medical education by providing a comprehensive, interactive, and accessible digital platform that facilitates:

- **Efficient Delivery of Educational Content:**

To enable faculty to upload and organize lectures, assignments, assessments, and other learning resources systematically.

- **Student-Centered Learning:**

To promote self-paced, flexible learning by granting students 24/7 access to educational materials tailored to their curriculum.

- **Interactive and Engaging Learning:**

To foster active engagement through features like discussion forums, quizzes, and virtual interactive sessions.

- **Streamlined Academic Monitoring:**

To track student attendance, performance, and progress through automated attendance marking, assessments, and progress dashboards.

- **Standardization and Quality Assurance:**

To ensure uniformity in educational delivery across various disciplines and compliance with institutional and accreditation standards.

- **Feedback and Continuous Improvement:**

To integrate feedback mechanisms that involve students, faculty, and other stakeholders, driving continuous quality improvement.

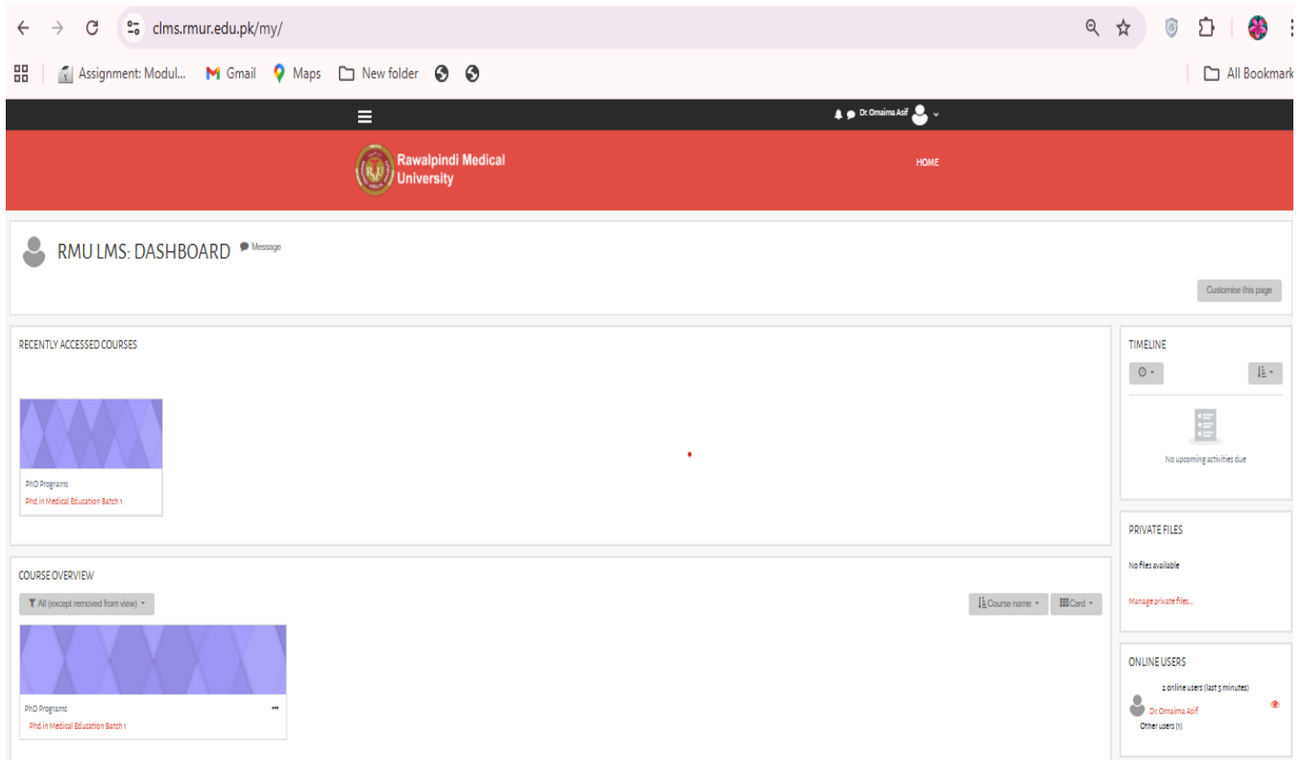
- **Integration of Technology in Medical Education:**

To familiarize students with digital tools and resources essential for modern medical practice and research.

By achieving these objectives, the LMS supports the holistic development of medical students, ensuring they are well-prepared for clinical practice and lifelong learning.

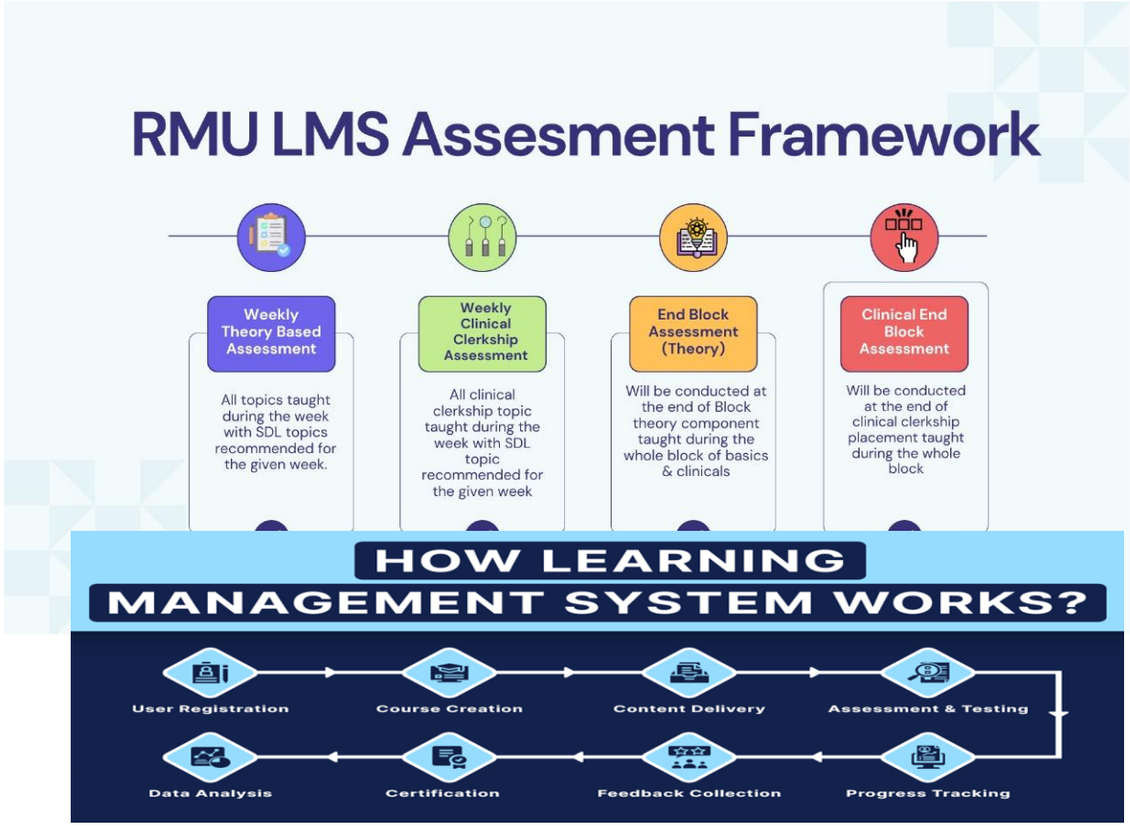
RMU LMS Website

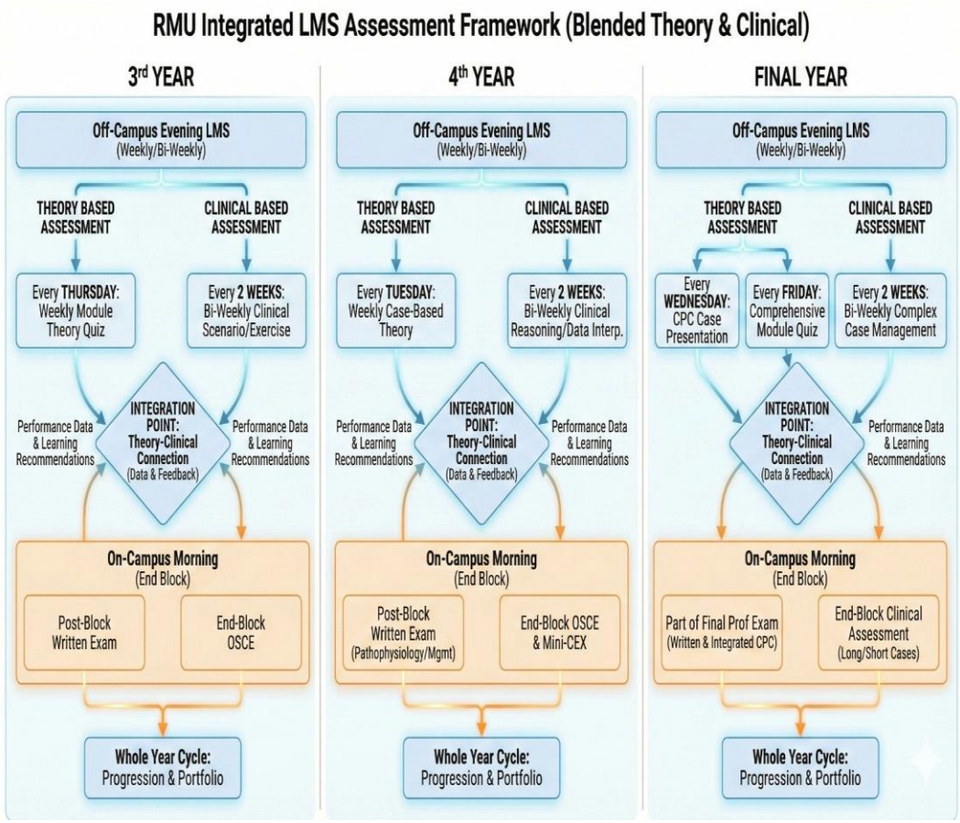
Weblink: https://clms.rmur.edu.pk/



Framework for LMS Assessment for Undergraduate Medical Students

An effective Learning Management System (LMS) assessment framework for undergraduate medical students should be structured to evaluate knowledge, skills, and attitudes systematically. It should also align with educational objectives, regulatory standards, and the specific needs of medical education. Below is a comprehensive framework:





1.

Goals and Objectives of Assessment

- **Knowledge:** Evaluate understanding of basic and clinical sciences.
- **Skills:** Assess critical thinking, clinical reasoning, and procedural skills.
- **Attitudes:** Foster professionalism, ethical decision-making, and communication skills.
- **Feedback:** Provide timely, constructive feedback to support learning and growth.

2. Components of LMS-Based Assessment

a. Formative Assessments

- **Purpose:** Monitor ongoing learning and identify areas needing improvement. It includes
    - Online quizzes (MCQs, EMQs)
    - Short assignments or reflections
    - Case-based discussions
    - Interactive polls during live sessions
- **Schedule :** Weekly or module-specific

b. Practical/Skill-Based Assessments

- **Purpose:** Assess clinical skills, diagnostic reasoning, and procedural competence. Practical/skill based assessments can be taught through
    - Virtual simulations (e.g., diagnostic procedures, patient management)
    - Video submissions demonstrating skills (e.g., history-taking, physical examination)
    - Peer assessment of clinical skills via uploaded videos

c. Attendance and Participation.

Its purpose is to encourage consistent engagement in academic activities. Student's attendance is actively monitored through LMS via

- Attendance tracking for lectures, discussions, and interactive sessions.
- Participation metrics (e.g., activity in discussion forums, live Q&A sessions).

d. Feedback Mechanisms: Its purpose is to enhance learning and improve course delivery. Feedback monitoring can be done by following mechanisms:

- Embedded feedback forms after each session or activity.
- Peer and faculty reviews of assignments and projects.
- Self-assessment tools for reflection on progress.

3. Assessment Tools and Formats

- **MCQs/EMQs:** Test foundational knowledge and application.
- **OSCE Simulations:** Evaluate clinical reasoning and procedural skills.
- **Interactive Tools:** Use polls, chat, and breakout rooms for real-time engagement.
- **Assignments:** Assess understanding through essays, case reports, or reflections.
- **Group Projects:** Foster teamwork and problem-solving skills.

4. Implementation Strategies

- **Faculty Training:** Equip faculty with skills to design and deliver online assessments.
- **Student Orientation:** Familiarize students with LMS tools and expectations.
- **Tech Infrastructure:** Ensure robust LMS functionality and technical support.
- **Accessibility:** Provide accommodations for students with disabilities or limited resources

5. Quality Assurance and Continuous Improvement

- **Evaluation Proformas:** Gather periodic feedback from students and faculty.
- **Data Analytics:** Use LMS analytics to track student performance and participation.
- **Audit Mechanisms:** Regularly review and update the assessment framework.
- **Stakeholder Input:** Incorporate suggestions from students, faculty, and external reviewers.

6. Compliance with Regulatory Standards

Launching of LMS in RMU is in alignment with regulatory bodies . Digital learning at RMU aims at

- Alignment assessments with accreditation and medical council guidelines (e.g., HEC, WFME).
- Ensure assessments address core competencies, including knowledge, skills, and professionalism.

This LMS assessment framework integrates diverse evaluation methods to ensure holistic learning and competency development in undergraduate medical students. It fosters an interactive, adaptive, and equitable learning environment, preparing students for the demands of modern medical practice.

Importance of LMS

A Central Pillar of Continuous Internal Assessment (CIA)

In today's rapidly evolving educational landscape, digital learning isn't just an add-on it's the new backbone of academic progress. Our Learning Management System (LMS) stands at the heart of this transformation, bringing structure, consistency, and accessibility to the way students learn and the way faculty deliver content.

By integrating LMS into the Continuous Internal Assessment (CIA) framework, our institution takes a major step forward in aligning with global best practices. LMS-based assessments now officially hold **10% weightage** in the overall evaluation, making regular participation not just beneficial but essential for every student.

Why LMS Matters

1. Streamlined Access to Learning

The LMS gives students a single, organized digital space where lectures, notes, assignments, quizzes, and announcements are available anytime, anywhere. No missed updates, no lost handouts everything stays just a click away.

2. Consistent, Transparent Assessment

With weekly formative and summative assessments conducted through LMS, students get a clear picture of their academic standing. The system ensures fairness, automated scoring where appropriate, and immediate feedback so learners can identify strengths and areas needing improvement.

3. Builds Stronger Learning Habits

Regular LMS assessments encourage students to stay engaged throughout the semester instead of relying on last-minute preparation. This continuous learning approach improves retention, confidence, and performance in final exams.

4. Enhances Interaction and Engagement

Through discussion forums, digital assignments, and interactive features, the LMS promotes active learning. Students participate more, collaborate more, and take greater responsibility for their progress.

5. Professional Readiness

Modern healthcare requires tech-savvy professionals who can adapt to digital tools. Using LMS throughout their training prepares students for the technologically advanced clinical and administrative environments they will soon enter.

LMS as Part of CIA: What It Means for Students

With LMS contributing **10% to the CIA**, students are encouraged to take weekly assessments seriously. Consistent participation directly boosts overall grades while also strengthening core concepts. This system rewards discipline, regular study habits, and active involvement qualities that are essential in medical education.

A Collective Step Toward Better Learning

The adoption of LMS-based CIA reflects our institution's commitment to innovation and excellence. We're not just keeping up with global standards; we're moving ahead of the curve by ensuring that every student gets a modern, interactive, and meaningful learning experience.

Implementation of LMS

Table of Specification of weekly LMS of 4th Year MBBS

For 4th year:

Sr. #.	*Nno*	*omenclature of Exam*		*Time*	*Type of Assessment*	*No of MCQs*
1.	*During module (Weekly)*	*LMS Test*	*Every Tuesday evening*	*8:00 to 10:00 pm*	*Summative*	*100*

Table 2: Distribution of Questions According to Level of Cognition:

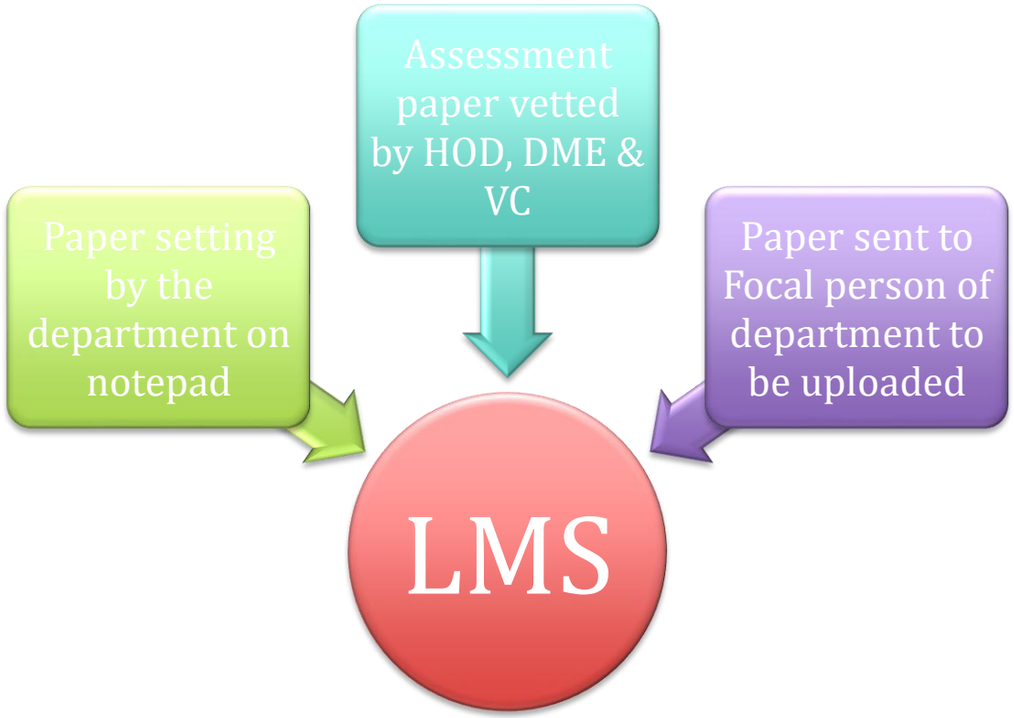
Sr.#	*Level of Cognition*	*%age Distribution of Questions*	*Type of Integration*
1.	*C1(Recall)*	*20%*	*Horizontal*
2.	*C2(Interpretation)*	*60%*	*Core Concept & Vertical*
3.	*C3(Problem Solving)*	*20%*	*Vertical(Purely Clinical Concepts)*

Table 3: Implementation of Calgary Model of Categorization of Questions for LMS assessments:

Sr. No	***Type of Assessment***	***Calgary Model***		
		Must Know (A)	*Should know (B)*	*Nice to know (C) (C)*
1.	*Summative*	*50%*		*50%*
2.	*Summative*	*100%*		----------

Assessment Papers

Hierarchy of conducting LMS



Assessment Format: Most assessments are out of 90 marks, with an adjacent column calculating the percentage (`=Score/90`).

General Observation: The majority of students are performing well. The distribution of scores is skewed towards the higher end, suggesting the cohort is generally diligent and/or the assessments are well within their grasp

2. Analysis of Performance by Subject/Module

The assessments are grouped into several modules. The average performance can be inferred by looking at the percentage columns.

Top Performing Modules:

1. CVS (Cardiovascular System): Consistently high scores. A large number of students scored above 90% in CVS-3 and CVS-4. This appears to be the strongest subject for the cohort.
2. Microbes (Microbiology): Very strong performance across all 6 weeks, with a high frequency of scores in the 90-100% range.
3. GIT (Gastrointestinal Tract): Generally high performance, especially in GIT weeks 2, 3, and 4.

Moderate Performing Modules:

a) FM-II & FM-III (Forensic Medicine): Shows a wider spread of scores. While many students scored highly, there are also several instances of very low scores and zeros, indicating variability in preparation or attendance for these specific tests.
b) Heam (Haematology): Performance is good, but slightly more varied than in CVS or Microbes.

3. Analysis of Individual Student Performance

Students can be broadly categorized into three groups:

Consistently High Achievers:
These students maintain a high percentage (typically >85%) across almost all assessments with very few, if any, zeros.

The Inconsistent Performers (Largest Group):
These students have a mix of high scores but also have several low scores, zeros, or missing assignments. This is the most common pattern and suggests issues with:

Selective Preparation: Excelling in some subjects but not others.

Inconsistent Attendance: The numerous "0" scores are more likely due to absence than a score of zero, as they are often paired with high scores in other tests.

Students Needing Academic Support:
These students have a high frequency of low scores (e.g., below 50%) and zeros across multiple modules.

4. Critical Observations and Potential Issues

Significant Non-Participation ("0" Scores):

The dataset is filled with "0" scores. Given the context and the fact that these zeros are often adjacent to very high scores (e.g., 90/90), it is highly probable that a "0" represents an absence or a non-attempt rather than a score of zero. This is a major factor affecting the cumulative performance of many students.

Data Inconsistencies and Errors:

Formula Display: Many percentage cells display the formula itself (e.g., `=D6/90`) instead of the calculated value. This makes automated analysis difficult and suggests the file was not saved properly after calculation or was exported incorrectly.

Possible Grading Errors: Some scores seem anomalous.

Scores >90: While most tests are out of 90, a few scores (e.g., 115, 116) appear in later columns (e.g., CVS-3). This suggests either those specific tests had a different total mark (e.g., 120) or there is a data entry error.

Incomplete Records:

Many cells are entirely blank (e.g., in rows for Eman Safdar - Roll #66). It is unclear if this means the student was not enrolled for that test, the score is missing, or it was another absence.

Conclusion

The 3rd Year MBBS (Evening) cohort demonstrates a strong grasp of the curriculum, particularly in CVS, Microbes, and GIT. The main challenge is not a lack of capability but rather inconsistency in assessment participation and performance. Addressing the issues of absences and providing targeted support to a small group of struggling students could significantly improve the overall academic outcomes of the batch. The reliability of these insights is contingent upon first cleaning and verifying the underlying data.

Identification of At-Risk Students

Students can be categorized based on their performance across both blocks:

Consistently High Performers: A large group of students scoring above 85% in both blocks

Significant Decliners: Students whose performance dropped substantially (e.g., by more than 15 percentage points).

Consistently Low/At-Risk: Students who passed but scored in the 70-75% range in both blocks, or who failed one block. These students may need support to prevent future failure.

Absentees: A group of ~10 students who scored zero in one or both blocks. This requires administrative follow-up to distinguish between absence, withdrawal, and data entry issues.

Recommendations

Academic & Administrative Actions:

Intervene with At-Risk Students:

Priority 1: Contact the 8 students who failed Block VIII to offer remedial support.

Priority 2: Reach out to the "Significant Decliners" group to understand the reasons for their performance drop (e.g., personal issues, topic difficulty) and provide guidance.

Follow-up on Absentees: Determine the status of students with zero scores. Were they absent, have they withdrawn, or is this a data entry error?

Table of Specification (TOS) — End Block Assessment

Assessment Component	Format	No. of Items	Marks per Item / Total
Written Component	LMS MCQs	25	1 mark each / 25 marks
Practical / Lab Component	AV OSPE Stations	5 Stations	5 marks each / 25 marks
Clinical Skills Component	OSCE Stations	5 Stations	10 marks each / 50 marks
TOTAL		**35 Items**	**100 Marks**

EBA Component	Specifications
LMS MCQs	25 single-best-answer MCQs covering all four departments of the cluster block. Delivered via the Learning Management System. Each MCQ carries 1 mark. No negative marking. Time allowed: 30 minutes.
AV OSPE Stations	5 Audio-Visual OSPE stations, each carrying 5 marks (Total: 25 marks). Each station presents a clinical scenario using audio, video, imaging, or laboratory material. Students respond to structured written questions. Duration: 5 minutes per station. Skills tested include radiograph/ECG/lab report interpretation, image-based diagnosis, procedural videos, and audio-clinical vignettes.

OSCE Stations	5 OSCE stations, each carrying 10 marks (Total: 50 marks). High-fidelity stations assessing complex clinical competencies including integrated history and examination, clinical decision-making, procedural skills, counselling, and interprofessional communication. Duration: 8–10 minutes per station. Standardised patients, mannequins, and task trainers may be used.
Pass Mark	50% overall (50/100 marks). Failure in any individual component (MCQ, AV OSPE, or OSCE) below 40% requires remediation for that component.

Date Sheet:

For LMS Assessment (Every Alternate Wednesday)

S.No	Date	Day	Assessment Type
1	18-03-2026	Wednesday	LMS Module Assessment
2	08-04-2026	Wednesday	LMS Module Assessment
3	22-04-2026	Wednesday	LMS Module Assessment
4	06-05-2026	Wednesday	LMS Module Assessment
5	20-05-2026	Wednesday	LMS Module Assessment
6	03-06-2026	Wednesday	LMS Module Assessment
7	17-06-2026	Wednesday	LMS Module Assessment

For Clinical Module Assessment: (End of Module Alternate Thursday)

S.No	Date	Day	Assessment Type
1	**19-03-2026**	**Thursday**	**Clinical End Module Assessment**
2	**09-04-2026**	**Thursday**	**Clinical End Module Assessment**
3	**23-04-2026**	**Thursday**	**Clinical End Module Assessment**
4	**07-05-2026**	**Thursday**	**Clinical End Module Assessment**
5	**21-05-2026**	**Thursday**	**Clinical End Module Assessment**
6	**04-06-2026**	**Thursday**	**Clinical End Module Assessment**
7	**18-06-2026**	**Thursday**	**Clinical End Module Assessment**

8. Master Rotation Plan — Repeating Cycle

The following master plan illustrates the repeating cycle of batch-cluster assignments. Each cycle is 2 months in duration, and after four complete cycles, every batch will have completed all four clusters. The cycle then recommences as required.

Block / Cycle	Batch A	Batch B	Batch C	Batch D
Block 1 (Months 1–2)	ENT Cluster	EYE & Path Cluster	Medicine Allied	Surgery Allied
Block 2 (Months 3–4)	EYE & Path Cluster	Medicine Allied	Surgery Allied	ENT Cluster

Block 3 (Months 5–6)	Medicine Allied	Surgery Allied	ENT Cluster	EYE & Path Cluster
Block 4 (Months 7–8)	Surgery Allied	ENT Cluster	EYE & Path Cluster	Medicine Allied

After Block 4, the cycle repeats from Block 1 with the same rotation sequence. This ensures equitable exposure and workload distribution across all batches and departments throughout the academic year.

9. Integrated Assessment Schedule Within Each Block

The following timeline shows how module and block assessments are sequenced within a single 2-month cluster block. This pattern is identical for all four clusters.

Week	Activity	Department	Assessment	Marks
1–2	Module 1 Rotation	Dept. 1 of Cluster	—	—
End Wk 2	**End Module Assessment 1**	**—**	**25 MCQs + 5 OSCE**	**50 marks**
3–4	Module 2 Rotation	Dept. 2 of Cluster	—	—
End Wk 4	**End Module Assessment 2**	**—**	**25 MCQs + 5 OSCE**	**50 marks**
5–6	Module 3 Rotation	Dept. 3 of Cluster	—	—

End Wk 6	**End Module Assessment 3**	**—**	**25 MCQs + 5 OSCE**	**50 marks**
7–8	Module 4 Rotation	Dept. 4 of Cluster	—	—
End Wk 8	**End Module Assessment 4**	**—**	**25 MCQs + 5 OSCE**	**50 marks**
End Block	**End Block Assessment**	**All 4 Depts.**	**25 MCQ + 5 AV OSPE + 5 OSCE**	**100 marks**

10. Administrative Provisions and Policies

10.1 Attendance Requirements

A minimum attendance of 80% is mandatory in each 2-week rotation. Students failing to meet the attendance threshold will be ineligible to sit the End Module Assessment for that rotation..

10.2 Logbook and Portfolio Requirements

Students are required to maintain a clinical logbook documenting all clinical encounters, procedural competencies attempted or completed, and reflective entries for each rotation. Logbooks must be endorsed by the supervising faculty member at the end of each module. Portfolio submissions, including at minimum two structured reflective entries per cluster block, are required prior to the End Block Assessment.

10.5 Interprofessional Education

Students are encouraged to participate in interprofessional education (IPE) activities during their rotations wherever opportunities arise, including multidisciplinary team meetings, ward rounds, case conferences, and joint clinics. Participation in at least one documented IPE activity per cluster block is expected and should be recorded in the clinical portfolio.

13. Document Approval

This document constitutes the official framework for the Fourth Year MBBS Clinical Clerkship Programme. It has been reviewed by the relevant academic and administrative authorities and is effective from the date of approval.

Programme Director	Dean, Faculty of Medicine	Head, Medical Education
_____	_____	_____
Signature & Date	Signature & Date	Signature & Date

SECTION - IV

Learning Resources

Subject	Resources
Urology	• Handbook of Neurosurgery by Mark S. Greenberg (10th edition) • Bailey & Love's Short Practice of Surgery (28th Edition)