



RAWALPINDI  
MEDICAL  
UNIVERSITY  
NEW TEACHING BLOCK

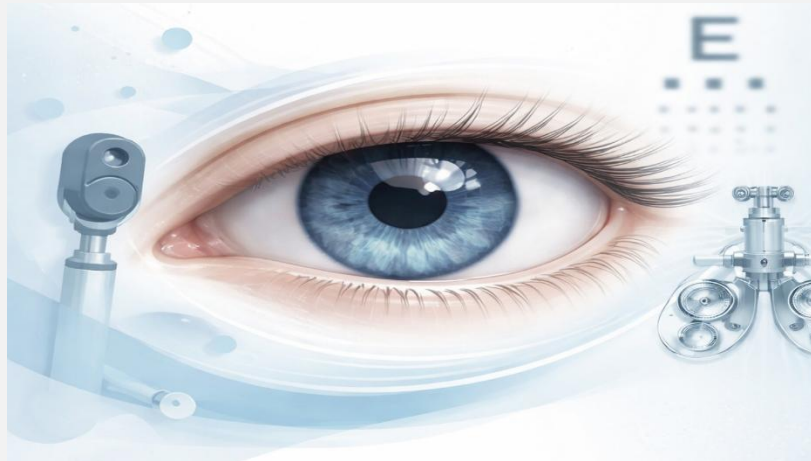
# Ophthalmology

## RMU-12

**Integrated Modular**

**MBBS Curriculum 2026**

“Isolation to **Beyond Boundaries**”




20

26

Fourth Year MBBS

**Rawalpindi Medical University  
Department of Ophthalmology  
Integrated Modular Curriculum  
4<sup>th</sup> year MBBS**

	<b>Rawalpindi Medical University</b>			
	<b>Doc. Title: Procedure for Control of Documented Information</b>			
	<b>Document #:</b> RMU-MR-SOP-59	<b>Rev. #:</b> 05	<b>Issue #:</b> 01	<b>Issue Date:</b> 25-03-2024

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<b>Document Information</b>
-----------------------------

Category	Ophthalmology Module Study Guide
Document	Procedure for Control of Documented Information
Issue	1
Rev	05
Identifier	RMU-MR-SOP-59
Status	Final Document
Author(s)	Department of Ophthalmology
Reviewer(s)	Curriculum Committee.
Approver(s)	Vice Chancellor
Creation Date	05-0-2024
Effective Date	-2024
Control Status	<b>Controlled</b>
Distribution	VC, Principal, ISO Committee
Disclaimer	This document contains confidential information. Do not distribute this document without prior approval from higher management of <b>Rawalpindi Medical University</b> .

	<b>Rawalpindi Medical University</b>			
	<b>Doc. Title: Procedure For Control of Documented Information</b>			
	<b>Document #:</b> RMU-MR-SOP-59	<b>Rev. #:</b> 00	<b>Issue #:</b> 01	<b>Issue Date:</b> 25-06-2024


<b>Document Approval</b>
--------------------------

Prepared By	Reviewed By	Approved By
Department Of Ophthalmology	Curriculum Committee	Vice Chancellor

	<b>Rawalpindi Medical University</b>			
	<b>Doc. Title: Procedure For Control of Documented Information</b>			
	<b>Document #:</b> RMU-MR-SOP-59	<b>Rev. #:</b> 05	<b>Issue #:</b> 01	<b>Issue Date:</b> 25-06-2024

<b>Document Revision History</b>
----------------------------------

Author(s)	Date	Version	Description
Dean HOD ophthalmology Prof Fuad Niazi, Prof Naeem, Dr Maria, Dr Omaima	2017-2018	1 <sup>st</sup>	Developed for fourth Year MBBS. Composed of Horizontally Integrated subjects of Ophthalmology, Community Medicine, Pathology & Pharmacology.
Dean HOD ophthalmology Prof Fuad Niazi, Prof Naeem, Dr Maria, Dr Omaima	2019-2020	2 <sup>nd</sup>	Developed for fourth Year MBBS. Composed of Horizontally Integrated subjects of Ophthalmology, Community Medicine, Pathology & Pharmacology.
Dean HOD ophthalmology Prof Fuad Niazi, Prof Naeem, Dr Maria, Dr Omaima	2021-2022	3 <sup>rd</sup>	Developed for fourth Year MBBS. Composed of Horizontally Integrated subjects of Ophthalmology, Community Medicine, Pathology & Pharmacology. Research and bioethics curriculum incorporated
Dean HOD ophthalmology Prof Fuad Niazi, Dr Arshad Sabir, Dr Sidra Jabeen, Dr Imrana, Dr Omaima	2022-2023	4 <sup>th</sup>	Developed for fourth Year MBBS. Composed of Horizontally Integrated subjects of Ophthalmology, Community Medicine, Pathology & Pharmacology. Research and bioethics curriculum incorporated
Dean HOD ophthalmology Prof Fuad Niazi, Dr Arshad Sabir, Dr Sidra Jabeen, Dr Mehwish Riaz, Dr Omaima	2023-2024	5 <sup>th</sup>	Developed for fourth Year MBBS. Composed of Horizontally Integrated subjects of Ophthalmology, Community Medicine, Pathology & Pharmacology. Research, bioethics and family medicine curriculum incorporated

	<b>Rawalpindi Medical University</b>			
	<b>Doc. Title: Procedure For Control of Documented Information</b>			
	<b>Document #: RMU-MR-SOP-59</b>	<b>Rev. #: 05</b>	<b>Issue #: 01</b>	<b>Issue Date: 25-03-2024</b>

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**Section – I Introduction to RMU-12: Integrated Modular MBBS Curriculum 2026- Isolation to Beyond Boundaries**

RMU

Motto

### 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

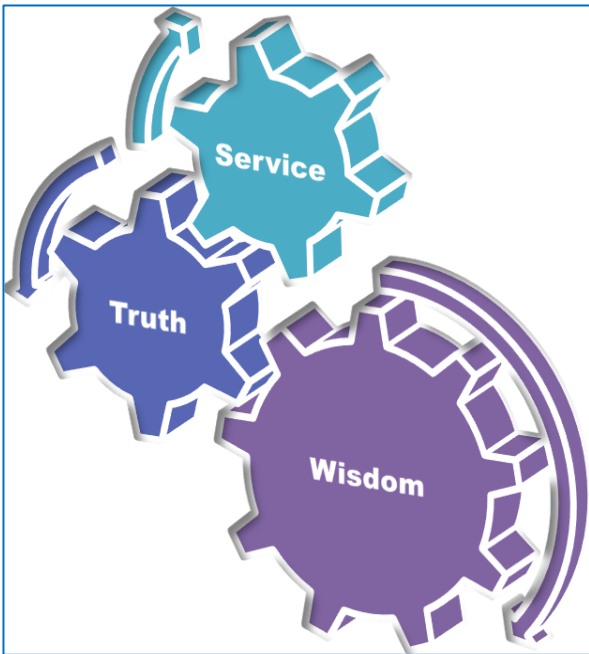
Highly recognized and accredited center of excellence in Medical Education, using evidence-based training techniques for development of highly competent health professionals, who are lifelong experiential learner and are socially accountable.

### 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.

Figure 1- RMU 12: Integrated Modular Curriculum 2026



Isolation to beyond boundaries



## Section – II Framework- RMU-12: Integrated modular curriculum 2026

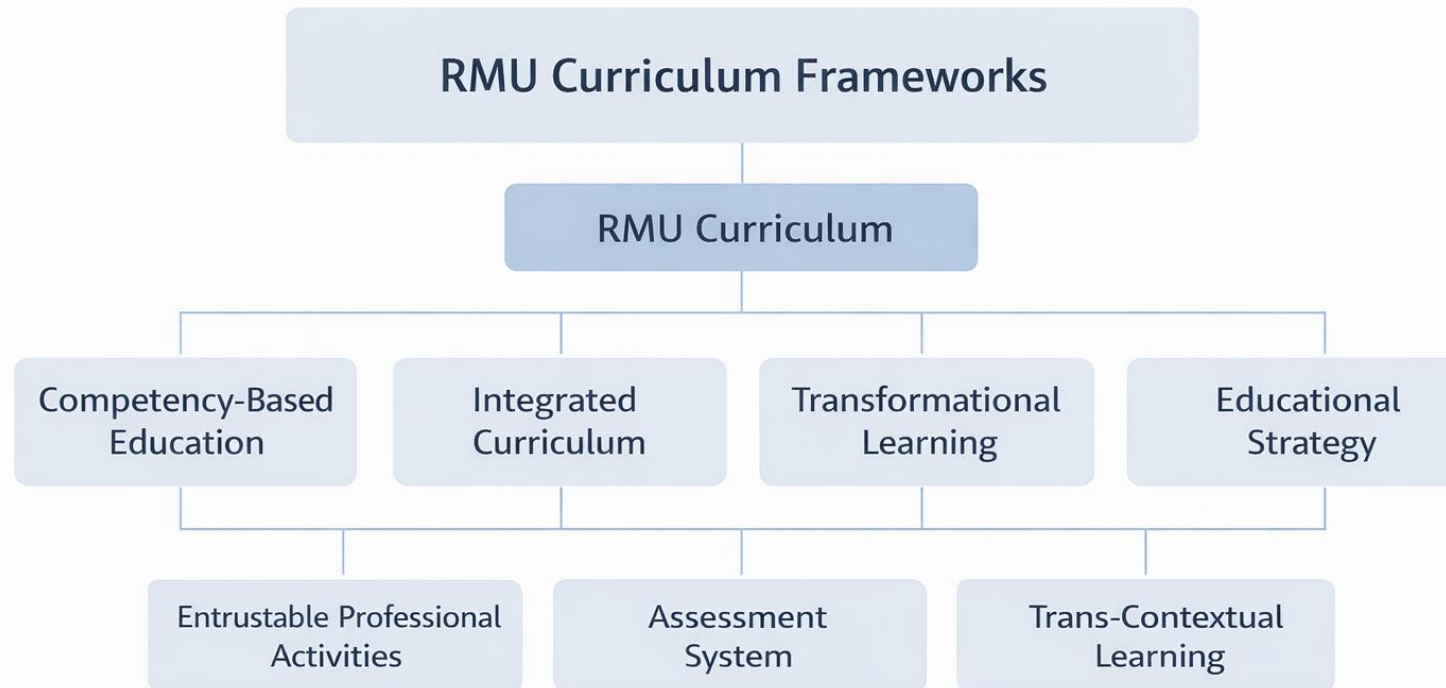


Figure 2 – Structured framework of RMU 12 Integrated Modular Curriculum 2026

Isolation to beyond boundaries

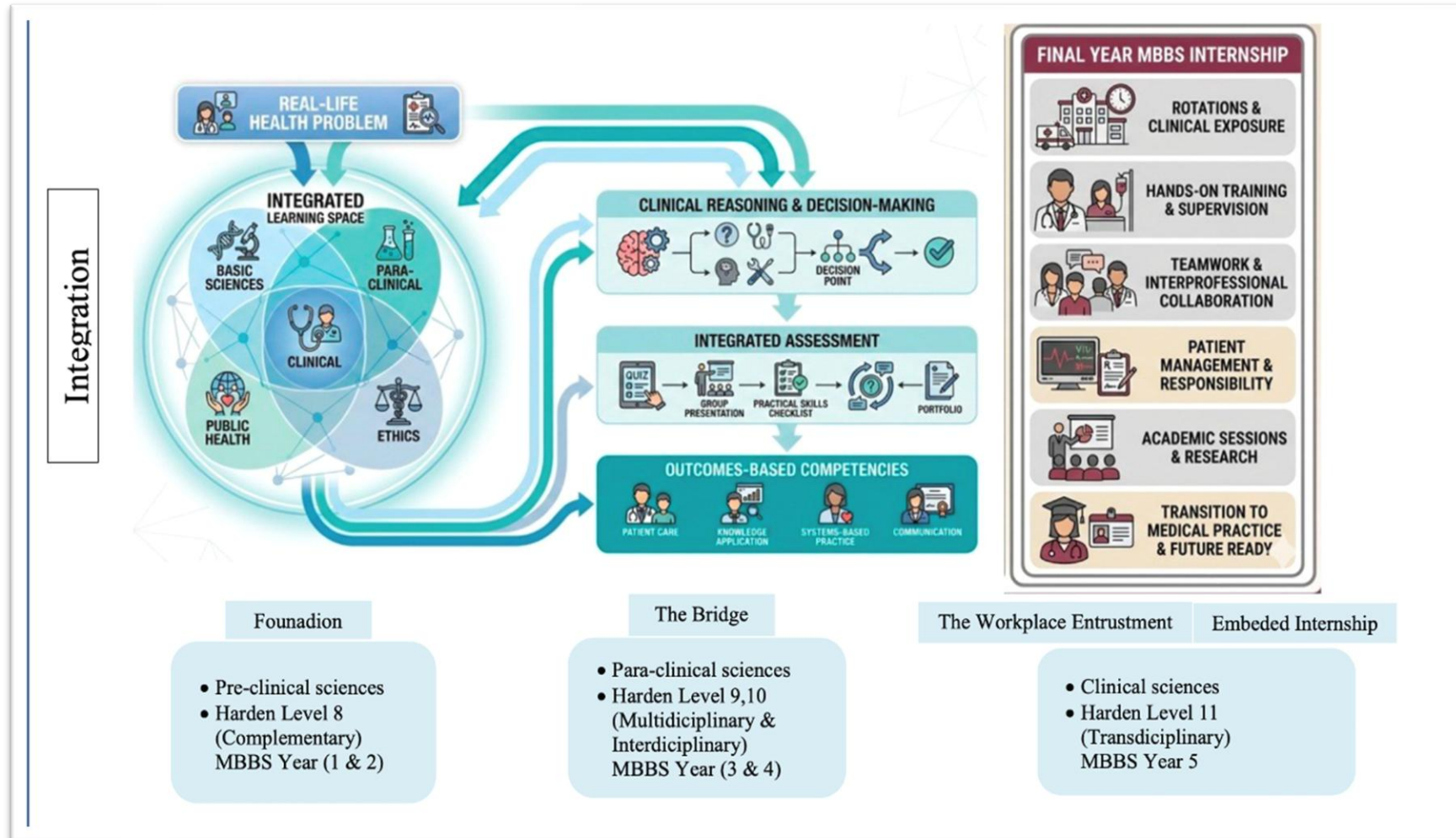


Figure 3 – Transformational Curriculum Framework of RMU 12 Integrated Modular Curriculum 2026

Isolation to Beyond Boundaries

Simple to complex

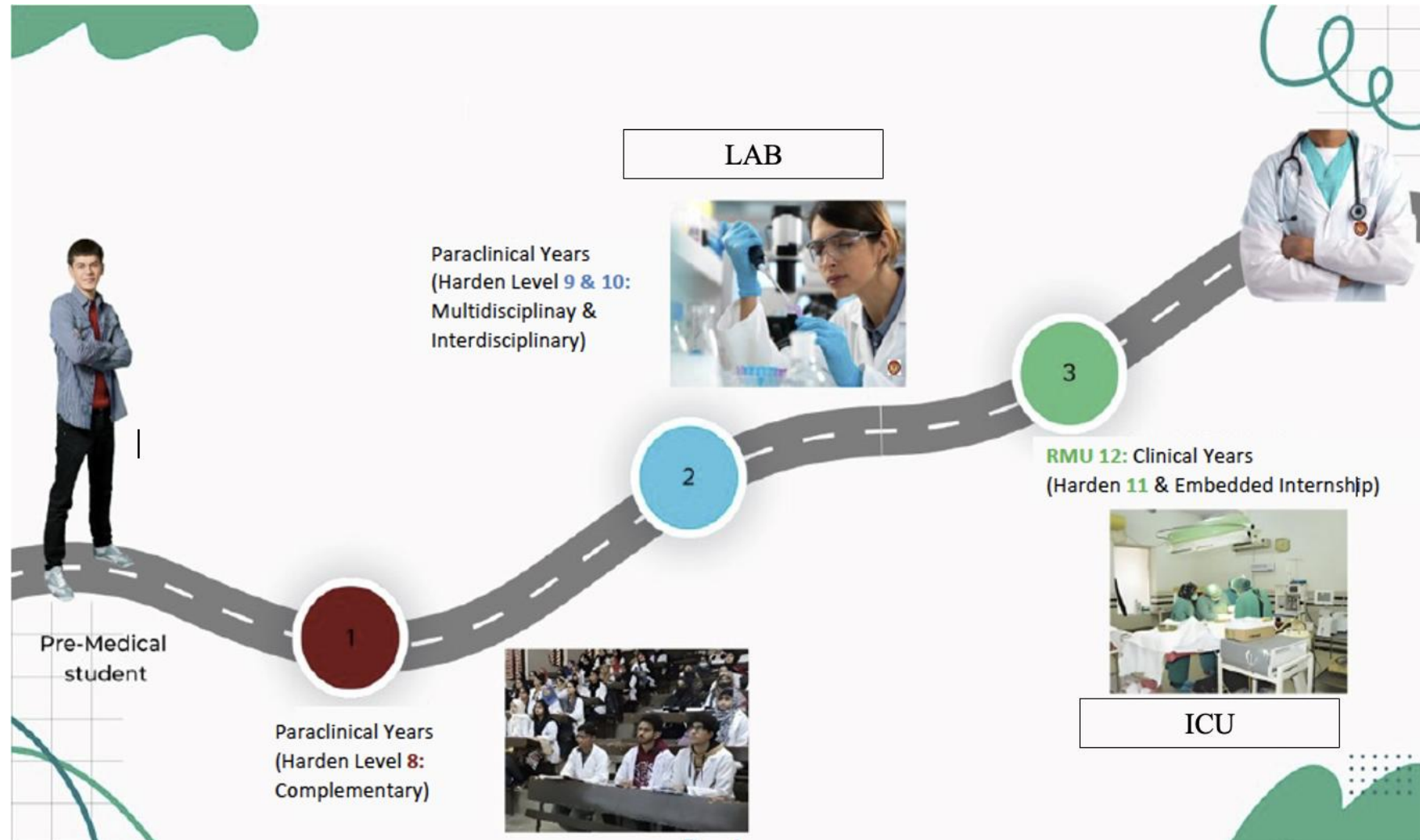


Figure 4 – Educational Framework of RMU 12 Integrated Modular Curriculum 2026

Isolation to Beyond Boundaries

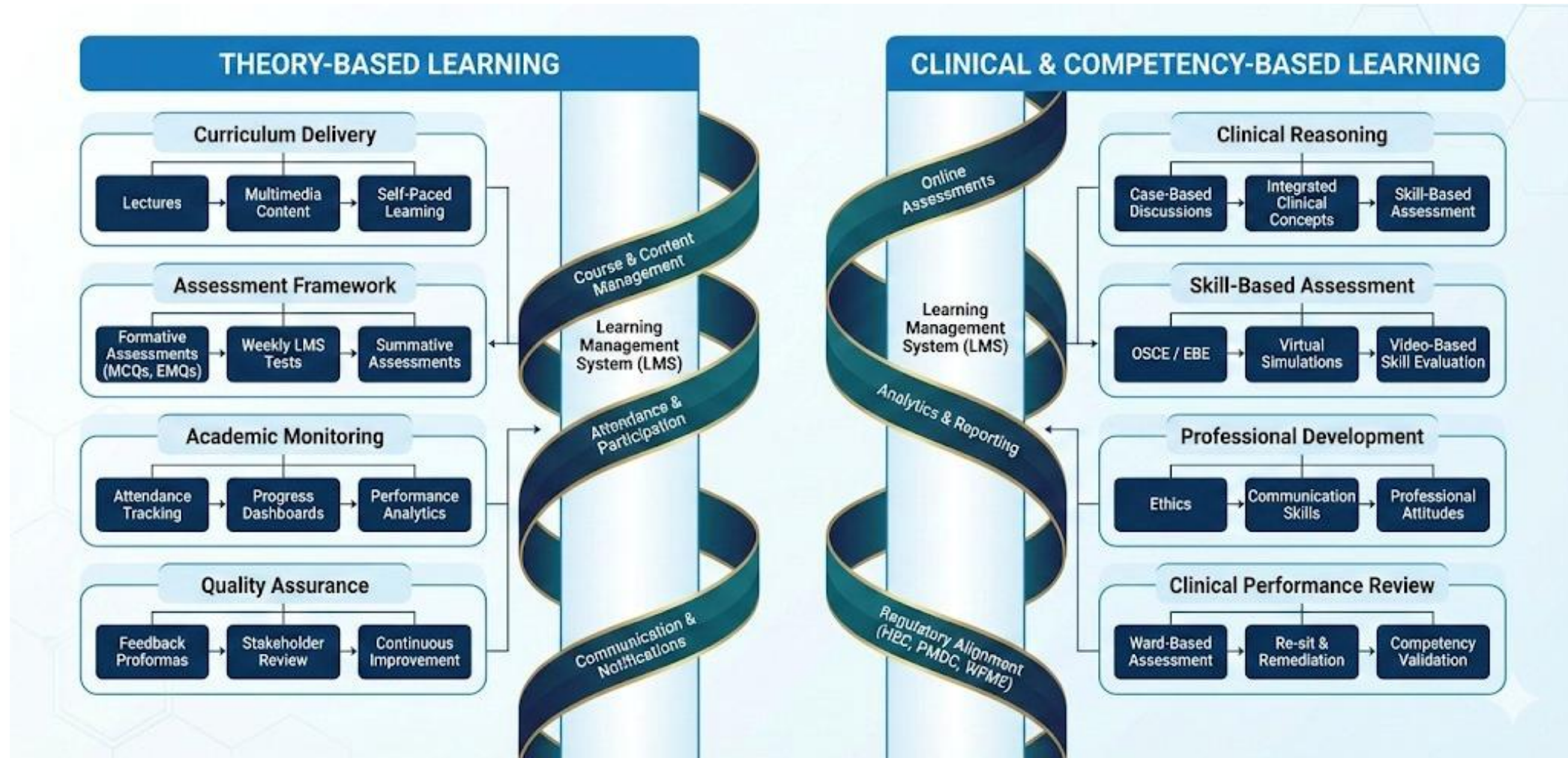


Figure 5 – Entrustment Framework of RMU 12 Integrated Modular Curriculum 2026

Isolation to beyond boundaries

Phase	Curricular Highlights
<b>Pre House-job Internship</b> 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.	<b>Undergraduate Internship</b> 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.
<b>Clinical Sciences</b> The Workplace Entrustment	<b>Transdisciplinary</b> 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.
<b>Paraclinical Sciences</b> The Bridge	<b>Multidisciplinary and Interdisciplinary</b> 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.
<b>Pre-Clinical</b> The Foundation	<b>Complementary</b> 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.

Figure 6 – Assessment framework of RMU 12 Integrated Modular Curriculum 2026

Isolation to beyond boundaries

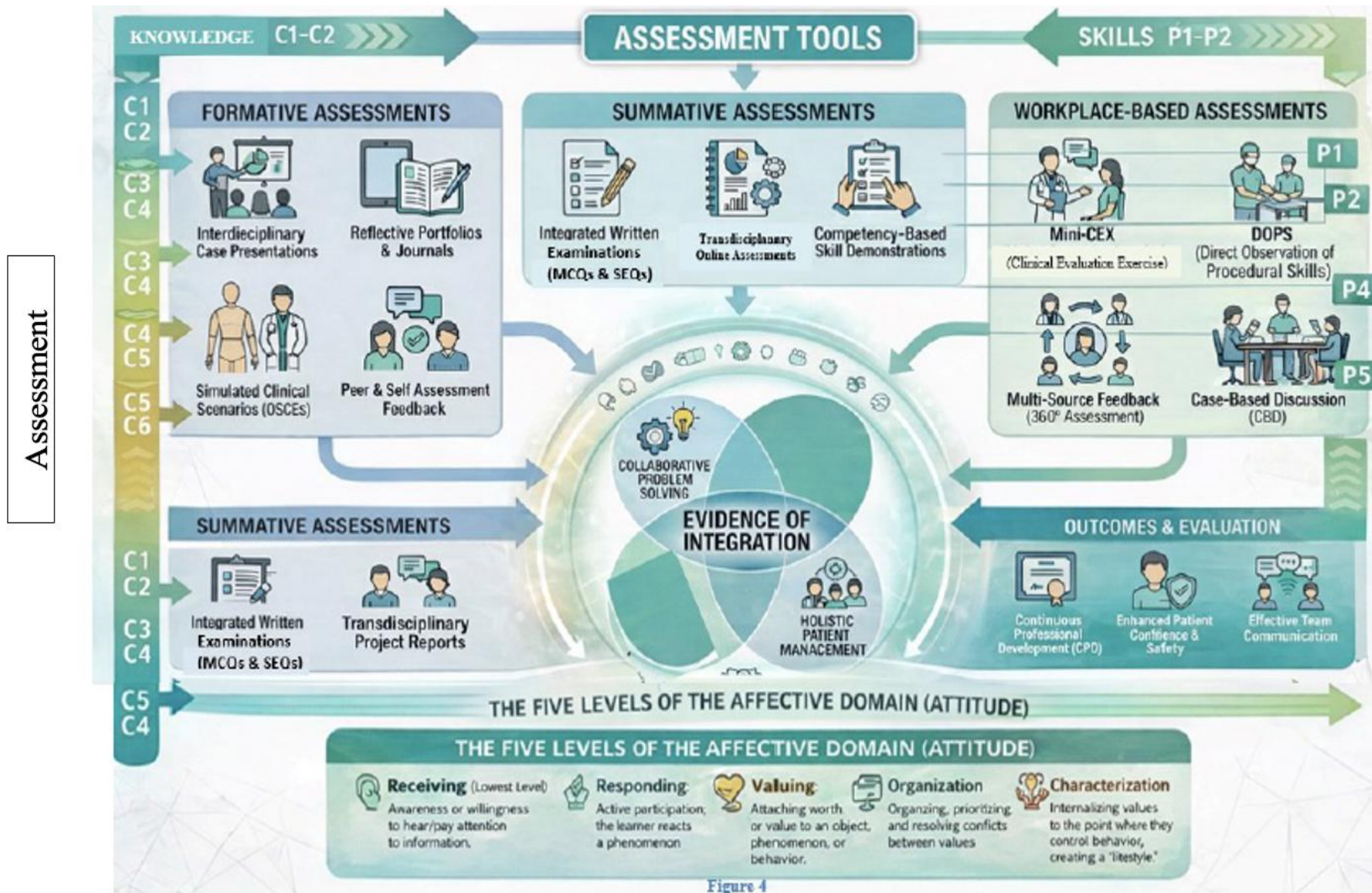
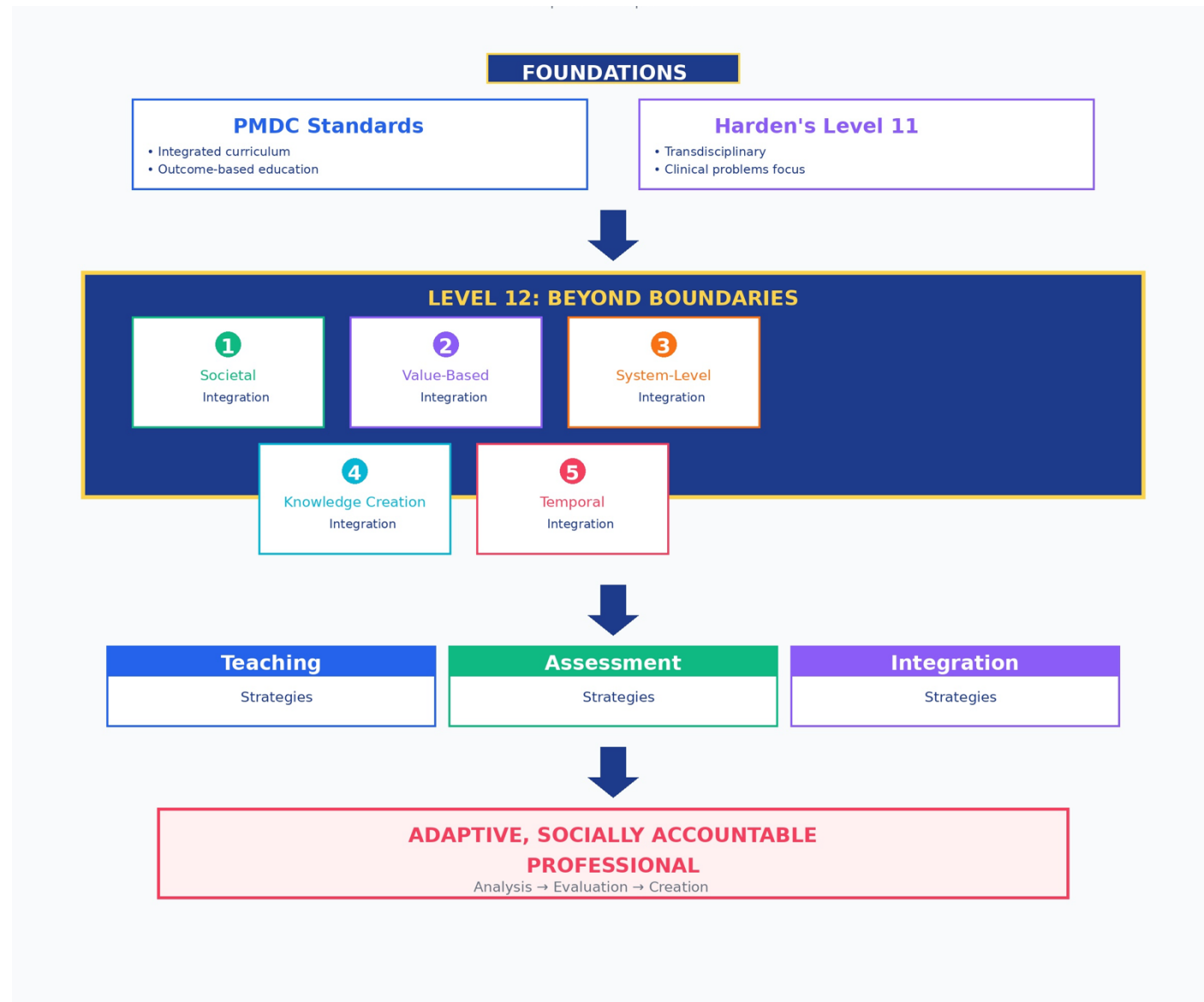


Figure 4

Figure 7 – Competency framework of RMU 12 Integrated Modular Curriculum 2026

Isolation to beyond boundaries

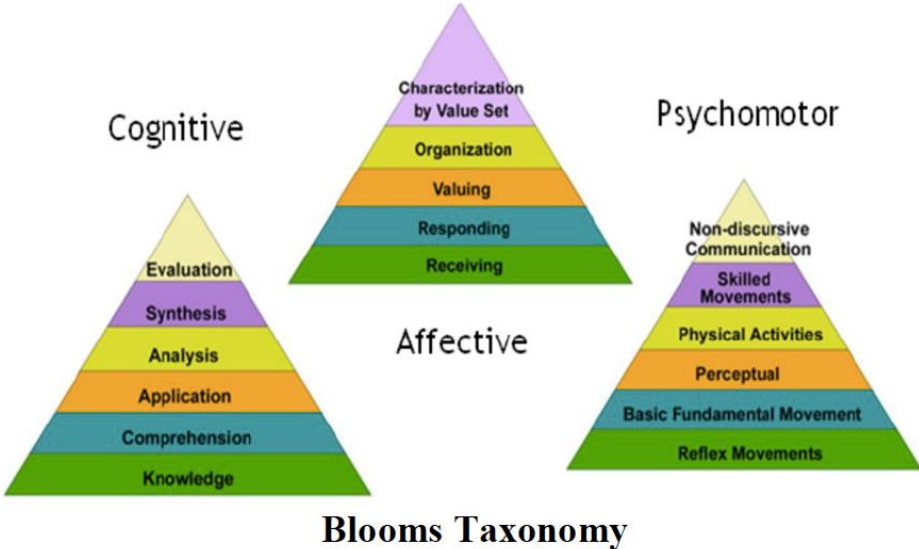


Rawalpindi Medical University has adopted a staged curricular framework that reflects a progressive movement along Harden’s integration ladder, culminating in going beyond the ladder to RMU Integration level 12. The curriculum is designed to ensure that knowledge acquired in the early years is not isolated 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 science sessions and simulation-based teaching become central modalities, allowing students to engage with clinically meaningful content. The curriculum is structured in 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.

**Figure 8 – Blooms Taxonomy**



**Miller's Pyramid of Clinical Competence**

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.

## RMU 12 Trans Contextual Integration Framework (TCIF)

### 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 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.

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

---

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 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:

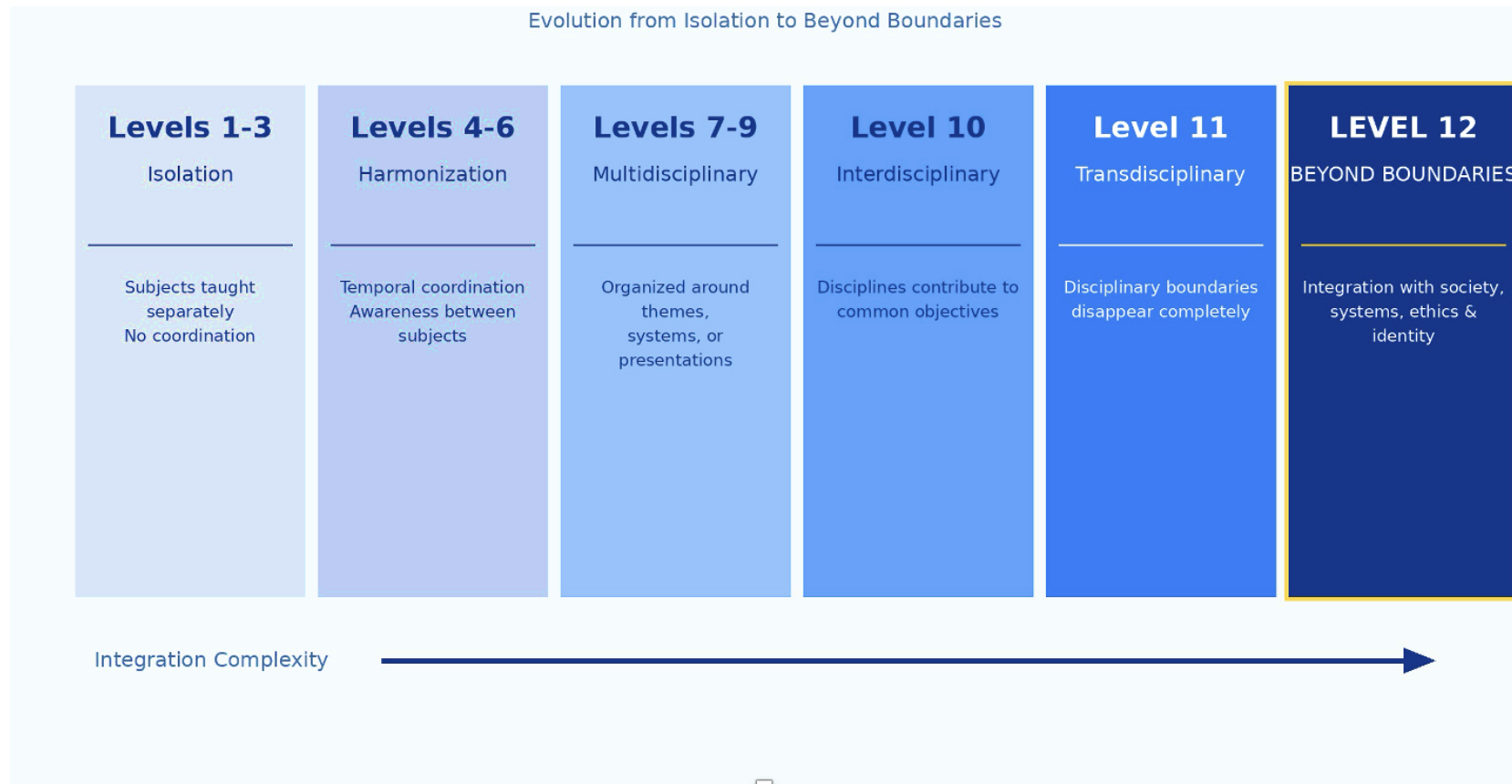
- **Integrated Curriculum:** Horizontal integration (across disciplines) and vertical integration (across years)
- **Early Clinical Relevance:** Clinical context introduced from initial years
- **Outcome-Based Education:** Focus on graduate competencies rather than content coverage
- **Critical Thinking & 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



Harden's Integration Ladder



RMU 12 Isolation to Beyond Boundaries



RMU-12  
Isolation to beyond

Figure 11 –RMU 12 Isolation to Beyond Boundaries

## 2. RMU12—Beyond Boundaries

### 2.1 Conceptual Definition

#### *RMU 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



**Figure 12 – Five Pillars of RMU 12 Integration**

## 2.3 Five Pillars of Level 12 Integration

### A. Societal Integration: Patient-in-Society Problems

**Level 11:** Patient-centered clinical problems

**RMU 12:** Patient-in-society problems

**RMU Implementation: (Methodology)**

- 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 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

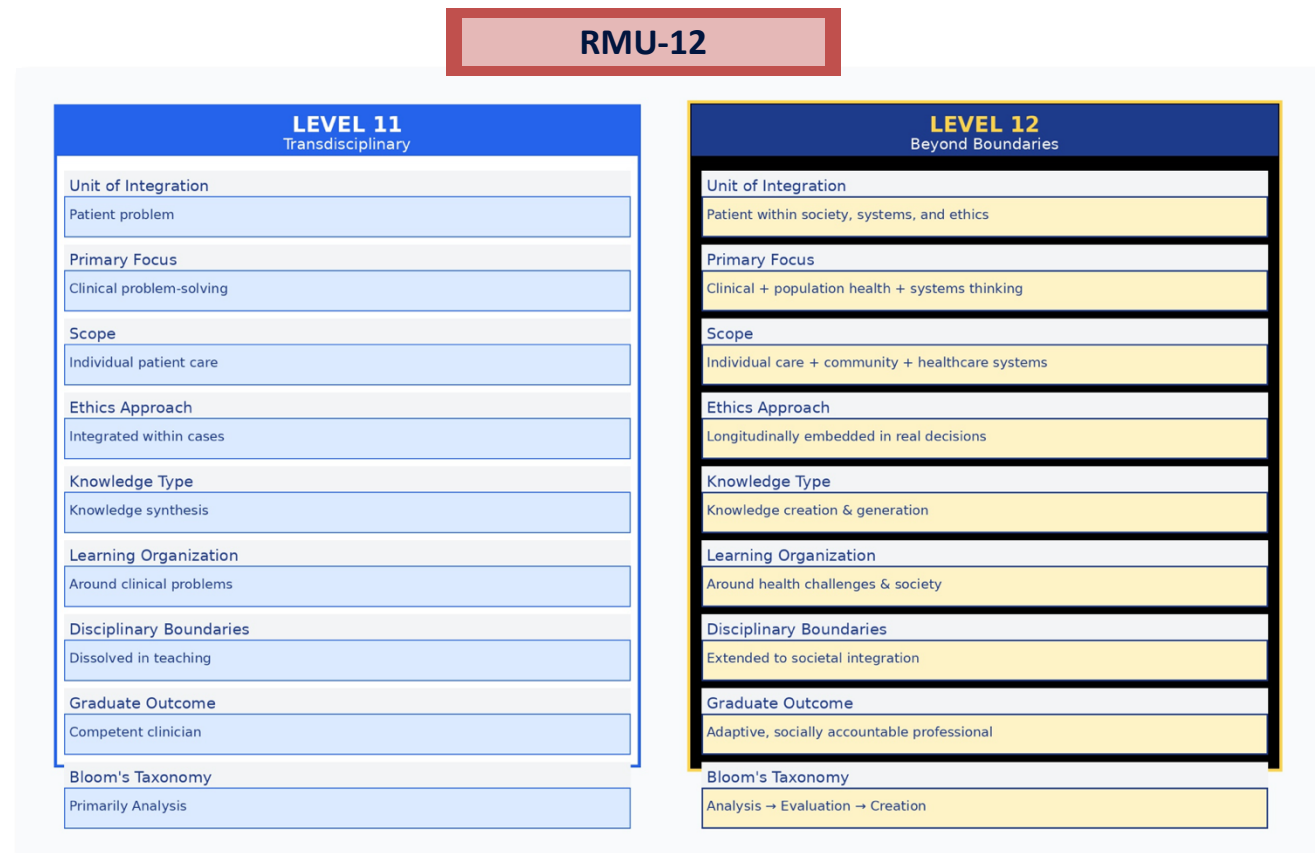
**Level 11:** Focus on individual patient care

**RMU 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.*



**Figure 13 – Level 11 vs RMU 12**

## **D. Knowledge Creation: Beyond Synthesis**

**Level 11:** Knowledge synthesis

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

## 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	<b>Analysis</b>	Students deconstruct complex cases, interpret investigations, differentiate diagnoses
Ward-based clinical teaching	<b>Analysis → Evaluation</b>	Learners appraise patient data and justify management decisions in real time
OSCEs and scenario-based stations	<b>Evaluation</b>	Students defend clinical decisions, prioritize care, demonstrate judgment under pressure
Community health projects	<b>Evaluation → Creation</b>	Learners assess community needs and design context-specific preventive interventions
Research projects & clinical audits	<b>Creation</b>	Students formulate questions, design studies, generate new knowledge

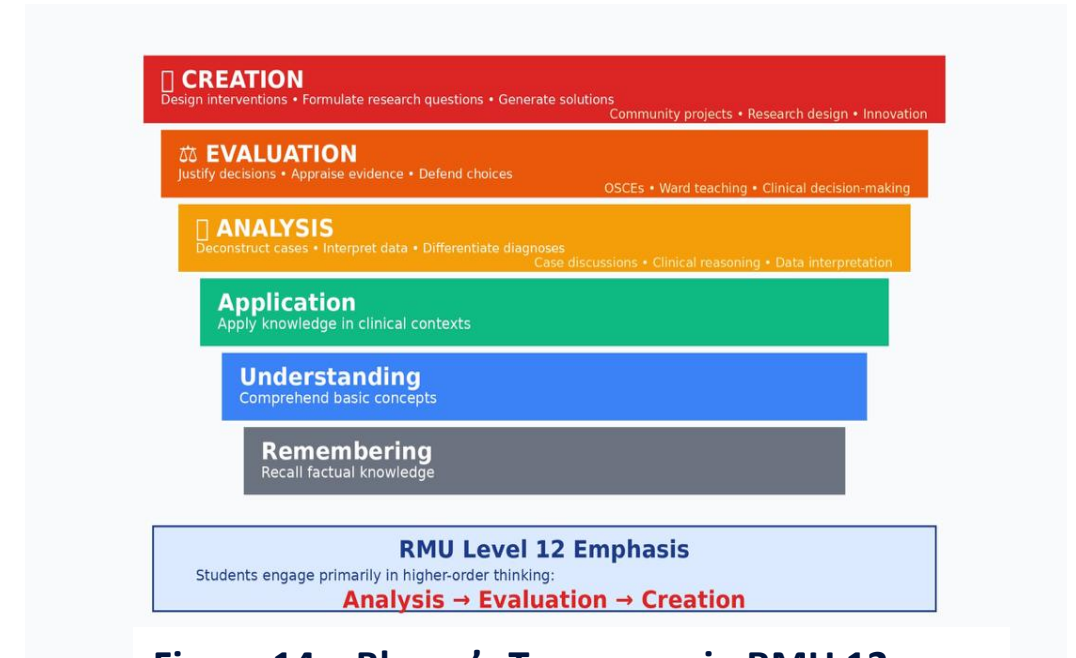


Figure 14 – Bloom's Taxonomy in RMU 12

**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**

**Figure 15 – Graduate Outcomes in RMU 12**

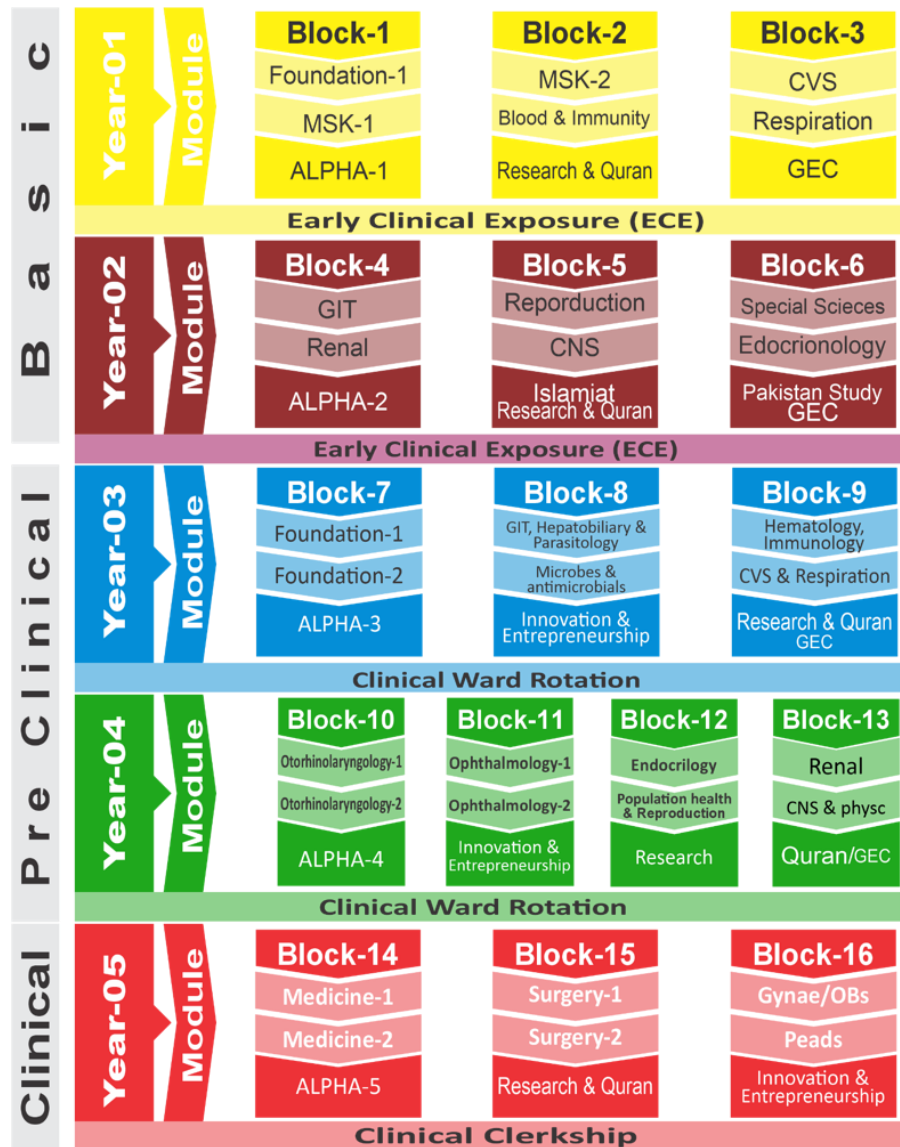


Figure 16 – Modules from basic to Clinical in RMU 12

## **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



**Figure 17 – RMU 12 Symptom Based Integrated Clinical Clerkship**

# Symptom Based Integrated Clinical Clerkship

## Rawalpindi Medical University

### Level 12 Clinical Clerkship

*(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 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.

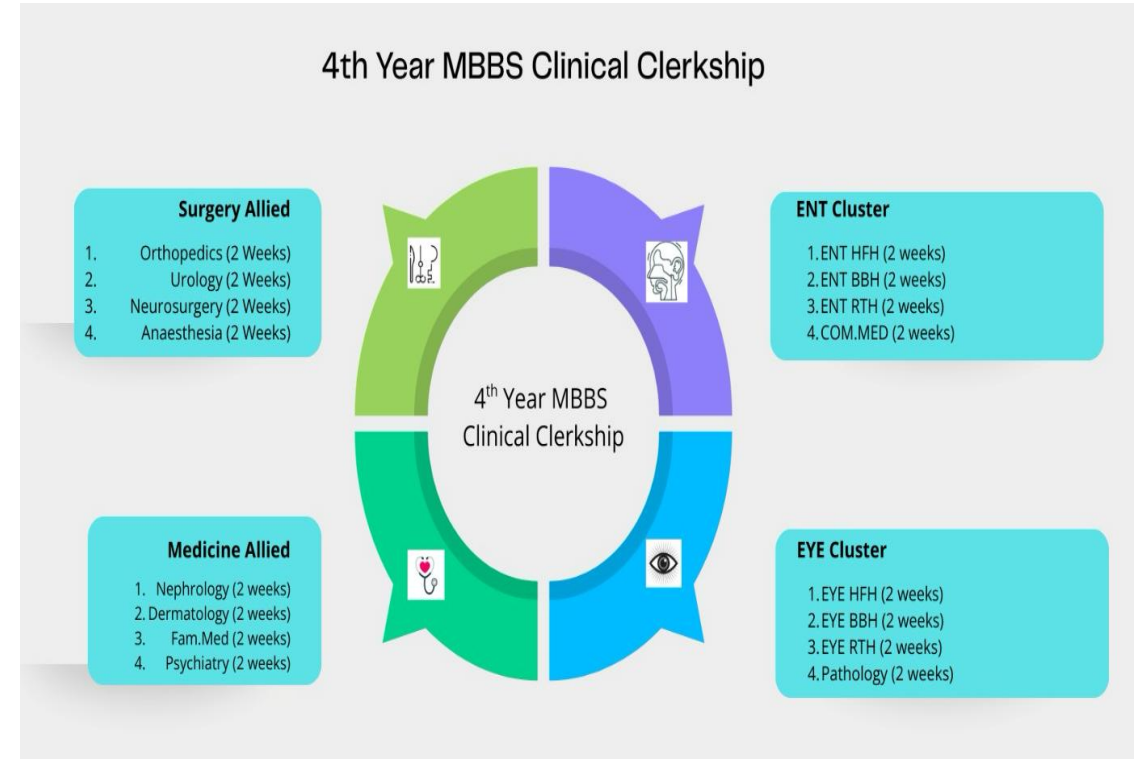


Figure 18 – 4<sup>th</sup> year MBBS Clinical Clerkship

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 (RMU 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. RMU 12 Embedded Clerkship Model

The RMU 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 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

## 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	<input type="checkbox"/>	Student centered	S
Information oriented	<input type="checkbox"/>	Problem based	P
Discipline based	<input type="checkbox"/>	Integrated	I

Hospital based	<input type="checkbox"/>	Community based	C
Standardized curriculum	<input type="checkbox"/>	Elective programs	E
Opportunistic	<input type="checkbox"/>	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



Foundation for Advancement of International Medical Education and Research

[https://search.wdoms.org/?\\_gl=1\\*b2ddww\\*\\_ga\\*MTQyNTAwNzIxMi4xNzA2ODEwNjcx\\*\\_ga\\_R5BJZG5EYE\\*MTcwNjgzNjg3Ni4yLjAuMTcwNjgzNjg3Ni4wLjAuMA..](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>



**BASIC MEDICAL EDUCATION  
WFME GLOBAL STANDARDS FOR  
QUALITY IMPROVEMENT**

**The 2020 Revision**



**ACGME**

**Accreditation Council for Graduate Medical Education**

**World Directory of Medical Schools**

Home About Sponsors Subscription Search

Home > Search > School Details New Search

**Rawalpindi Medical University**

Pakistan

School Details | Contact Information | Program Details | Sponsor Notes

School Type:	Public
Year Instruction Started:	1974
Operational Status:	Currently operational
Alternate Names:	Rawalpindi Medical College (1974 - 2017)
Academic Affiliation:	University of Health Sciences Lahore (Current) University of the Punjab (Former)
School Website(s):	In English

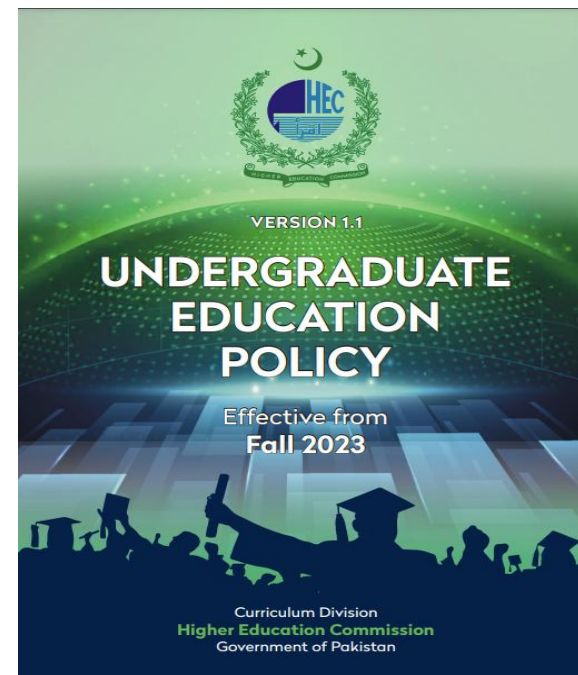
FAIMER SCHOOL ID: F000151



2022

GUIDELINES  
FOR

UNDERGRADUATE  
MEDICAL EDUCATION  
CURRICULUM (MBBS)



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

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

### Seven-star doctor

Skillful

Community health promoter

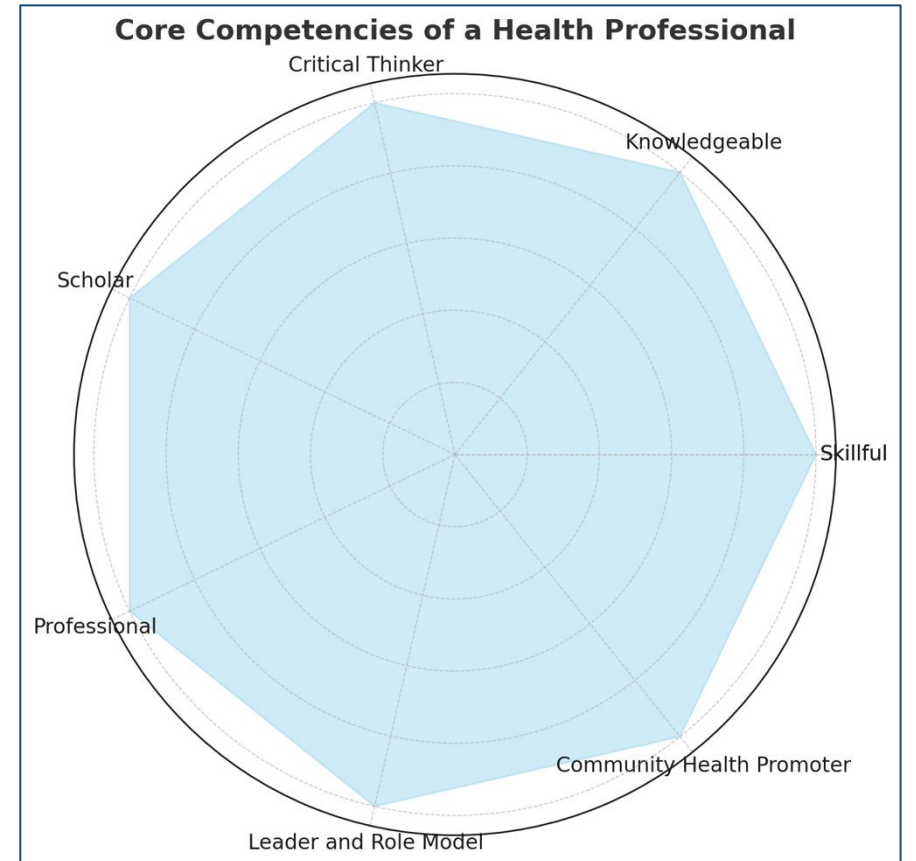
Professional

Leader and role model

Knowledgeable

Critical thinker

Scholar



### **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.

**Figure 19 – Core competencies of a health professional**

### **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.

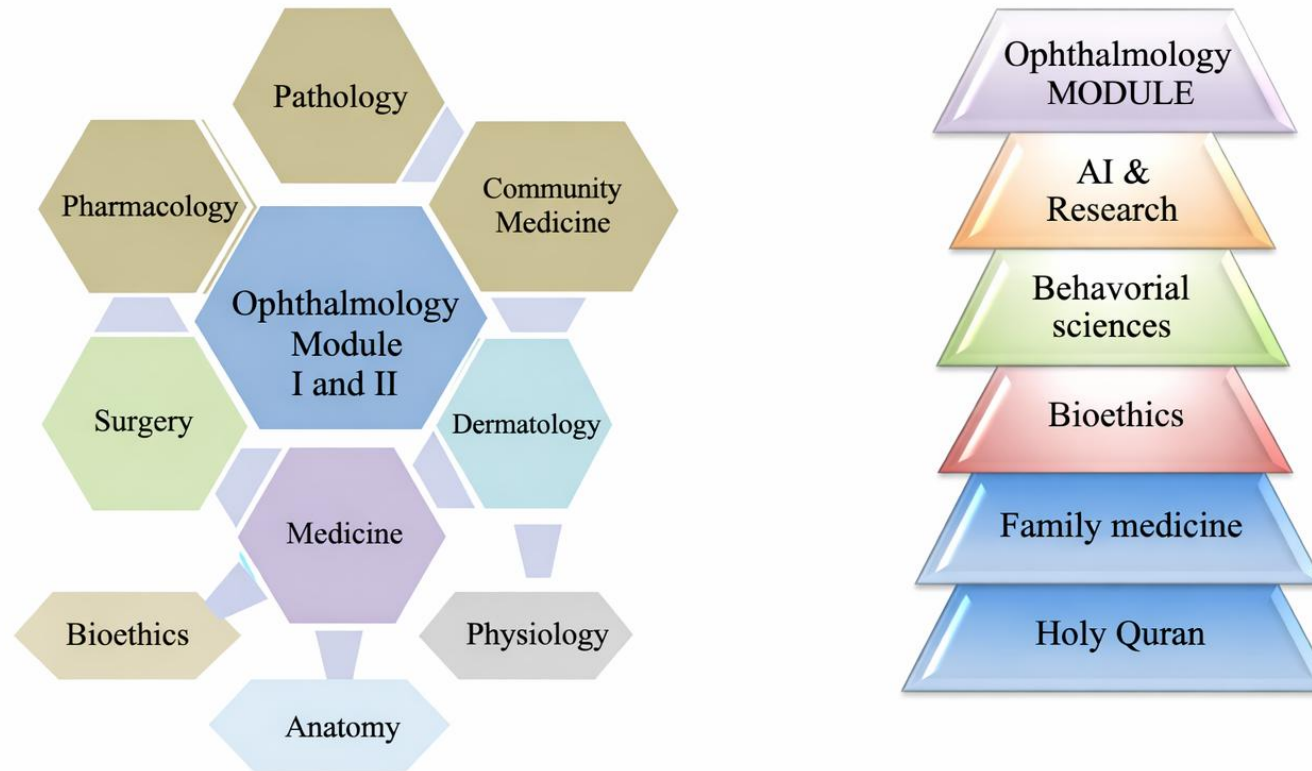
## **7. Leader and Role Model**

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.

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**Figure 20 – Integration of Disciplines in ophthalmology Block / Spiral Integrated Disciplines**

## Study Guide: Terms & Abbreviations

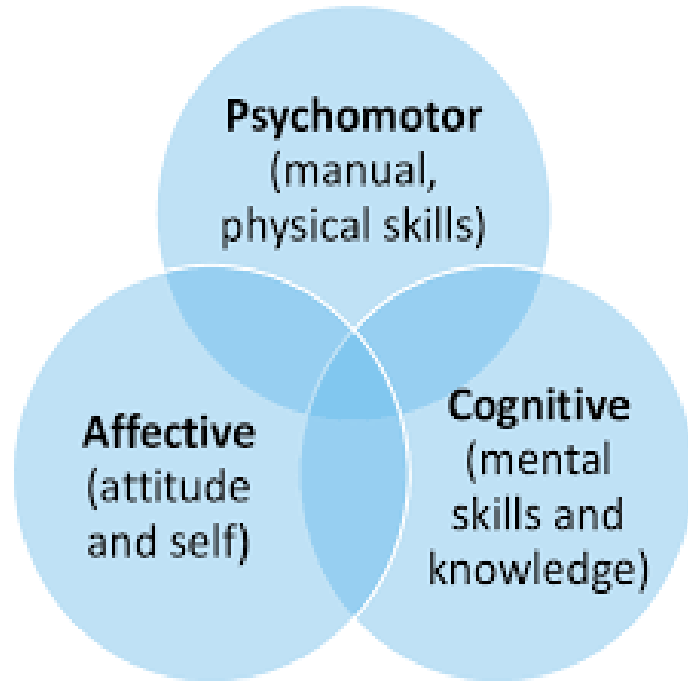
### Contents

- Domains of Learning
- Teaching and Learning Methodologies/Strategies
  - Large Group Interactive Session (LGIS)
  - Small Group Discussion (SGD)
  - Self-Directed Learning (SDL)
  - Case Based Learning (CBL)
  - Clinical / practical

### Tables & Figures

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

## Domains of learning according to Blooms Taxonomy



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

## Section – III Educational Strategies

### Ophthalmology-Block-XI

**Block Name** : **Ophthalmology Block-XI (Module I-II)**  
**Duration of module** : **03 Weeks each module**

<b>Block Committee</b>				<b>Block Task Force Team</b>	
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar	1	Coordinator	Dr. Sidra Jabeen
			2	Co-Coordinator	Dr Saira Bano
2.	Director DME	Prof. Dr. Rai Muhammad Asghar	3	DME Focal Person	Dr. Maryum Batool
3.	Convener Curriculum	Prof. Dr. Naeem Akhter	4	Coordinator Community Medicine	Dr Narjis
4.	Dean Basic Sciences	Prof. Dr. Ayesha Yousaf			
5.	Additional Director DME	Prof. Dr. Ifra Saeed			
6.	Chairperson Otorhinolaryngology	Prof Dr Sadia Chaudhry			
7.	HOD Community Medicine	Prof Dr Rozina Shahadat			
					<b>DME Implementation Team</b>
			1	Director DME	Prof. Dr. Rai Muhammad Asghar
			.		
8.	Focal Person Ophthalmology	Dr Sidra Jabeen	2	Add. Director DME	Prof. Dr. Ifra Saeed
			.		
9.	Focal Person Community Medicine	Dr Sana	3	Deputy Director DME	Dr Shazia Zaib
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			4	Module planner & Implementation Coordinator	Dr. Omaima Asif
			.		
			5	Editor	Dr Omaima Asif

**Dr Sidra Jabeen**

Associate Professor Ophthalmology

Rawalpindi Medical University

**Professor Fuad Niazi**

Head of Ophthalmology department

Rawalpindi Medical University

**Prof. Muhammad Umar**

Vice Chancellor

Rawalpindi Medical University

# 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.

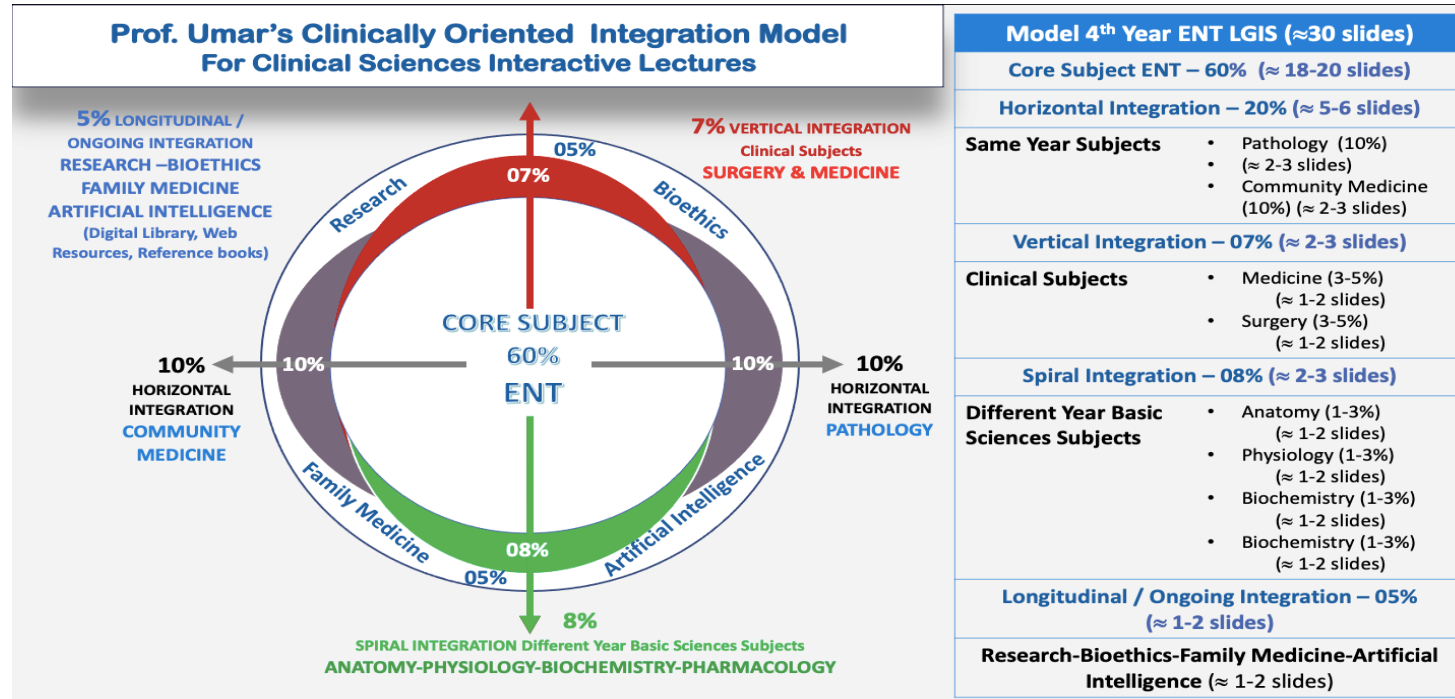


Figure 21 – Prof Umar Model of Integrated Lecture

## Small Group Discussion (SGD)

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

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

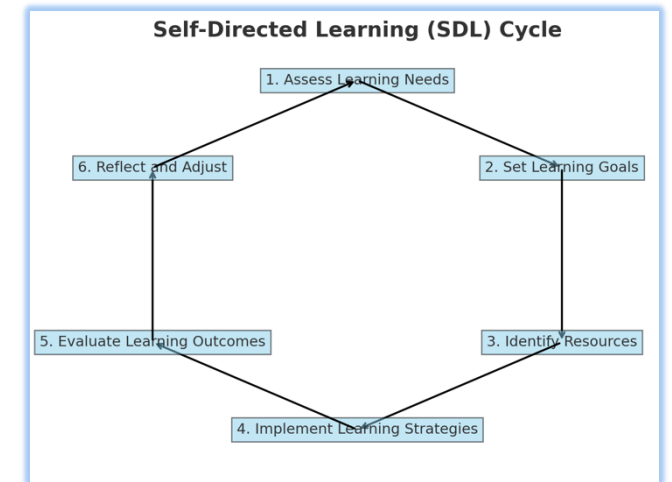
**Table 2 – Standardization of teaching content in small group discussion**

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

**Table 3. Steps of taking Small Group Discussions**

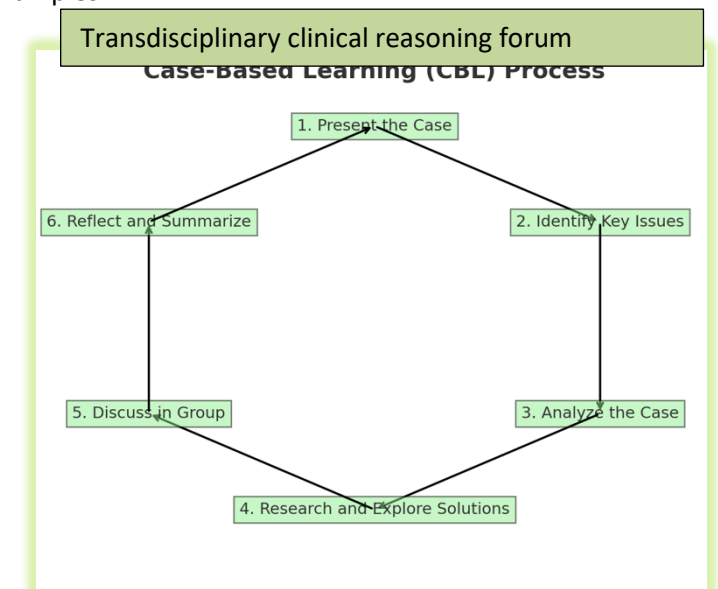
## 2. Self-Directed Learning (SDL)

- 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



## 3. Transdisciplinary Clinical Reasoning Forum (TCRF)

- 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 – IV Themes, Learning Objectives, Teaching Strategies and Tools of Assessment**

**Themes for Ophthalmology**

<b>Week</b>	<b>Theme No.</b>	<b>Topics</b>
<b>Week 1</b>	<b>Theme 1</b>	<b>Red Eye</b>
<b>Week 2</b>	<b>Theme 2</b>	<b>Sudden loss of vision</b>
<b>Week 3</b>	<b>Theme 3</b>	<b>Gradual loss of vision</b>
<b>Week 4</b>	<b>Theme 4</b>	<b>Ocular Aesthetics</b>
<b>Week 5</b>	<b>Theme 5</b>	<b>Watery eye</b>
<b>Week 6</b>	<b>Theme 6</b>	<b>White pupil</b>
<b>Week 6</b>	<b>Assessment</b>	

Topics	Rationale	General learning objectives (SMART)
<ul style="list-style-type: none"> <li>- <b>Blepharitis</b></li> <li>- <b>Ophthalmia neonatorum</b></li> <li>- <b>Infective conjunctivitis</b></li> <li>- <b>Allergic conjunctivitis</b></li> <li>- <b>Degenerative conjunctival disorders</b></li> <li>- <b>Dry eye syndrome</b></li> <li>- <b>Keratitis / Corneal ulcer</b></li> <li>- <b>Herpes simplex keratitis</b></li> <li>- <b>Herpes zoster ophthalmicus</b></li> <li>- <b>Acute anterior uveitis</b></li> <li>- <b>Episcleritis / Scleritis</b></li> <li>- <b>Acute angle-closure glaucoma</b></li> <li>- <b>Chemical injury</b></li> <li>- <b>Corneal foreign body</b></li> <li>- <b>Contact lens-related keratitis</b></li> </ul>	<p>Red eye is one of the most common ophthalmic complaints and may arise from benign conjunctival irritation or sight-threatening corneal, uveal, or glaucomatous disease. Teaching the red eye integrates anatomy of the ocular surface and anterior segment, physiology of the tear film, microbiology of infection, immunology of allergy and inflammation, pharmacology of ocular therapy, and emergency ophthalmic care. Early recognition of red-flag conditions is essential to prevent visual morbidity.</p> <p>In 4th year MBBS, students transition from theoretical ophthalmology to clinical reasoning. Teaching red eye disorders enables integration of anatomy (conjunctiva, cornea, anterior chamber, and angle), physiology (tear film and intraocular pressure regulation), pathology (infection, inflammation, and immune reactions), microbiology (bacterial, viral, and allergic causes), pharmacology (topical antimicrobials, anti-inflammatories, and glaucoma drugs), emergency medicine (acute glaucoma, chemical injury, corneal ulcer), and public health principles into patient-centered diagnostic and management decision making</p> <p>Enable students to approach red eye as a structured clinical problem requiring careful history-taking, systematic examination, risk stratification, and evidence-based management rather than memorizing isolated diseases. This integrates ophthalmic anatomy, pathology, microbiology, pharmacology, and systemic medicine.</p>	<p>By the end of this theme, students will be able to:</p> <ul style="list-style-type: none"> <li>* Classify causes of red eye into infectious, allergic, inflammatory, traumatic, and glaucomatous</li> <li>* Perform focused red eye examination including visual acuity, slit-lamp inspection, fluorescein staining, and IOP assessment</li> <li>* Recognize sight-threatening conditions needing urgent referral</li> <li>* Differentiate conjunctivitis from keratitis, uveitis, and glaucoma</li> <li>* Outline appropriate medical and emergency management</li> <li>* Counsel patients regarding hygiene, treatment adherence, and follow-up</li> </ul>

**- Subconjunctival hemorrhage**

Code	Topic	Learning objectives At the end of the lecture the student should be able to	Learning domain	Teaching strategy	Assessment tool
M1-OPH-001	Approach to Red Eye	<ul style="list-style-type: none"> <li>• Differentiate between benign and sight threatening causes</li> <li>• Prioritize urgent red-flag conditions requiring immediate intervention</li> <li>• Conduct a focused and thorough ocular examination</li> <li>• Develop patient education and follow up plan</li> </ul>	C1 C2 C3 C3	Case discussion	OSCE
M1-OPH-002	Conjunctivitis	<ul style="list-style-type: none"> <li>• Differentiate bacterial, viral and allergic causes</li> <li>• Recognize characteristic discharge patterns and ocular signs</li> <li>• Outline appropriate medical management for each type</li> </ul>	C2 C3 C2	Interactive lecture	MCQ OSCE
M1-OPH-003	Keratitis / Corneal Ulcer	<ul style="list-style-type: none"> <li>• Recognize corneal staining and urgent care.</li> <li>• Identify complications and visual risk</li> <li>• Outline urgent management</li> <li>• Recognize infectious vs non infectious keratitis</li> <li>• Explain indications for referral or surgical intervention</li> </ul>	C1 C2 C3 C3	Bedside teaching	MCQ OSCE
M1-OPH-004	Uveitis	<ul style="list-style-type: none"> <li>• Identify anterior chamber inflammation.</li> <li>• Recognize systemic associations</li> <li>• Outline referral and treatment principles</li> <li>• Explain investigations for uveitis</li> </ul>	C1 C2 C3 C3	Problem based learning	Viva/ OSCE
M1-OPH-005	Acute Glaucoma	<ul style="list-style-type: none"> <li>• Recognize signs and symptoms of acute angle closure glaucoma</li> <li>• Describe immediate management steps</li> <li>• Identify emergency referral pathways</li> <li>• Discuss pharmacological and laser interventions</li> </ul>	C1 C2 C3 C3	Simulation	SAQ MCQ OSCE

<b>M1-OPH-006</b>	Chemical Injury	<ul style="list-style-type: none"> <li>• Classify and grade chemical ocular injuries.</li> <li>• Demonstrate emergency irrigation and first aid procedures</li> <li>• Recognize the signs that indicate severe ocular damage and poor prognosis</li> </ul>	C2 C3 C2	Skills demonstration	OSCE
<b>M1-OPH-007</b>	Benign Red Eye	<ul style="list-style-type: none"> <li>• Recognize episcleral and subconjunctival hemorrhage</li> <li>• Identify clinical signs that indicate a non emergency condition</li> <li>• Outline conservative management strategies lubrication symptomatic relief</li> </ul>	C2 C2 C3	LGIS	SAQ MCQ OSCE

# TRANS DISCIPLINARY CLINICAL REASONING FORUM (TCRF)

Theme	Week	Topics	Clinical Case Scenario
Theme 1	Week 1	Red Eye: Identifying Common vs Sight threatening causes	A 28 year old male with mild discomfort, redness and watery discharge

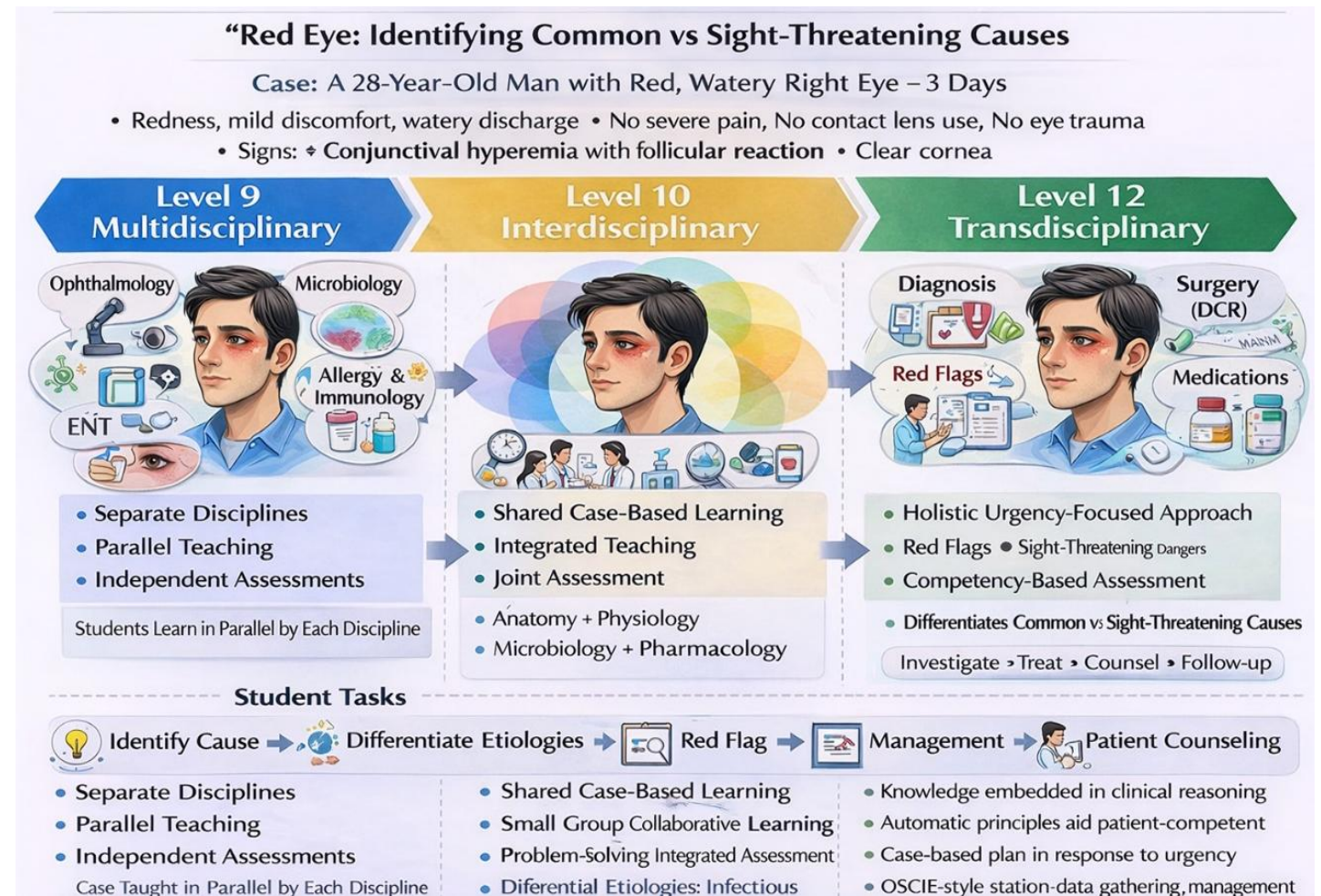
## “Managing Presenting Red Eye in young male”

### Clinical Scenario:

A 28-year-old man presents with redness, mild discomfort, and watery discharge in his right eye for 3 days. He denies severe pain and has no history of trauma or contact lens wear.

On examination:

- \* Conjunctival hyperaemia with follicular reaction
- \* Cornea clear
- \* Pupillary reaction normal



- \* Intraocular pressure within normal limits

## **Student Task (Problem-Based Trigger)**

Students are asked to:

- \* Identify likely causes of red eye in this patient
- \* Differentiate infectious, allergic, and inflammatory etiologies
- \* Recognize red-flag features requiring urgent referral
- \* Perform focused ocular examination
- \* Develop diagnostic and management plan
- \* Counsel patient on treatment and follow-up

## **What Makes This RMU level 12?**

- \* Knowledge embedded in clinical reasoning
  - \* Organizing principle = patient complaint
  - \* Mirrors real clinical decision-making

## **Students integrate:**

- Anatomy

- Physiology
- Microbiology
- Pharmacology
- Ethics & communication
- Public health

But none are taught separately.

#### Teaching Format

- Small group facilitated learning
- Faculty from different backgrounds present but not teaching in silos
- Students build the care pathway themselves
- Assessment based on competence and clinical reasoning

#### Academic Justification Statement

**“The case has been designed to reflect RMU level 12 (transdisciplinary integration), where learning is structured around authentic patient problems rather than disciplinary categories. Knowledge from biomedical, clinical, and public health domains is integrated seamlessly within professional practice.”**

#### SUBJECT CONTRIBUTION IN TRANS DISCIPLINARY CLINICAL REASONING FORUM -1

Subject / Discipline	Nature of Contribution	Approximate Integration Weight (%)	Rationale for Weight
<b>Ophthalmology</b>	Core diagnostic reasoning & management	35%	Organizing discipline
<b>Pathophysiology</b>	Inflammation, infection, IOP change	15%	Explains mechanism
<b>Microbiology</b>	Pathogens and infection patterns	15%	Guides antimicrobial therapy
<b>Emergency Ophthalmology</b>	Glaucoma, chemical injuries	7%	Structural reasoning
<b>Pediatrics</b>	Neonatal and age specific infections	8%	Age relevance
<b>Public Health</b>	Hygiene and prevention awareness	5%	Preventive aspect

### **SUBJECT-WISE SPECIFIC LEARNING OBJECTIVES-1**

Discipline	Domain	Specific Learning Objectives	Bloom's Level	Integration Role
<b>Ophthalmology</b>	Clinical reasoning	Recognize causes of red eye  Differentiate causes of conjunctival, ciliary and mixed congestion	Analyze	Core organizing discipline

		<p>Perform systematic red eye examination including VA, IOP, fluorescein staining.</p> <p>Formulate emergency vs non emergency management plan</p>	<p>Analyze</p> <p>Apply</p> <p>Evaluate</p>	
<b>Pathophysiology</b>	Mechanisms	<p>Explain inflammation &amp; infection</p> <p>Describe corneal epithelial breakdown in keratitis</p>	Analyze	Disease mechanism
<b>Microbiology</b>	Clinical link	<p>Identify pathogens</p> <p>Select appropriate investigations ( scraping, culture) in corneal ulcer</p>	Understand	Guides therapy
<b>Emergency Care</b>	Procedural	Initiate urgent treatment	Apply	Vision-saving role

Topics	Rationale	General learning objectives (SMART)
Corneal Ulcer Acute Anterior Uveitis Complications of Uveitis Retinal Vascular Occlusions (CRAO, CRVO) Retinal Detachment Acute Angle-Closure Glaucoma Vitreous Hemorrhage Optic Neuritis Endophthalmitis Chemical Injury	<p>Sudden loss of vision represents one of the most critical ophthalmic emergencies encountered in clinical practice. Conditions such as Central Retinal Artery Occlusion, Retinal Detachment, Acute Angle-Closure Glaucoma, Endophthalmitis, and Optic Neuritis may lead to irreversible blindness if not recognized and managed promptly.</p> <p>In 4th year MBBS, students transition toward emergency-oriented clinical reasoning. Teaching sudden visual loss enables integration of:</p> <ul style="list-style-type: none"> <li>Corneal pathology</li> <li>Uveal inflammation</li> <li>Retinal vascular disorders</li> <li>Neuro-ophthalmology</li> <li>Ocular trauma</li> <li>Glaucoma emergencies</li> <li>Systemic associations (diabetes, hypertension, autoimmune disease)</li> </ul>	<p>By the end of the Sudden Loss of Vision module, the 4th year MBBS student will be able to:</p> <ul style="list-style-type: none"> <li>● Differentiate causes of sudden painful versus painless loss of vision with at least 80% accuracy in written/viva examination.</li> <li>● Perform focused emergency ocular examination (visual acuity, pupil reaction, anterior chamber depth estimation, fundus reflex assessment) correctly in 3 out of 4 observed encounters.</li> <li>● Identify red-flag signs requiring urgent referral (retinal detachment, CRAO, acute glaucoma, penetrating injury).</li> </ul>

Blunt Ocular Trauma Penetrating Ocular Trauma Hyphema	Early recognition of red-flag symptoms such as: Painful vs painless loss of vision Sudden floaters or flashes Severe ocular pain with halos Trauma history Post-surgical infection is essential for timely referral and prevention of permanent visual disability. This module equips students with competencies in emergency triage, focused ocular examination, differential diagnosis, immediate management principles, and referral decision-making.	<ul style="list-style-type: none"> <li>• Interpret basic investigations (IOP measurement, fundoscopy findings, B-scan, OCT) with minimum 75% accuracy.</li> <li>• Outline first-line emergency management for common causes of sudden visual loss.</li> <li>• Demonstrate professional communication and counseling in emergency settings.</li> </ul>
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Code	Topic	Learning objectives At the end of the lecture the student should be able to	Learning domain	Teaching strategy	Assessment tool
M1-OPH-001	Approach to Sudden Loss of Vision	<ul style="list-style-type: none"> <li>• Classify sudden visual loss into painful vs painless causes</li> <li>• Develop a stepwise emergency evaluation algorithm</li> <li>• Identify red-flag signs requiring urgent referral</li> <li>• Formulate differential diagnosis using clinical clues</li> <li>• Correlate ocular findings with systemic emergencies</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
M1-OPH-002	Retinal Vascular Occlusions (CRAO, CRVO)	<ul style="list-style-type: none"> <li>• Differentiate CRAO and CRVO clinically</li> <li>• Describe fundoscopic findings and OCT features</li> <li>• Explain pathophysiology and systemic associations (HTN, diabetes, embolism)</li> <li>• Outline emergency management protocol</li> <li>• Plan systemic evaluation and stroke workup</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
M1-OPH-003	Retinal Detachment	<ul style="list-style-type: none"> <li>• Define and classify retinal detachment (rhegmatogenous, tractional, exudative)</li> <li>• Describe warning symptoms (flashes, floaters, curtain)</li> <li>• Interpret clinical and B-scan findings</li> <li>• Outline urgent referral and management options</li> <li>• Discuss prognosis based on macular involvement</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
M1-OPH-004	Acute Angle-Closure Glaucoma	<ul style="list-style-type: none"> <li>• Explain mechanism of angle closure</li> <li>• Recognize classical clinical presentation</li> <li>• Differentiate from other painful red eye conditions</li> <li>• Outline stepwise emergency management</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE

		<ul style="list-style-type: none"> <li>• Discuss definitive management (laser PI) and prevention</li> </ul>			
<b>M1-OPH-005</b>	Optic Neuritis & Neuro-Ophthalmic Causes of Sudden Vision Loss	<ul style="list-style-type: none"> <li>• Define optic neuritis and identify typical clinical features</li> <li>• Explain RAPD and visual field defects</li> <li>• Correlate optic neuritis with multiple sclerosis</li> <li>• Outline investigations (MRI, VEP)</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
<b>M1-OPH-006</b>	Ischemic Optic Neuropathy (Arteritic & Non-Arteritic)	<ul style="list-style-type: none"> <li>• Differentiate arteritic vs non-arteritic anterior ischemic optic neuropathy</li> <li>• Identify red-flag features of giant cell arteritis</li> <li>• Describe fundoscopic findings (pale disc edema vs hyperemic disc)</li> <li>• Outline urgent investigations (ESR, CRP, temporal artery biopsy)</li> <li>• Develop emergency management plan to prevent fellow eye involvement</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
<b>M1-OPH-007</b>	Ocular Trauma Leading to Sudden Vision Loss	<ul style="list-style-type: none"> <li>• Describe treatment protocol and prognosis</li> </ul>			
<b>M1-OPH-007</b>	Ocular Trauma Leading to Sudden Vision Loss	<ul style="list-style-type: none"> <li>• Classify mechanical ocular trauma</li> <li>• Recognize vision-threatening complications (hyphema, globe rupture, RD)</li> <li>• Outline immediate emergency management</li> <li>• Identify indications for urgent surgical referral</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
<b>M1-OPH-008</b>	Uveitis as a Cause of Sudden Vision Loss (Anterior, Intermediate, Posterior & Panuveitis)	<ul style="list-style-type: none"> <li>• Correlate with systemic vascular risk factors</li> <li>• Discuss medico-legal considerations</li> </ul>			
<b>M1-OPH-008</b>	Uveitis as a Cause of Sudden Vision Loss (Anterior, Intermediate, Posterior & Panuveitis)	<ul style="list-style-type: none"> <li>• Define uveitis and classify it anatomically (anterior, intermediate, posterior, panuveitis)</li> <li>• Differentiate granulomatous and non-granulomatous uveitis clinically</li> <li>• Recognize causes of sudden visual loss in uveitis (macular edema, vitritis, retinal vasculitis, optic disc edema)</li> <li>• Identify classical clinical signs (cells &amp; flare, keratic precipitates, hypopyon, posterior synechiae)</li> <li>• Describe systemic associations (HLA-B27 disease, tuberculosis, sarcoidosis, autoimmune disorders)</li> <li>• Outline appropriate investigations including laboratory and imaging workup</li> <li>• Develop a stepwise management plan (topical, periocular, systemic steroids, immunomodulators)</li> <li>• Identify complications (cataract, secondary glaucoma, macular edema, band keratopathy)</li> <li>• Formulate referral strategy and multidisciplinary coordination</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE

## TRANS DISCIPLINARY CLINICAL REASONING FORUM (TCRF)

Theme	Week	Topics	
Theme 2	Week 2	Retinal Detachment, Acute Glaucoma, CRAO, Trauma	"A 60-year-old man with sudden painless loss of vision"

### "Managing Sudden Painless Loss Of Vision In A Hypertensive Patient"

#### Clinical Scenario:

A 60-year-old hypertensive male presents with sudden painless loss of vision in the right eye for 3 hours On examination:

- Visual acuity: Counting fingers
- RAPD positive
- Fundus: Pale retina with cherry red spot
- IOP Normal

## Student Task (Problem-Based Trigger)

Students are asked to:

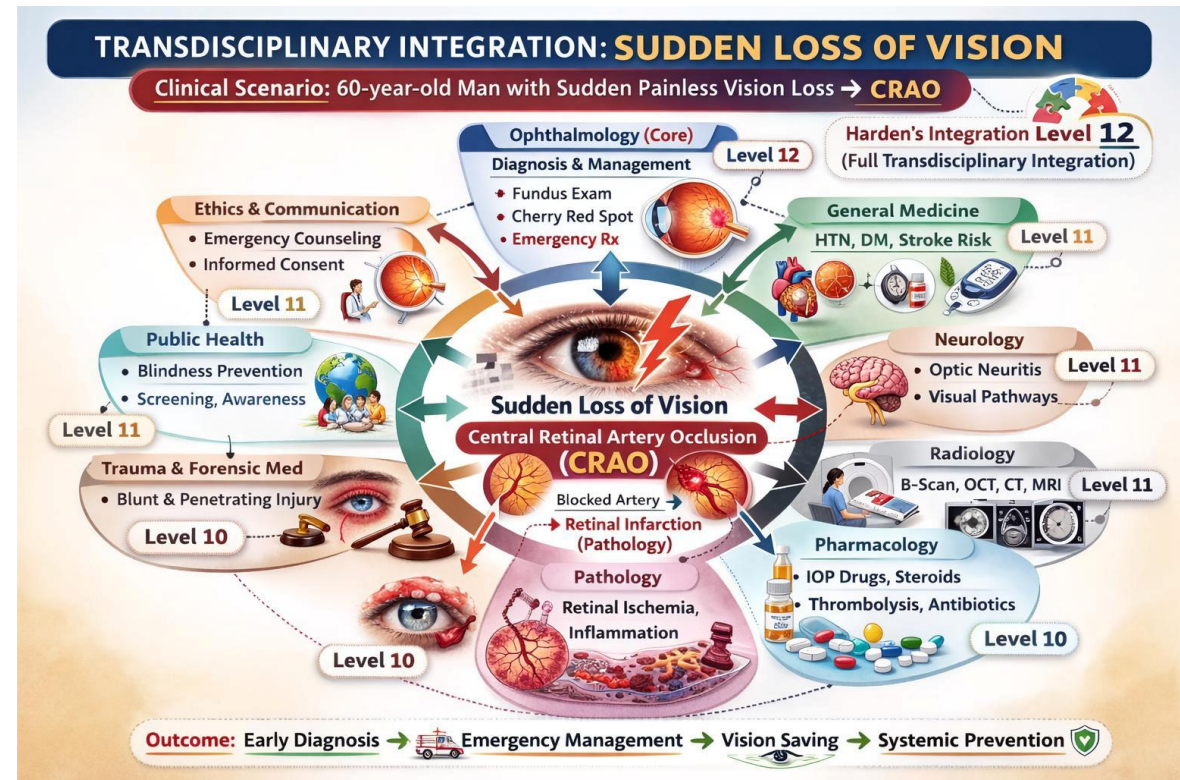
- Identify likely diagnosis
- Explain pathophysiology
- Differentiate from CRVO and retinal detachment
- Outline emergency management
- Identify systemic associations
- Suggest preventive strategies

## What Makes This RMU level 12?

- Knowledge embedded in reasoning
- Organizing principle = patient problem
- Mimics authentic clinical decision-making

## Students integrate:

- Anatomy
- Ophthalmology
- Medicine (Hypertension, Diabetes)
- Neurology
- Radiology
- Pharmacology
- Public Health



But none are taught separately.

Teaching Format

- Small group facilitated learning
- Emergency-based case simulation
- Cross-disciplinary faculty discussion
- Assessment based on clinical reasoning and decision making

**- Academic Justification Statement**

**“The case has been designed to reflect RMU level 12 (transdisciplinary integration), where learning is structured around authentic patient problems rather than disciplinary categories. Knowledge from biomedical, clinical, and public health domains is integrated seamlessly within professional practice.”**

**SUBJECT CONTRIBUTION IN TRANS DISCIPLINARY CLINICAL REASONING FORUM -2**

Subject / Discipline	Nature of Contribution	Approximate Integration Weight (%)	Rationale for Weight
<b>Ophthalmology</b>	Core diagnostic reasoning, emergency recognition & ocular management	35%	Organizing discipline

<b>General Medicine</b>	Systemic associations (HTN, DM, autoimmune, stroke risk)	20%	Major systemic driver
<b>Neurology</b>	Optic neuritis, vascular events, neuro-visual pathways	10%	Neuro-visual integration
<b>Radiology</b>	B-scan, OCT, CT orbit, MRI brain interpretation	10%	Confirms diagnosis
<b>Pharmacology</b>	Emergency drugs (IOP lowering, steroids, antibiotics)	10%	Acute therapeutic planning
<b>Pathology</b>	Vascular occlusion, inflammatory mechanisms	5%	Mechanistic understanding
<b>Forensic Medicine</b>	Ocular trauma documentation & medico-legal aspects 5% Legal implications	5%	Legal implications
<b>Public Health</b>	Prevention of avoidable blindness	3%	Community relevance
<b>Ethics and Communication</b>	Emergency counseling & consent	2%	Professional component

### SUBJECT-WISE SPECIFIC LEARNING OBJECTIVES-2

Subject	Domain	Specific Learning Objectives (Students will be able to...)	Bloom's Level	Integration Role
<b>Ophthalmology</b>	<b>Clinical Skills &amp; Emergency Reasoning</b>	Differentiate painful vs painless sudden loss of vision	Analyze	Core organizing discipline

		Recognize fundus findings of retinal vascular occlusions	Analyze	
		Identify features of Retinal Detachment	Analyze	
		Recognize clinical presentation of Acute Angle-Closure Glaucoma	Analyze	
		Formulate emergency management plan	Evaluate	
		Identify red-flag features requiring urgent referral	Evaluate	
<b>General Medicine</b>	<b>Systemic Integration</b>	Explain relationship of hypertension & diabetes with retinal vascular occlusions	Understand	Systemic Driver
		Outline systemic workup after Central Retinal Artery Occlusion	Analyze	
		Propose stroke risk assessment & prevention strategies	Apply	
<b>Neurology</b>	<b>Explain pathophysiology of Optic Neuritis Correlate visual pathway lesions with symptoms</b>	Explain pathophysiology of Optic Neuritis	Understand	Neuro-Visual Integration Support
		Correlate visual pathway lesions with clinical findings	Analyze	
<b>Radiology</b>	<b>Interpret B-scan in vitreous hemorrhage Interpret OCT in retinal pathology Identify CT findings in trauma</b>	Interpret B-scan findings in vitreous hemorrhage	Analyze	Diagnostic Confirmation Support
		Interpret OCT in macular pathology	Analyze	
		Identify CT orbit findings in trauma	Analyze	
<b>Pharmacology</b>	<b>Apply emergency drugs in Acute Angle-Closure Glaucoma Analyze rationale of steroids in optic neuritis Select intravitreal antibiotics in Endophthalmitis</b>	Outline emergency drugs in acute glaucoma	Apply	Therapeutic Planning Support
		Explain rationale of steroids in optic neuritis	Analyze	
		Identify intravitreal antibiotic indications in Endophthalmitis	Analyze	
<b>Pathology</b>	<b>Explain ischemic retinal changes in CRAO Describe inflammatory mechanisms in uveitis</b>	Explain ischemic necrosis of inner retinal layers in Central Retinal Artery Occlusion	Analyze	Mechanistic Foundation
		Describe venous stasis and hemorrhagic infarction in Central Retinal Vein Occlusion	Analyze	
		Correlate retinal whitening and cherry red spot with inner retinal infarction	Understand	

		Explain role of atherosclerosis and emboli formatio	Understand	
<b>Forensic Medicine</b>	<b>Document ocular trauma correctly Understand medico-legal implications of penetrating injuries</b>	Document ocular trauma correctly	Apply	Legal & Professional Extension
		Explain medico-legal implications of penetrating injuries	Understand	
<b>Public Health</b>	<b>Propose prevention of avoidable blindness Develop screening strategies for diabetic retinopathy</b>	Propose strategies for prevention of avoidable blindness	Create	Community & Preventive Extension
		Outline diabetic retinopathy screening relevance	Apply	
<b>Ethics &amp; Communication</b>	<b>Counsel patients with irreversible visual loss empathetically Communicate urgency without causing panic</b>	Counsel patient with irreversible visual loss empathetically	Apply	Professional Practice Integration
		Obtain informed consent in emergency procedures	Apply	

Theme	Rationale	General learning objectives (SMART)
<b>Refractive errors:</b> <b>Myopia,</b> <b>Hypermetropia,</b> <b>Astigmatism,</b> <b>Presbyopia</b> <b>Dry eye syndrome</b> <b>Keratoconus</b> <b>Corneal dystrophies</b> <b>Cataract</b> <b>Retinal dystrophies &amp; degenerations (RP, AMD, myopic degeneration)</b> <b>Diabetic retinopathy</b>	<p>Gradual loss of vision represents one of the most common and clinically significant presentations in ophthalmology. Unlike acute visual loss, gradual decline is often painless and insidious, leading to delayed consultation and irreversible visual damage.</p> <p>These conditions range from refractive errors to chronic progressive disorders affecting the cornea, lens, retina, optic nerve, and ocular surface. Many are preventable or treatable if detected early, while others require long-term monitoring to prevent permanent blindness.</p> <p>In 4th year MBBS, students must transition from recognizing symptoms to identifying anatomical location of pathology (cornea, lens, retina, optic nerve), differentiating reversible from</p>	<p>By the end of the Gradual Loss of Vision module, the 4th year MBBS student will be able to:</p> <ul style="list-style-type: none"> <li>• Describe anatomical basis of gradual visual loss with at least 80% accuracy in written/viva examination.</li> <li>• Differentiate refractive, corneal, lenticular, retinal, and optic nerve causes based on clinical presentation.</li> <li>• Perform visual acuity assessment, pinhole test, basic refraction screening, and fundus examination correctly in at least 3 out of 4 observed encounters.</li> <li>• Interpret basic investigations (IOP measurement, OCT concept, visual field defects, fundus photographs) with minimum 75% accuracy.</li> </ul>

<b>Hypertensive retinopathy</b> <b>Macular edema</b> <b>Primary open-angle glaucoma</b> <b>Chronic angle-closure glaucoma</b> <b>Secondary glaucoma (including lens-induced)</b> <b>Congenital glaucoma</b> <b>Chronic optic neuropathies</b> <b>Papilledema</b> <b>Amblyopia</b> <b>Trachoma</b>	<p>irreversible causes, and identifying red-flag features requiring urgent referral.</p> <p>Teaching this theme integrates optics (refractive errors), corneal pathology, lens changes, retinal degeneration, systemic diseases (diabetes, hypertension), neuro-ophthalmology, pediatrics (amblyopia, congenital glaucoma), infectious disease (trachoma), and public health (screening and prevention).</p> <p>Early detection of glaucoma, diabetic retinopathy, macular edema, papilledema, and optic neuropathies is essential to prevent permanent blindness.</p> <p>Inclusion of this theme equips students with competencies in visual acuity assessment, refraction basics, slit-lamp findings, fundus interpretation, visual field awareness, red-flag recognition, patient counseling, and preventive strategies.</p>	<ul style="list-style-type: none"> <li>• Identify red-flag features requiring urgent referral (acute glaucoma, papilledema, proliferative diabetic retinopathy, macular edema, optic neuropathy).</li> <li>• Outline first-line management and preventive strategies for common causes of gradual vision loss.</li> <li>• Demonstrate empathetic communication while counseling patients regarding chronic visual impairment and long-term follow-up.</li> </ul>
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Code	Topic	Learning objectives	Learning domain	Teaching strategy	Assessment tool
M1-OPH-001	Refractive Errors (Myopia, Hypermetropia, Astigmatism, Presbyopia)	At the end of the lecture the student should be able to  Define types of refractive errors Explain optical principles and image formation Perform visual acuity assessment & pinhole test Outline correction (spectacles, contact lenses, refractive surgery basics)	C1 C2 C3	LGIS	SAQ MCQ OSCE
M1-OPH-002	Dry Eye Syndrome	<ul style="list-style-type: none"> <li>• Define ptosis and classify types</li> <li>• Describe clinical features and investigations</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE

		<ul style="list-style-type: none"> <li>• Pen down management plan</li> </ul>			
M1-OPH-003	Keratoconus	<ul style="list-style-type: none"> <li>• Differentiate benign and malignant lid lesions</li> <li>• Describe clinical features, diagnosis and investigations</li> <li>• Outline management plan</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
M1-OPH-004	Corneal Dystrophies	<ul style="list-style-type: none"> <li>• Define ectropion and entropion</li> <li>• Describe etiology, clinical features, complications</li> <li>• Pen down management plan</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
M1-OPH-005	Cataract	<ul style="list-style-type: none"> <li>• Define proptosis and enumerate causes</li> <li>• Describe clinical features and investigations</li> <li>• Outline management plan</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
M1-OPH-006	Retinal Dystrophies & Degeneration	<ul style="list-style-type: none"> <li>• Define blow-out fracture</li> <li>• Describe clinical features and imaging findings</li> <li>• Outline management principles</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
M1-OPH-007	Diabetic Retinopathy	<ul style="list-style-type: none"> <li>• Define hemangioma and neurofibroma</li> <li>• Describe clinical features and systemic associations</li> <li>• Outline management</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
M1-OPH-008	Hypertensive Retinopathy & Macular Edema	<ul style="list-style-type: none"> <li>• Define esotropia and exotropia</li> <li>• Demonstrate cover test and motility examination</li> <li>• Outline management principles</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE

M1-OPH-009	Primary Open-Angle & Chronic Angle-Closure Glaucoma	<ul style="list-style-type: none"> <li>Describe non-surgical management</li> <li>Explain surgical principles</li> <li>Discuss indications and complications</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
M1-OPH-010	Secondary & Congenital Glaucoma	Define types of secondary glaucoma Describe congenital glaucoma features Outline management principles	C1 C2 C3	LGIS	SAQ MCQ OSCE
M1-OPH-011	Chronic Optic Neuropathies & Papilledema	Differentiate optic atrophy & papilledema Interpret visual field defects Outline referral strategy	C1 C2 C3	LGIS	SAQ MCQ OSCE
M1-OPH-012	Amblyopia	Define amblyopia & types Describe screening methods Outline management principles	C1 C2 C3	LGIS	SAQ MCQ OSCE
M1-OPH-013	Trachoma	Define trachoma Describe WHO grading Explain SAFE strategy	C1 C2 C3	LGIS	SAQ MCQ OSCE

## TRANS DISCIPLINARY CLINICAL REASONING FORUM (TCRF)

Theme	Week	Topics	Clinical Case Scenario
Theme 1	Week 1	Cataract, Diabetic Retinopathy, Glaucoma	Elderly diabetic male with progressive painless visual loss

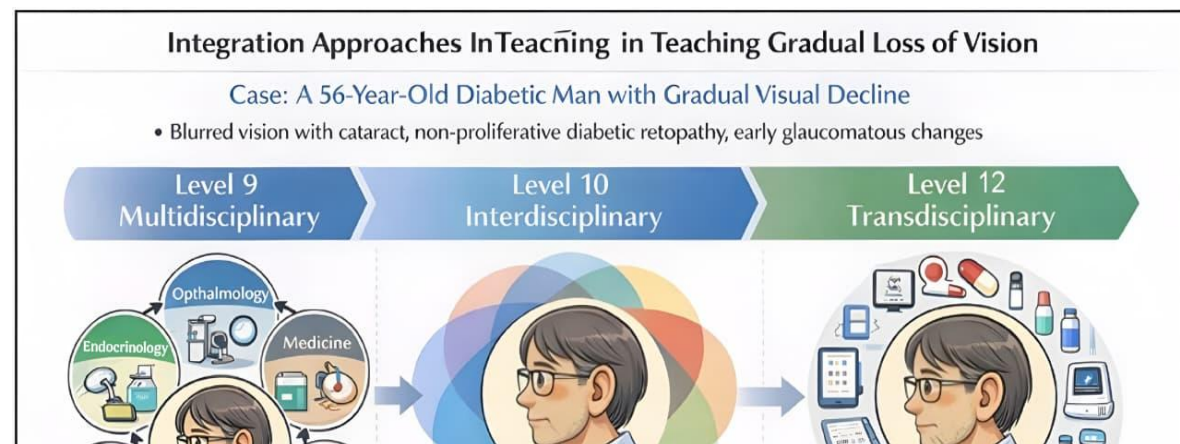
### “Managing Progressive Painless Visual Decline in a Middle-Aged Diabetic Patient”

### Clinical Scenario:

A 55-year-old man presents with gradually progressive painless diminution of vision over 3 years. He is a known case of diabetes mellitus and hypertension for 12 years.

Examination reveals:

- Visual acuity 6/36
- IOP 23 mmHg
- Nuclear sclerosis
- Fundus: microaneurysms, hard exudates near macula
- Cup-disc ratio 0.7



## **Student Task (Problem-Based Trigger)**

Students are asked to:

1. Localize site(s) of pathology (lens, retina, optic nerve).
2. Differentiate cataract vs glaucoma vs diabetic retinopathy as primary cause.
3. Interpret fundus findings and OCT conceptually.
4. Develop comprehensive management plan.
5. Identify red-flag features requiring urgent referral.
6. Counsel regarding systemic control and long-term follow-up.

Suggest long-term screening and follow-up strategies.

## **What Makes This RMU level 12?**

- Knowledge embedded in reasoning
- Organizing principle patient problem
- Mimics authentic clinical decision-making

## **Students integrate:**

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- Ophthalmology
- Pathology
- Endocrinology
- Pharmacology
- Public health

- Surgery
- Ethics & communication

But none are taught separately.

Teaching Format

- ● Small group facilitated learning
- ● Faculty from different backgrounds present but not teaching in SLOs.
- ● Students build the care pathway themselves
- ● Assessment based on competence and clinical reasoning

**Academic Justification Statement**

“The case has been designed to reflect RMU level 12 (transdisciplinary integration), where learning is structured around authentic patient problems rather than disciplinary categories. Knowledge from biomedical, clinical, and public health domains is integrated seamlessly within professional practice.”

**SUBJECT CONTRIBUTION IN TRANS DISCIPLINARY CLINICAL REASONING FORUM -3**

Nature of Contribution	Approx. Weight (%)	Additional Integration
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<b>Ophthalmology</b>	Core diagnosis & procedural planning	70%	Visual acuity, fundus, IOP interpretation
<b>Pathology</b>	Microangiopathy & optic nerve degeneration	9%	Explains disease mechanisms
<b>Pharmacology</b>	Anti-VEGF, anti-glaucoma drugs, steroids	10%	Therapeutic integration
<b>Community Medicine</b>	Screening programs (DR, glaucoma, refractive errors)	10%	Public health blindness prevention
<b>Ethics &amp; Communication</b>	Chronic disease counseling	1%	Patient-centered care

**SUBJECT-WISE SPECIFIC LEARNING OBJECTIVES-3**

<b>Subject</b>	<b>Domain</b>	<b>Specific Learning Objectives</b>	<b>Bloom's Level</b>	<b>Integration Role</b>
<b>Ophthalmology</b>	Clinical Reasoning	Differentiate corneal, lenticular, retinal & optic nerve causes of gradual vision loss	Analyze	Core organizing discipline
	Clinical Skills	Perform visual acuity, IOP measurement & fundus examination	Apply	
	Management	Formulate integrated management plan	Evaluate	

<b>Pharmacology</b>	Therapeutics	Outline anti-VEGF, anti-glaucoma, lubricants & steroid therapy	Apply	Treatment planning
<b>Pathology</b>	Mechanistic Understanding	Describe degenerative retinal & optic nerve changes	Understand	Explains severity
<b>Community Medicine</b>	Prevention	Propose blindness prevention screening strategies	Apply	Public health extension
<b>Ethics &amp; Communication</b>	Professional Practice	Counsel patient regarding chronic progressive visual loss	Apply	Patient-centered care

Theme	Rationale	General learning objectives (SMART)			
<p><b>Ptosis</b>  <b>Non-neoplastic &amp; neoplastic lid mass</b>  <b>Ectropion / Entropion</b>  <b>Proptosis</b>  <b>Thyroid eye disease</b>  <b>Blow-out fracture</b>  <b>Haemangioma</b>  <b>Neurofibroma</b>  <b>Esotropia</b>  <b>Exotropia</b>  <b>Principles of strabismus management</b></p>	<p>Disorders affecting eyelids, orbit and ocular alignment significantly impact both vision and facial aesthetics. These conditions may cause visual obstruction, diplopia, exposure keratopathy, cosmetic disfigurement, psychological distress, and in severe cases, permanent visual loss.</p> <p>In 4th year MBBS, students transition from theoretical ophthalmology to clinical reasoning. Teaching oculo-aesthetic disorders enables integration of anatomy (orbit, extraocular muscles), physiology (ocular motility), pathology (tumors, inflammation), endocrinology (thyroid eye disease), trauma (orbital fractures), pediatrics (hemangioma, strabismus), and reconstructive principles into patient-centered decision making.</p> <p>Early recognition of red-flag signs such as rapidly progressive proptosis, compressive optic neuropathy, malignant eyelid lesions, orbital fractures with muscle entrapment, and restrictive strabismus is essential for timely referral and prevention of permanent morbidity.</p> <p>Inclusion of these disorders equips students with competencies in clinical examination, diagnostic reasoning, emergency recognition, referral decisions, cosmetic counseling, and multidisciplinary management.</p>	<ul style="list-style-type: none"> <li>● By the end of the Oculo-Aesthetic module, the 4th year MBBS student will be able to:                             <ul style="list-style-type: none"> <li>● Describe applied anatomy of eyelids, orbit and extraocular muscles with at least 80% accuracy in written/viva examination.</li> <li>● Explain etiology, pathophysiology and clinical features of ptosis, lid masses, proptosis, thyroid eye disease, orbital trauma and strabismus during structured discussions.</li> </ul> </li> <li>● Perform focused external ocular examination including lid assessment, ocular motility testing and cover test correctly in at least 3 out of 4 observed encounters.                             <ul style="list-style-type: none"> <li>● Interpret basic orbital imaging (CT orbit) with minimum 75% accuracy in assessment.</li> </ul> </li> <li>● Identify red-flag features requiring urgent referral (optic nerve compression, orbital fracture entrapment, malignant lesions).                             <ul style="list-style-type: none"> <li>● Outline first-line management and indications for surgical intervention.</li> </ul> </li> <li>● Demonstrate professional and empathetic communication while addressing cosmetic concerns..</li> </ul>			
Code	Topic	Learning objectives	Learning domain	Teaching strategy	Assessment tool
		<p>At the end of the lecture the student should be able to</p>			

<b>M1-OPH-001</b>	Applied Anatomy of Eyelids & Orbit	<ul style="list-style-type: none"> <li>• Define components of eyelids and orbit</li> <li>• Describe extraocular muscles and their actions</li> <li>• Explain anatomical basis of ptosis and proptosis</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
<b>M1-OPH-002</b>	Ptosis	<ul style="list-style-type: none"> <li>• Define ptosis and classify types</li> <li>• Describe clinical features and investigations</li> <li>• Pen down management plan</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
<b>M1-OPH-003</b>	Eyelid Masses (Benign & Malignant)	<ul style="list-style-type: none"> <li>• Differentiate benign and malignant lid lesions</li> <li>• Describe clinical features, diagnosis and investigations</li> <li>• Outline management plan</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
<b>M1-OPH-004</b>	Ectropion / Entropion	<ul style="list-style-type: none"> <li>• Define ectropion and entropion</li> <li>• Describe etiology, clinical features, complications</li> <li>• Pen down management plan</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
<b>M1-OPH-005</b>	Proptosis & Thyroid Eye Disease	<ul style="list-style-type: none"> <li>• Define proptosis and enumerate causes</li> <li>• Describe clinical features and investigations</li> <li>• Outline management plan</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
<b>M1-OPH-006</b>	Orbital Blow-Out Fracture	<ul style="list-style-type: none"> <li>• Define blow-out fracture</li> <li>• Describe clinical features and imaging findings</li> <li>• Outline management principles</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
<b>M1-OPH-007</b>	Hemangioma & Neurofibroma	<ul style="list-style-type: none"> <li>• Define hemangioma and neurofibroma</li> <li>• Describe clinical features and systemic associations</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE

		<ul style="list-style-type: none"> <li>• Outline management</li> </ul>			
<b>M1-OPH-008</b>	Esotropia & Exotropia	<ul style="list-style-type: none"> <li>• Define esotropia and exotropia</li> </ul> Demonstrate cover test and motility examination Outline management principles	C1 C2 C3	LGIS	SAQ MCQ OSCE
<b>M1-OPH-009</b>	Principles of Strabismus Management	<ul style="list-style-type: none"> <li>• Describe non-surgical management</li> <li>• Explain surgical principles</li> </ul> <ul style="list-style-type: none"> <li>• Discuss indications and complications</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE

**TRANS DISCIPLINARY CLINICAL REASONING FORUM (TCRF)**

Theme	Week	Topics	Clinical Case Scenario
Theme 4	Week 4	Proptosis, Thyroid Eye Disease, Diplopia	A young female with progressive proptosis and diplopia

**“Managing Progressive Proptosis in a Young Female”**

**Clinical Scenario:**

A 32-year-old woman presents with bilateral progressive prominence of eyes for 6 months. She complains of diplopia on upward gaze and difficulty closing eyelids at night. She reports weight loss, palpitations and heat intolerance. On examination:

- Bilateral proptosis
- Lid retraction
- Restricted upward gaze
- Mild conjunctival congestion
- CT orbit shows enlargement of extraocular muscles sparing tendons. Thyroid function tests reveal hyperthyroidism.

### **Student Task (Problem-Based Trigger)**

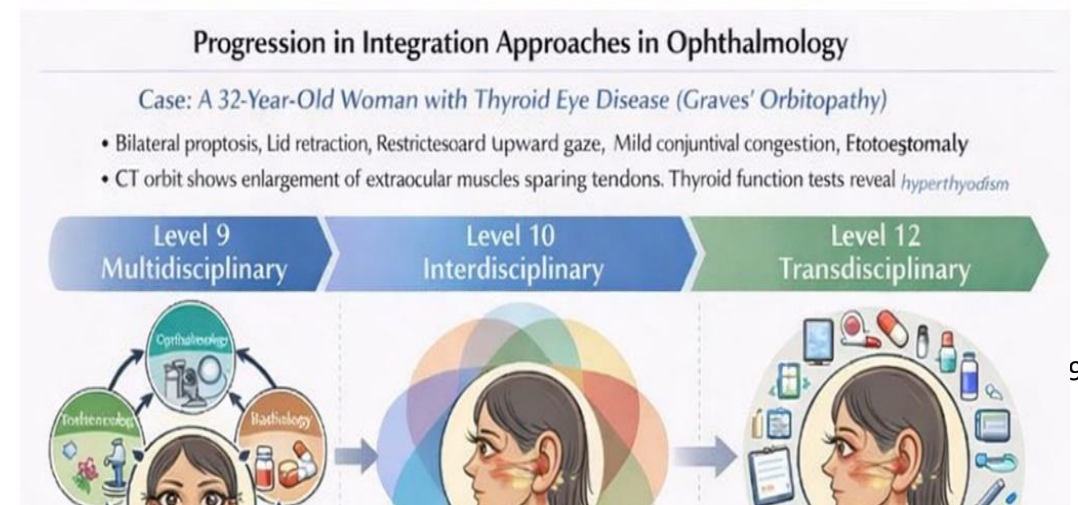
Students are asked to:

1. Identify key clinical concerns.
2. Explain pathophysiological basis of proptosis.
3. Interpret imaging findings.
4. Develop comprehensive management plan.
5. Identify red-flag signs of optic nerve compression.
6. Counsel patient regarding cosmetic and systemic implications.

Suggest preventive and long-term follow-up strategies.

### **What Makes This RMU level 12?**

- Knowledge embedded in reasoning
- Organizing principle = patient problem
- Mimics authentic clinical decision-making



## **Students integrate:**

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- Anatomy
- Endocrinology
- Radiology
- Pharmacology
- Surgery
- Ethics & communication
- Public health

But none are taught separately.

### **Teaching Format**

- Small group facilitated learning
- Faculty from different backgrounds present but not teaching in silos
- Students build the care pathway themselves
- Assessment based on competence and clinical reasoning

### **Academic Justification Statement**

**“The case has been designed to reflect RMU level 12 (transdisciplinary integration), where learning is structured around authentic patient problems rather than disciplinary categories. Knowledge from biomedical, clinical, and public health domains is integrated seamlessly within professional practice.”**

Subject / Discipline	Nature of Contribution	Approximate Integration Weight (%)	Rationale for Weight
<b>Ophthalmology</b>	Core diagnostic reasoning & management	70%	Organizing discipline
<b>Pathophysiology</b>	Autoimmune inflammation mechanism	10%	Explains severity
<b>Pharmacology</b>	Steroids & antithyroid therapy	10%	Therapeutic planning
<b>Public Health</b>	Thyroid screening awareness	7%	Preventive aspect
<b>Ethics &amp; Communication</b>	Cosmetic counseling	3%	Professional component

#### **SUBJECT-WISE SPECIFIC LEARNING OBJECTIVES-4**

Subject	Domain	Specific Learning Objectives (Students will be able to...)	Bloom's Level	Integration Role
Ophthalmology	Clinical Skills & Reasoning	Recognize clinical features suggestive of thyroid eye disease and sight-threatening orbitopathy	Analyze	Core organizing discipline

		Differentiate benign from malignant eyelid lesions based on clinical findings	Analyze	
		Perform external ocular examination including lid assessment and ocular motility testing	Apply	
		Formulate comprehensive ophthalmic management plan including medical and surgical options	Evaluate	
		Identify indications for urgent referral (optic nerve compression, muscle entrapment, malignant lesions)	Evaluate	
		Interpret thyroid function tests in relation to ocular findings	Analyze	
		Outline systemic disease control strategies to prevent progression of orbitopathy	Apply	
Pathophysiology	Mechanistic Understanding	Describe pathogenesis of autoimmune orbital inflammation	Understand	Explains severity
Pharmacology	Therapeutics	Outline appropriate medical therapy (steroids, immunomodulators, antithyroid drugs)	Apply	Management planning
		Explain rationale for immunosuppressive therapy in active disease	Analyze	
		Identify potential adverse effects and drug interactions	Analyze	
		Explain facial nerve course relevant to this case	Understand	
Public Health	Prevention	Propose preventive strategies for early detection of thyroid disease and ocular complications	Apply	Community extension
		Suggest community-level awareness programs for childhood strabismus screening	Create	
Ethics & Communication	Professional Practice	Counsel patient regarding cosmetic impact and treatment expectations empathetically	Apply	Patient-centered care
		Communicate long-term follow-up and multidisciplinary care plan effectively	Apply	

Theme	Rationale	General learning objectives (SMART)
<ul style="list-style-type: none"> <li>- Dry eye syndrome</li> <li>- Blepharitis</li> <li>- Infective conjunctivitis</li> <li>- Allergic conjunctivitis</li> <li>- Congenital NLDO</li> <li>- Acute dacryocystitis</li> <li>- Chronic dacryocystitis</li> </ul>	<p>Epiphora is a common presenting complaint in ophthalmic practice and may arise from ocular surface irritation, eyelid malposition, or lacrimal drainage obstruction. Teaching disorders causing watery eye allows students to integrate applied anatomy of the lacrimal system and eyelids, physiology of tear production and drainage, pathology of inflammation and infection, microbiology of conjunctival and lacrimal disease, pediatric aspects of congenital obstruction, and oculoplastic surgical principles into patient-centered clinical reasoning.</p> <p>In 4th year MBBS, students transition from theoretical ophthalmology to clinical reasoning. Teaching disorders presenting with watery eye enables integration of anatomy (lacrimal drainage</p>	<p>By the end of this theme, the student will be able to:</p> <ul style="list-style-type: none"> <li>* Describe tear production and lacrimal drainage physiology</li> <li>* Classify causes of epiphora into reflex tearing, obstruction, infection, and eyelid malposition</li> <li>* Perform focused examination including tear meniscus assessment and lacrimal sac regurgitation test</li> <li>* Differentiate congenital from acquired lacrimal obstruction</li> <li>* Recognize emergency presentations requiring urgent referral</li> <li>* Outline appropriate medical and surgical management option</li> </ul>

<p>- Ectropion - Entropion</p>	<p>system, eyelids, ocular surface), physiology (tear production and drainage), pathology (inflammation, obstruction, infection), microbiology (conjunctival and lacrimal infections), pediatrics (congenital nasolacrimal duct obstruction), and oculoplastic principles into patient-centered decision making.</p> <p>Early recognition of red-flag conditions such as acute dacryocystitis, persistent congenital obstruction, eyelid malpositions causing corneal damage, and chronic lacrimal infection is essential for timely referral and prevention of visual morbidity and systemic spread of infection</p> <p>To enable students to approach watery eye as a clinical problem requiring anatomical understanding, diagnostic reasoning, and patient-centered management rather than isolated theoretical knowledge.</p>	
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Code	Topic	Learning objectives At the end of the lecture the student should be able to	Learning domain	Teaching strategy	Assessment tool
M1-OPH-001	Tear Physiology and Drainage	<ul style="list-style-type: none"> <li>Describe tear film formation and drainage pathway</li> <li>Describe lacrimal pump mechanism and tear drainage pathway</li> <li>Relate physiology to epiphora and dry eye pathophysiology</li> </ul>	C1 C2 C3	Interactive Lecture	MCQ
M1-OPH-002	Anatomy of Lacrimal System	<ul style="list-style-type: none"> <li>Describe anatomy of lacrimal drainage system</li> <li>Explain anatomical basis of lacrimal obstruction</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE

		<ul style="list-style-type: none"> <li>• Relate tear physiology to aqueous-deficient and evaporative dry eye</li> </ul>			
<b>M1-OPH-003</b>	Epiphora and Lacrimal Obstruction	<ul style="list-style-type: none"> <li>• Define epiphora and classify causes (obstructive vs hydrosecretory)</li> <li>• Recognize clinical features of congenital and acquired obstruction</li> <li>• Outline conservative management and indications for probing</li> </ul>	C2 C3 C2	Small group teaching	Viva /OSCE Long Case
<b>M1-OPH-004</b>	Acute and Chronic Dacryocystitis	<ul style="list-style-type: none"> <li>• Describe etiopathogenesis</li> <li>• Recognize complications</li> <li>• Outline medical and surgical management</li> </ul>	C2 C3 C2	Problem based learning  LGIS	MCQ OSCE
<b>M1-OPH-005</b>	Dry Eye Syndrome – Clinical Features, Diagnosis and Management	<ul style="list-style-type: none"> <li>• Recognize symptoms and signs of dry eye syndrome</li> <li>• Perform diagnostic evaluation (Schirmer test, tear breakup time, ocular surface staining, meibomian gland assessment)</li> <li>• Use symptom questionnaires (e.g., OSDI)</li> <li>• Outline medical, procedural, and surgical management of DES</li> </ul>	C3 C3  C3 C2	Bedside demo	SAQ

## TRANS DISCIPLINARY CLINICAL REASONING FORUM (TCRF)

Theme	Week	Topics	Clinical Case Scenario
Theme 5	Week 1	Watery Eye, Lacrimal Drainage Disorders, Eyelid Malposition, Ocular Surface Disease	A middle aged woman with watering from left eye

### “Why is this Eye Watering?” – Integrating Causes of Epiphora”

#### Clinical Scenario:

A 55-year-old woman presents with watering from her left eye for the past 5 months. She r

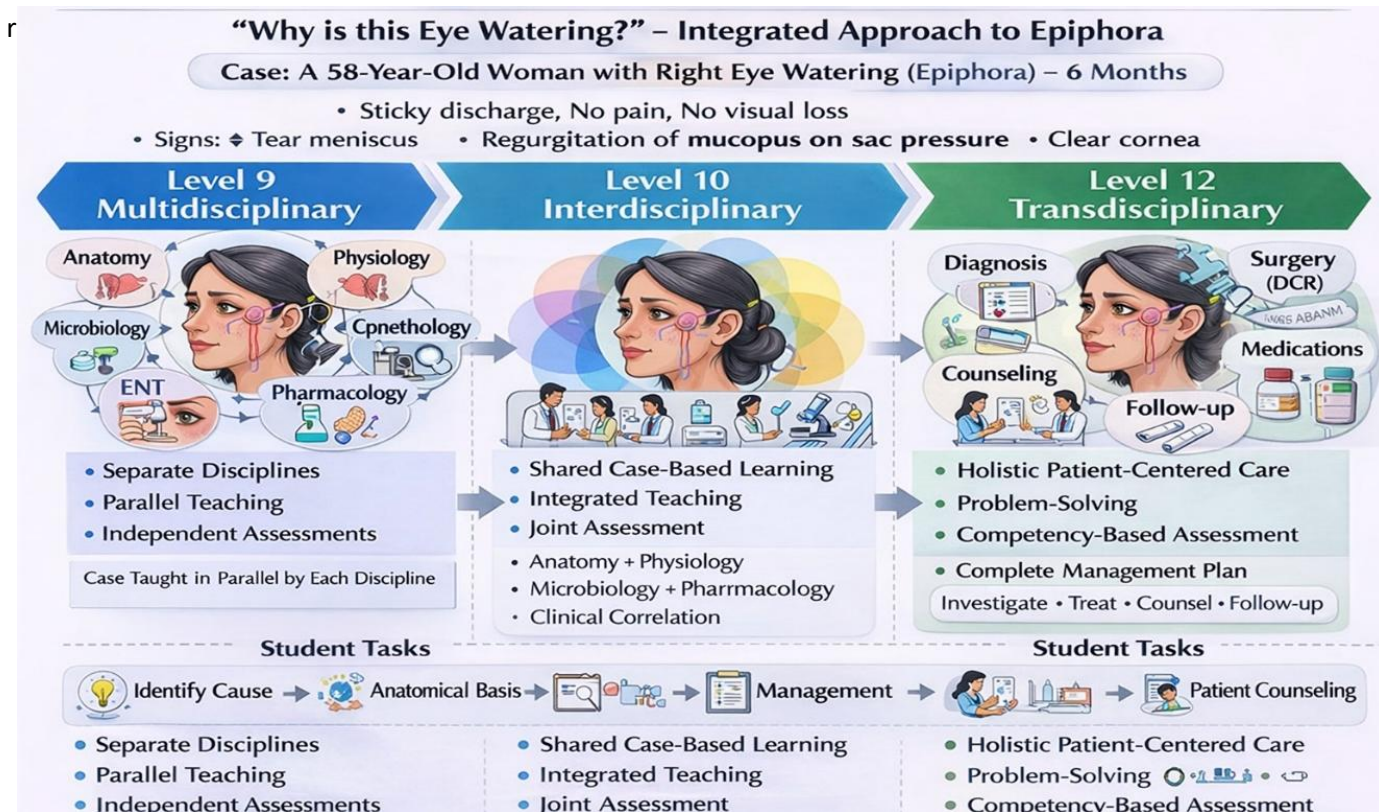
On examination:

- \* Tear meniscus height increased
- \* Gentle pressure over lacrimal sac produces mucopurulent discharge from punctum
- \* Conjunctiva mildly congested
- \* Cornea clear

#### Student Task (Problem-Based Trigger)

Students are asked to:

- \* Identify key clinical concerns causing epiphora



- \* Explain anatomical basis of tear drainage obstruction
- \* Differentiate reflex tearing from lacrimal blockage
- \* Interpret clinical examination findings
- \* Develop comprehensive management plan
- \* Identify red-flag features needing urgent referral
- \* Counsel the patient regarding treatment options and prognosis

## **What Makes This RMU level 12?**

- \* Knowledge embedded in clinical reasoning
  - \* Organizing principle = patient complaint (watering eye)
  - \* Mirrors real clinical decision-making

## **Students integrate:**

- \* Anatomy of lacrimal system
- \* Physiology of tear production
- \* Pathology of infection and obstruction
- \* Microbiology of lacrimal disease
- \* Pharmacology of topical therapy

- \* Oculoplastic surgical principles
- \* Communication & patient counseling

But none are taught in isolation.

### **Teaching Format**

- Small group facilitated learning
- Faculty from different backgrounds present but not teaching in silos
- Students build the care pathway themselves
- Assessment based on competence and clinical reasoning

### **Academic Justification Statement**

**“The case has been designed to reflect RMU level 12 (transdisciplinary integration), where learning is structured around authentic patient problems rather than disciplinary categories. Knowledge from biomedical, clinical, and public health domains is integrated seamlessly within professional practice.”**

**SUBJECT CONTRIBUTION IN TRANS DISCIPLINARY CLINICAL REASONING FORUM**

Subject	Contribution	Weight	Rationale
<b>Ophthalmology</b>	Core diagnosis & management	30%	Organizing discipline
<b>Anatomy</b>	Lacrimal and eyelid structure	20%	Structural basis
<b>Pharmacology</b>	Lubricants, antibiotics, antihistamines	15%	Treatment planning
<b>Communication</b>	Counselling & expectations	10%	Patient-centred care

**SUBJECT-WISE SPECIFIC LEARNING OBJECTIVES-5**

Subject	Learning Objective	Bloom Level	Role
<b>Ophthalmology</b>	Recognize symptoms and signs of epiphora and differentiate watering from discharge  Perform complete lacrimal system examination including ROPLAS and syringing	Analyze	Core discipline

	<p>Classify causes into obstructive vs hypersecretion epiphora</p> <p>Identify red-flag signs requiring urgent referral (acute dacryocystitis, tumor, trauma)</p> <p>Formulate comprehensive management plan including medical therapy, probing, or DCR</p>	<p>Apply</p> <p>Analyze</p> <p>Evaluate</p> <p>Evaluate</p>	
<b>Anatomy</b>	<p>Describe lacrimal system anatomy</p> <p>Identify surface landmarks of lacrimal sac relevant to examination and surgery</p>	<p>Understand</p> <p>Remember</p>	Structural basis
<b>Pharmacology</b>	Outline drug therapy for infections/allergy	Apply	Medical planning
<b>Communication</b>	Counsel patient regarding treatment prognosis, recurrence risk and surgical options	Apply	Patient care

Topics	Rationale	General learning objectives (SMART)
<p><b>-Congenital cataract</b>  <b>- Mature cataract</b>                      -  <b>Retinoblastoma</b>                      - PHPV                      - Coats disease                      - Retinal detachment                      - ROP                      - Congenital glaucoma                      -Toxocarial glaucoma                      -  <b>Endophthalmitis</b></p>	<p>Leukocoria and media-opacity disorders represent critical pediatric and emergency ophthalmic conditions that can signify life-threatening malignancy, preventable childhood blindness, or severe intraocular infection. Conditions such as congenital and mature cataract, retinoblastoma, persistent hyperplastic primary vitreous (PHPV), Coats disease, retinal detachment, retinopathy of prematurity (ROP), congenital glaucoma, toxocarial endophthalmitis, and infective endophthalmitis share the common clinical sign of a white pupillary reflex but differ markedly in prognosis and urgency. Failure to recognize these entities can lead to irreversible visual loss, loss of the eye, systemic morbidity, or death in the case of intraocular tumors.</p>	<p>By the end of the Leukocoria module, the 4th year MBBS student will be able to:</p> <ul style="list-style-type: none"> <li>● Describe the applied anatomy and embryology of the lens, vitreous, retina, and anterior chamber angle relevant to congenital cataract, persistent hyperplastic primary vitreous (PHPV), congenital glaucoma, and retinopathy of prematurity, with at least 80% accuracy in written/viva examinations.</li> <li>● Explain the etiology, pathophysiology, and clinical features of congenital and mature cataract, retinoblastoma, PHPV, Coats disease, retinal detachment, ROP, congenital glaucoma, toxocarial endophthalmitis, and infective endophthalmitis during structured discussions.</li> <li>● Perform and interpret basic pediatric ocular screening, including red reflex assessment, torchlight examination, corneal diameter estimation, and identification of leukocoria correctly in at least 3 out of 4 observed encounters.</li> <li>● Differentiate benign, vision-threatening, and life-threatening causes of leukocoria based on history and clinical findings with a minimum of 75% diagnostic accuracy in case-based assessments.</li> <li>● Identify red-flag features requiring urgent referral, including leukocoria suggestive of retinoblastoma, buphthalmos with photophobia in congenital glaucoma, prematurity with</li> </ul>

<p><b>-Persistent hyperplastic primary vitreous PHPV</b></p>	<p>In 4th year MBBS, students advance from basic sciences to applied clinical reasoning. Teaching leukocoria differentials enables integration of embryology (PHPV), genetics and oncology (retinoblastoma), neonatology (ROP), infectious diseases (toxocariasis, endophthalmitis), glaucoma pathophysiology (congenital glaucoma), and retinal disorders (detachment, Coats disease) into a structured diagnostic approach. This fosters the ability to distinguish benign from vision- or life-threatening causes through history, red reflex testing, and targeted examination.</p> <p>Early identification of red-flag signs—such as leukocoria in photographs, buphthalmos with photophobia, strabismus associated with retinoblastoma, prematurity with abnormal retinal vascularization, or painful red eye with hypopyon—enables urgent referral and timely intervention to preserve vision and life.</p> <p>Inclusion of these topics equips students with competencies in pediatric eye screening, recognition of ocular emergencies, differentiation of malignant versus benign causes of leukocoria, counseling of parents, preventive strategies (e.g., ROP screening), and multidisciplinary referral, thereby strengthening their role in reducing avoidable childhood blindness and improving patient outcomes.</p>	<p>abnormal retinal vascularization in ROP, painful red eye with hypopyon in endophthalmitis, and signs of retinal detachment.</p> <ul style="list-style-type: none"> <li>● Outline first-line management principles, preventive strategies (e.g., ROP screening, early cataract surgery), and indications for urgent intervention or multidisciplinary referral.</li> <li>● Demonstrate professional and empathetic communication while counseling parents regarding childhood eye diseases, visual prognosis, genetic implications, and the importance of early treatment and follow-up.</li> </ul>
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Code	Topic	Learning objectives At the end of the lecture the student should be able to	Learning domain	Teaching strategy	Assessment tool
M1-OPH-001	Medial Opacity	<ul style="list-style-type: none"> <li>● Define congenital and mature cataract and classify types</li> <li>● Describe embryological basis, risk factors, and stages of cataract progression</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE

	<ul style="list-style-type: none"> <li>• Congenital Cataract</li> <li>• Mature Cataract</li> <li>• Endophthalmitis</li> <li>• Congenital glaucoma</li> </ul>	<ul style="list-style-type: none"> <li>• Recognize clinical features, complications (amblyopia, phacomorphic/phacolytic glaucoma), and outline management principles</li> <li>• Define endophthalmitis and classify exogenous and endogenous types</li> <li>• Describe clinical features including pain, hypopyon, and media opacity</li> <li>• Outline emergency management, referral protocols, and prevention strategies</li> <li>• Define congenital glaucoma and describe angle development anomalies</li> <li>• Recognize clinical features: epiphora, photophobia, buphthalmos, corneal haze</li> </ul>			
<b>M1-OPH-002</b>	<p>Retinal Pathology 1</p> <ul style="list-style-type: none"> <li>• Retinoblastoma</li> <li>• Retinal detachment</li> </ul>	<ul style="list-style-type: none"> <li>• Define retinoblastoma and explain genetic basis (RB1 mutation)</li> <li>• Recognize clinical features including leukocoria and strabismus</li> <li>• Outline urgent referral, diagnostic approach, and management principles</li> <li>• Define retinal detachment and classify types</li> <li>• Describe causes and clinical presentation in children</li> <li>• Outline emergency recognition, referral, and management principles</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE
<b>M1-OPH-003</b>	<p>Retinal Pathology 2</p> <ul style="list-style-type: none"> <li>• Retinopathy of Prematurity(ROP)</li> <li>• Coats disease</li> </ul> <p>Vitreous Anomalies</p>	<ul style="list-style-type: none"> <li>• Define ROP and describe risk factors (prematurity, oxygen therapy)</li> <li>• Explain staging, screening guidelines, and prevention strategies</li> </ul>	C1 C2 C3	LGIS	SAQ MCQ OSCE

	<ul style="list-style-type: none"> <li>• Persistent hyperplastic primary vitreous PHPV</li> <li>• Ocular Toxocariasis</li> </ul>	<ul style="list-style-type: none"> <li>• Outline treatment options and follow-up care</li> <li>• Define PHPV and Coats disease, ocular toxocariasis and explain their pathophysiology</li> <li>• Outline diagnostic evaluation, management options, and visual prognosis</li> </ul>			
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**TRANS DISCIPLINARY CLINICAL REASONING FORUM (TCRF)**

Theme	Week	Topics	Clinical Case Scenario
Theme 1	Week 1	Leukocoria (White Pupil)	A 3 year old child with a white reflex in the right eye and occasional squint

**Managing Leukocoria in a Toddler: A Life-Threatening Red Flag**

**Clinical Scenario:**

A 3-year-old child is brought by parents with a white reflex in the right eye noticed in photographs for the past 2 months. They report occasional squint and recent bumping into objects on the affected side. There is no history of trauma or pain. Birth history is unremarkable.

On examination:

Unilateral leukocoria (right eye)

Intermittent exotropia of the affected eye

Normal anterior segment

Fundus view obscured by a whitish intraocular mass

B-scan ultrasonography shows an intraocular mass with calcifications

### Student Task (Problem-Based Trigger)

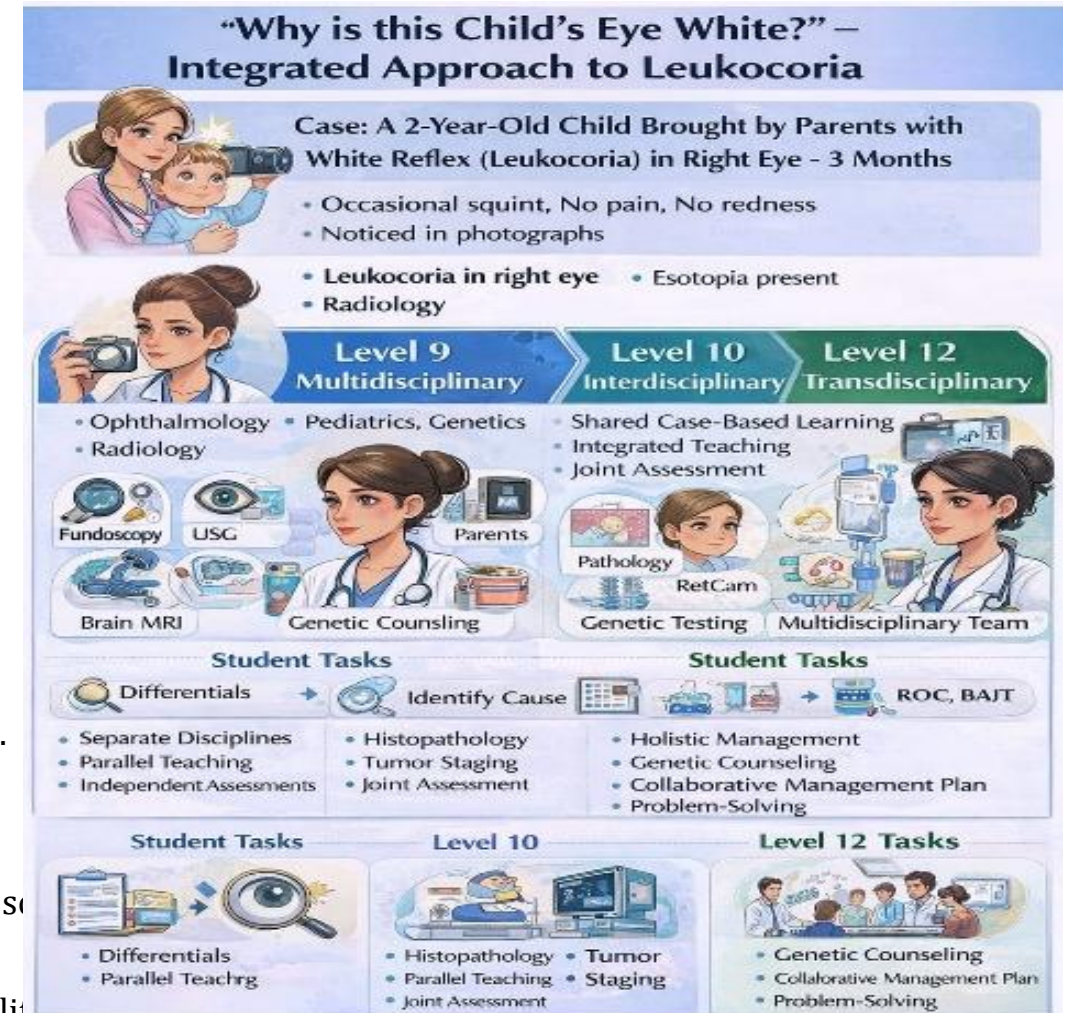
Students are asked to:

1. Identify key clinical concerns and possible differentials of leukocoria.
2. Explain the pathophysiological basis of leukocoria in intraocular tumors.
3. Interpret ultrasonography findings suggestive of malignancy.
4. Develop an urgent and comprehensive management plan.
5. Identify red-flag signs indicating life-threatening disease.
6. Counsel parents regarding prognosis, genetic implications, and need for s

Suggest preventive strategies and long-term follow-up, including visual rehabili

### What Makes This RMU level 12?

- Knowledge embedded in clinical reasoning
- Organizing principle = patient problem (leukocoria)



- Mimics authentic pediatric ophthalmic decision-making

### **Students Integrate**

- Anatomy: Retina, optic nerve, ocular coats
- Pediatrics: Developmental milestones, childhood malignancies
- Oncology & Genetics: Retinal tumors, hereditary risk
- Radiology: Role of B-scan and CT in intraocular masses
- Surgery: Indications for enucleation vs. globe-salvaging therapy
- Ethics & Communication: Breaking bad news, parental counseling
- Public Health: Early screening and prevention of childhood blindness

None are taught in isolation; all are applied within the patient problem.

### **Teaching Format**

- Small-group facilitated learning
- Multidisciplinary faculty presence without silo teaching
- Students construct differential diagnosis and care pathway
- Assessment based on competence, urgency recognition, and clinical reasoning

### **Academic Justification Statement**

“The case is designed to reflect RMU level 12 (transdisciplinary integration), where learning is structured around an authentic pediatric patient presenting with leukocoria. Biomedical sciences, oncology, radiology, clinical decision-making, ethics, and public health principles

are integrated seamlessly within professional practice to emphasize early recognition of life-threatening ocular disease and prevention of avoidable childhood blindness.”

**SUBJECT CONTRIBUTION IN TRANS DISCIPLINARY CLINICAL REASONING FORUM -6**

Subject / Discipline	Nature of Contribution	Approximate Integration Weight (%)	Rationale for Weight
<b>Ophthalmology</b>	Core diagnostic reasoning & management	47%	Organizing discipline
<b>Pediatrics</b>	Growth history, developmental impact, systemic associations	15%	Age specific context
<b>Pathophysiology</b>	Mechanisms of leukocoria and ocular inflammation	13%	Explains disease processes
<b>Pharmacology</b>	Chemotherapy, anti-infectives, and glaucoma therapy	13%	Therapeutic planning
<b>Anatomy</b>	Lens, vitreous, retina, ocular development	7%	Structural reasoning
<b>Ethics &amp; Communication</b>	Breaking bad news, parental counseling	5%	Patient-centered care

**SUBJECT-WISE SPECIFIC LEARNING OBJECTIVES-6**

<b>Subject</b>	<b>Domain</b>	<b>Specific Learning Objectives (Students will be able to...)</b>	<b>Bloom's Level</b>	<b>Integration Role</b>
Ophthalmology	Clinical Skills & Reasoning	<p>Recognize clinical features of leukocoria and differentiate common causes (retinoblastoma, congenital cataract, PHPV, Coats disease) Perform red reflex testing and basic pediatric ocular examination</p> <p>Formulate differential diagnosis for unilateral vs bilateral leukocoria.</p> <p>Develop an urgent management and referral plan for suspected retinoblastoma or endophthalmitis. Identify red-flag signs (strabismus, calcification on imaging, buphthalmos, hypopyon).</p>	Analyze Analyze Apply Evaluate Evaluate	Core organizing discipline
<b>Pediatrics</b>	Clinical Integration	<p>Correlate leukocoria with developmental delay and visual impairment.</p> <p>Identify perinatal risk factors (prematurity → ROP; infections → cataract). Outline multidisciplinary care for visually impaired children</p>	Understand Analyze Apply	Age-specific context
Pathophysiology	Mechanistic Understanding	<p>Describe mechanisms producing leukocoria (media opacity, tumor reflection, exudation).</p> <p>Explain inflammatory pathways in endophthalmitis and toxocariasis.</p>	Understand	Explains severity

Pharmacology	Therapeutics	Outline chemotherapy principles for retinoblastoma.  Describe antimicrobial therapy for endophthalmitis and anti-helminthic therapy for toxocariasis.  Identify medical management of congenital glaucoma	Apply Analyze Analyze	Management planning
Anatomy (Applied)	Structural Correlation	Describe embryological development of lens and vitreous relevant to PHPV.  Explain anterior chamber angle development in congenital glaucoma Discuss prevention of childhood blindness through early detection programs.	Understand Understand Create	Supports reasoning
Ethics & Communication	Professional Practice	Counsel parents regarding prognosis, treatment options, and genetic implications.	Apply	Patient-centered care
		Communicate sensitively when discussing malignancy or possible enucleation.  Explain long-term rehabilitation and visual support needs	Apply	

## Self-Directed Learning (SDL) OPHTHALMOLOGY Module 1

WEEK	THEME	Topics of SDL	Learning Objectives	Learning Resources
<b>WEEK 1</b>	<b>RED EYE</b>	Blepharitis, Ophthalmia neonatorum, Infective conjunctivitis, Allergic conjunctivitis, Degenerative conjunctival disorders, Dry eye syndrome, Keratitis / Corneal ulcer, Herpes simplex keratitis, Herpes zoster ophthalmicus, Acute anterior uveitis, Episcleritis / Scleritis, Acute angle-closure glaucoma, Chemical injury, Corneal foreign body, Contact lens-related keratitis, Subconjunctival hemorrhage	<ul style="list-style-type: none"> <li>Recognize common and emergency causes of red eye</li> <li>Take focused history and perform ocular examination</li> <li>Identify urgent conditions requiring referral</li> <li>Outline first-line management and preventive measures</li> </ul>	Kanski's Clinical Ophthalmology, 10th edition Basic Ophthalmology, Kanski & Bowling
<b>WEEK 2</b>	<b>SUDDEN LOSS OF VISION</b>	Corneal ulcer, Acute anterior uveitis, Complications of uveitis, Retinal vascular occlusions (CRAO, CRVO), Retinal detachment, Acute angle-closure glaucoma, Vitreous hemorrhage, Optic neuritis, Endophthalmitis, Chemical injury, Blunt ocular trauma, Penetrating ocular trauma, Hyphema	<ul style="list-style-type: none"> <li>Take detailed history of sudden vision loss</li> <li>Differentiate painful vs painless causes</li> <li>Perform VA, RAPD, funduscopy, and confrontation fields</li> <li>Identify ocular emergencies</li> <li>Outline emergency management and referral</li> </ul>	Kanski's Clinical Ophthalmology, 10th edition AAO Basic Ophthalmology Guidelines
<b>WEEK 3</b>	<b>GRADUAL LOSS OF VISION</b>	Refractive errors (Myopia, Hypermetropia, Astigmatism, Presbyopia), Dry eye syndrome, Keratoconus, Corneal dystrophies, Cataract, Retinal dystrophies & degenerations (RP, AMD, myopic degeneration), Diabetic retinopathy, Hypertensive retinopathy, Macular edema, Primary open-angle glaucoma, Chronic angle-closure glaucoma, Secondary glaucoma (including lens-induced), Congenital glaucoma, Chronic optic neuropathies, Papilledema, Amblyopia, Trachoma	<ul style="list-style-type: none"> <li>Define each cause of gradual visual loss</li> <li>Identify anatomical site involved (cornea, lens, retina, optic nerve, ocular surface)</li> <li>Differentiate reversible vs irreversible causes</li> <li>Recognize red-flag features requiring urgent referral</li> <li>Outline first-line management &amp; preventive strategies</li> </ul>	Kanski's Clinical Ophthalmology, 10th edition Pediatric Ophthalmology, Taylor & Hoyt Basic Ophthalmology, Kanski & Bowling

- Perform basic visual assessment and patient counseling

## Self-Directed Learning (SDL) OPHTHALMOLOGY Module 2

Week	Themes	Topic of SDL	Learning objectives	Learning resources
<b>WEEK 4</b>	<b>OCULAR AESTHETICS</b>	Ptosis, Non-neoplastic & neoplastic lid masses, Ectropion / Entropion, Proptosis, Thyroid eye disease, Blow-out fracture, Haemangiomas, Neurofibroma, Esotropia / Exotropia, Principles of strabismus management, Refractive surgeries	Define ocular aesthetic and oculoplastic procedures • Describe indications and contraindications • Discuss surgical techniques and postoperative care • Recognize complications and follow-up strategies	Kanski's Clinical Ophthalmology, 10th edition Manual of Oculoplastic Surgery, AAO
<b>WEEK 5</b>	<b>WATERY EYE (Epiphora)</b>	Dry eye syndrome, Blepharitis, Infective conjunctivitis, Allergic conjunctivitis, Congenital NLDO, Acute dacryocystitis, Chronic dacryocystitis, Ectropion, Entropion	Identify congenital vs acquired causes of watery eye • Perform basic diagnostic tests (Jones test, syringing) • Outline management options (conservative, medical, surgical)	Kanski's Clinical Ophthalmology, 10th edition Manual of Oculoplastic Surgery, AAO
<b>WEEK 6</b>	<b>WHITE PUPIL (Leukocoria)</b>	Congenital cataract, Mature cataract, Retinoblastoma, PHPV, Coats disease, Retinal detachment, ROP, Congenital glaucoma	Identify causes of leukocoria • Recognize red-flag signs • Outline diagnostic investigations (fundus, USG, CT/MRI) • Discuss management, surgical indications, and referral	Kanski's Clinical Ophthalmology, 10th edition Pediatric Ophthalmology, Taylor & Hoyt

## Community Medicine

### Module I

### Large Group Interactive Session (LGIS)

Topic	At the end of the lecture student should be able to	Learning domain	Teaching strategies	Assessment tools
Introduction of Biostatistics	<ul style="list-style-type: none"> <li>Comprehend the relevance of descriptive biostatistics to epidemiological research</li> <li>Explain principles of descriptive analysis of data.</li> <li>Perform simple data analysis including quantitative &amp; qualitative data</li> <li>Perform cross-tabulation between two categorical binomial variables</li> <li>Define inferential statistics</li> <li>Explain the role of inferential statistics in health research decision making</li> <li>Describe concept of generalization of results to the population</li> <li>Explain the concept of standard error and confidence interval</li> <li>Calculate confidence interval and its interpretation.</li> </ul>	C2 C2 C3 C3 C1 C2 C2 C2 C3	LGIS	MCQs SAQs SEQs EMQs VIVA
Hypothesis testing	<ul style="list-style-type: none"> <li>Elaborate the concept of hypothesis testing</li> <li>Explain role of statistical test of significance in hypothesis testing</li> <li>Enlist the steps of hypothesis testing</li> <li>Appreciate the concept of Level of significance</li> <li>Interpret p-value in published research results</li> <li>Enable to interpret the Probability distribution chart</li> <li>Appreciate the Concepts of degree of freedom</li> <li>Calculate the degree of freedom in different tests of significance.</li> </ul>	C2 C2 C1 C2 C3 C3 C2 C3	LGIS	MCQs SAQs SEQs EMQs VIVA

<p>Concepts of Screening</p>	<ul style="list-style-type: none"> <li>• Explain Iceberg phenomenon of diseases with examples</li> <li>• Discuss aims and objectives of screening</li> <li>• Enlist Criteria for screening of diseases &amp; screening tests</li> <li>• Comprehend uses &amp; types of screening with examples</li> <li>• State differences between screening test and diagnostic tests.</li> <li>• Describe rationale of screening tests with reference to natural history of disease and critical point.</li> <li>• Construct 2x2 table from given data.</li> <li>• Explain measures of validity of screening tests.</li> </ul>	<p>C2 C1 C1, C2 C1, C2 C1, C2 C1, C2 C2 C3 C2</p>	<p><b>LGIS</b></p>	<p>MCQs SAQs SEQs EMQs VIVA</p>
<p>Interpretation of Screening test</p>	<ul style="list-style-type: none"> <li>• Calculate and interpret sensitivity &amp; specificity of screening test from given data</li> <li>• Calculate and interpret Positive predictive value &amp; Negative predictive value of screening test from given data</li> <li>• Explain yield of screening tests.</li> <li>• Discuss measures used to evaluate screening tests &amp; program</li> <li>• Discuss problems of borderline with emphasis on cut-off point decision</li> </ul>	<p>C3 C3 C1 C2 C3</p>	<p><b>LGIS</b></p>	<p>MCQs SAQs SEQs EMQs VIVA</p>
<p>Concept of Health education</p>	<ul style="list-style-type: none"> <li>• Define health communication and understand its types.</li> <li>• Explain role of sender, receiver, feedback and content of health message</li> <li>• Explains Shannon Weaver communication model</li> <li>• Appreciate communication barriers</li> <li>• Explain various functions of health communication</li> </ul>	<p>C1 C2</p>	<p><b>LGIS</b></p>	<p>MCQs SAQs SEQs EMQs VIVA</p>

		C2 C3 C2		
Models and approaches of Health education	<ul style="list-style-type: none"> <li>Recognize different models of health education</li> <li>Understand the scope /contents of health education</li> <li>Explain different approaches of health education</li> <li>Appraise the concept of propaganda</li> </ul>	C2 C2 C1 C2	<b>LGIS</b>	MCQs SAQs SEQs EMQs VIVA
Principles and practices of Health education	<ul style="list-style-type: none"> <li>Explain principles of health education</li> <li>Appraise different ways of practice of health education</li> <li>Understand social marketing</li> <li>Comprehend CHC message development protocol</li> </ul>	C1 C2 C2 C2	<b>LGIS</b>	MCQs SAQs SEQs EMQs VIVA
Epidemiology of Blindness, accidents & injuries	<ul style="list-style-type: none"> <li>Describe epidemiology of blindness</li> <li>Describe patterns of preventable blindness in the community</li> <li>Recommend approaches to prevention of blindness in the community</li> <li>Categorize different types of accidents</li> <li>Describe risk factors involved in accidents</li> <li>Recommend different preventive strategies for accident controls</li> </ul>	C2 C1 C3 C1 C2 C3	<b>LGIS</b>	MCQs SAQs SEQs EMQs VIVA
Hospital Administration	<ul style="list-style-type: none"> <li>Define hospital</li> <li>Explain development of hospital as an institution</li> <li>Appreciate types &amp; functions of hospitals</li> <li>Understand hospital statistics</li> <li>Identify factors influencing hospital utilization</li> <li>Understand the role of hospital administrator</li> </ul>	C1 C2 C2	<b>LGIS</b>	MCQs SAQs SEQs EMQs VIVA

**SELF  
LEARNING**

		C2		
		C2		
		C1		

**DIRECTED  
(SDL)**

## MODULE 2

Topic	Learning objectives	References
Health planning & management (Evaluation of health services)	<ul style="list-style-type: none"> <li>• Explain 7 steps of evaluation.</li> <li>• Comprehend elements of evaluation.</li> </ul>	K Park text book of preventive & social Medicine 26 <sup>th</sup> edition (882-3)
Communication for health education	<ul style="list-style-type: none"> <li>• Apprise among three models of health education.</li> <li>• Explain steps of planning for Health education.</li> <li>• Differentiate six stages of transtheoretical model of change</li> </ul>	<ul style="list-style-type: none"> <li>• K Park text book of preventive &amp; social Medicine 26<sup>th</sup> Edition (Chapter 19, 859, 867)</li> <li>• Maxcy-Rosenau-Last Public health &amp; preventive medicine (15th Edi Chapter53)</li> </ul>

### LARGE GROUP INTERACTIVE SESSION (LGIS)

Topic	At the end of the lecture student should be able to	Learning domain		Teaching strategies	Assessment tools
Test of significance (t, z & chi-square tests)	<ul style="list-style-type: none"> <li>• Appreciate the concepts of Parametric and non-parametric tests</li> <li>• Differentiate between One tail and two tail tests</li> <li>• Understand the concept of Z test &amp; T test</li> <li>• Apply student t-test for computing difference between 2 means and interpret the results</li> <li>• Elaborate types of t-tests</li> <li>• Differentiate between one sample, independent and paired t tests</li> <li>• Enlist the steps of hypothesis testing</li> <li>• Elaborate the types of chi square test</li> <li>• Perform hypothesis testing by applying chi-square test</li> <li>• Interpret the results of chi-square test</li> </ul>	C2 C2 C2 C3 C2 C2 C1 C2 C3 C3		<b>LGIS</b>	MCQs SAQs SEQs EMQs VIVA

	<ul style="list-style-type: none"> <li>Elaborate fisher's exact test</li> </ul>	C2			
Correlation/ regression  &  ANOVA	<ul style="list-style-type: none"> <li>Explain principles of correlation and regression analysis with examples</li> <li>Draw &amp; interpret scatter diagrams with respect to the types of correlation</li> <li>Apply ANOVA for comparison of means in more than 2 groups</li> <li>Differentiate between one way and two-way ANOVA for a given data</li> <li>Choose different tests for relevant data (decision tree)</li> </ul>	C2 C3 C3 C2 C2		LGIS	MCQs SAQs SEQs EMQs VIVA
Primary Health care	<ul style="list-style-type: none"> <li>Understand primary healthcare</li> <li>Conceptualize 'health for all' and Alma Ata declaration</li> <li>Appraise the elements, principles and strategy of Primary Health Care</li> <li>Outline the challenges that contributed to evolution of PHC</li> </ul>	C2 C2 C2 C1		LGIS	MCQs SAQs SEQs EMQs VIVA
MDGs, SDGs	<ul style="list-style-type: none"> <li>Explain the millennium development goals (MDGs)</li> <li>Appraise sustainable development goals (SDGs) and their origins</li> <li>Difference between MDGs and SDGs</li> <li>Comprehend how SDGs might affect overall health as a global priority in the future</li> <li>Understand universal health coverage</li> </ul>	C2 C2 C2 C2 C1		LGIS	MCQs SAQs SEQs EMQs VIVA
Hospital Waste Management	<ul style="list-style-type: none"> <li>Explains Healthcare waste</li> <li>Categorize risk and non-risk waste</li> <li>Explain health hazards of health care waste</li> <li>Describe waste management system, team</li> <li>Describe the disposal / treatment technologies for health care waste</li> </ul>	C2 C3 C2 C1 C2		LGIS	MCQs SAQs SEQs EMQs VIVA

<p>Planning &amp; Management</p>	<ul style="list-style-type: none"> <li>• Define Health Planning</li> <li>• Identify the aim and objectives of planning</li> <li>• Understand rationale of planning</li> <li>• Comprehend different phases of planning</li> <li>• Appreciate the various steps of planning cycle</li> <li>• Appreciate various management techniques</li> </ul>	<p>C1 C1 C1 C1 C2 C2</p>		<p><b>LGIS</b></p>	<p>MCQs SAQs SEQs EMQs VIVA</p>
<p>HMIS-Health Management Information System</p>	<ul style="list-style-type: none"> <li>• Define HMIS</li> <li>• Difference between data and information</li> <li>• Enlist components &amp; features of HMIS</li> <li>• Discuss essential elements &amp; functions of HMIS</li> <li>• Describe steps in developing HMIS</li> <li>• Discuss various sources of health information</li> </ul>	<p>C1 C2 C1 C1 C2 C2</p>		<p><b>LGIS</b></p>	<p>MCQs SAQs SEQs EMQs VIVA</p>
<p>Hospital Administration</p>	<ul style="list-style-type: none"> <li>• Define hospital</li> <li>• Explain development of hospital as an institution</li> <li>• Appreciate types &amp; functions of hospitals</li> <li>• Understand hospital statistics</li> <li>• Identify factors influencing hospital utilization</li> <li>• Understand the role of hospital administrator</li> </ul>	<p>C1 C2 C2 C2 C2 C1</p>		<p><b>LGIS</b></p>	<p>MCQs SAQs SEQs EMQs VIVA</p>

## SMALL GROUP DISCUSSION (SGD)

Topic	At the end of the lecture student should be able to	C/P/A	Teaching strategy	Assessment tools
Health for all-2000	<ul style="list-style-type: none"> <li>• Understand primary health care</li> <li>• Conceptualize 'health for all' and Alma Ata declaration</li> <li>• Appraise the elements, principles and strategy of PHC</li> <li>• Appraise Recent proceedings of Alma-Ata as Astana declaration</li> </ul>	C2 C2 C2 C2	SGD	MCQs SAQs SEQs EMQs VIVA
Surface infections	<ul style="list-style-type: none"> <li>• Describes the epidemiology of surface infections</li> <li>• Identify the risk factors of surface infections</li> <li>• Recommend the preventive &amp; control measures for surface infections</li> <li>• Appraise the working of Punjab Aids Control Program</li> </ul>	C2 C2 C3 C3	SGD	MCQs SAQs SEQs EMQs VIVA
Disinfection	<ul style="list-style-type: none"> <li>• Differentiate between disinfection &amp; sterilization</li> <li>• Enlist properties of an ideal disinfectant</li> <li>• Explain different types of disinfection</li> <li>• Describe various important types of agents (natural, physical and chemical) used as disinfectants</li> </ul>	C1 C1 C2 C2	SGD	MCQs SAQs SEQs EMQs VIVA

### SELF DIRECTED LEARNING (SDL)

Topic	Learning objectives	References
Emporiatrics	<ul style="list-style-type: none"> <li>• Define Emporiatrics</li> <li>• Enlist health risks related to travel</li> <li>• Define Role of health physician in Emporiatrics</li> <li>• Enlist Recommended vaccines for travellers</li> </ul>	K Park textbook of preventive & social Medicine, 26 <sup>th</sup> Edition, Chapter 5
Geriatrics	<ul style="list-style-type: none"> <li>• Differentiate between geriatrics and gerontology</li> <li>• Explain the public health importance of geriatrics</li> <li>• Enlist common health and other problems related to old age</li> <li>• Recommend preventive, rehabilitative measures for older age health problems required to be adopted in travel</li> <li>• Knowledge of high-risk group of travelers</li> <li>• Appreciate the role of health physicians in giving health advise to travelers</li> </ul>	K Park textbook of preventive & social Medicine, 26 <sup>th</sup> Edition Chapter 10
Surface-Infection HIV / AIDS a Global pandemic	<ul style="list-style-type: none"> <li>• Describe lab findings &amp; their significance with HIV infection.</li> <li>• Classify WHO recommended ARV treatments guidelines / regimens.</li> </ul>	K Park textbook of preventive & social Medicine 26 <sup>th</sup> Edition Chapter5

## **BASIC AND CLINICAL SCIENCES (SPIRAL INTEGRATION)**

### **Content Organization**

- **Spiral Integration**
  - Biomedical Ethics & Professionalism
  - Family Medicine
  - Behavioral Sciences
  - Integrated Undergraduate Research Curriculum (IUGRC)

**LARGE GROUP INTERACTIVE SESSIONS (LGIS) BIOETHICS & PROFESSIONALISM**

Topic	Learning Objectives	Learning Domain	Teaching Strategy	Assessment Tools
Research and publication ethics	<ul style="list-style-type: none"> <li>• Demonstrate understanding of different types of “Plagiarism” and “scientific misconduct” as ways of lying, stealing or Cheating related to research and publication</li> <li>• Describe the concept of intellectual property” in reference to research ideas, medical writing, proposals, data, publication Identify issues related to authorship criteria for scientific journals</li> <li>• Describe the Authorship criteria according to ICMJE Guidelines</li> <li>• Identify potential sources of unethical conduct in dissemination of research such as plagiarism, fabrication of data, duplicate publication and gift authorships.</li> </ul>	C3	LGIS	MCQs SEQs SAQs Standard matching

**INTEGRATED UNDERGRADUATE RESEARCH CURRICULUM (IUGRC)**

Topic	Learning Objectives	Teaching Strategy	Assessment Tools
Data collection	<ul style="list-style-type: none"> <li>• Compile &amp; interpret study data</li> <li>• Make observable improvements or changes in data collection skills &amp; behaviors if required</li> <li>• Record take measures to address logistic issues reported like lack of equipment ,facilities ,need assessment for prior data collection training , poor quality assurance, language barriers , systematic errors</li> <li>• Address ethical concerns of study if any</li> </ul>	PAL	Manuscript submission at SJRMC
Descriptive analysis of collected data	<ul style="list-style-type: none"> <li>• Make variables on computer</li> <li>• Feed data under variables on computers</li> </ul>	PAL	Manuscript submission at SJRMC

	<ul style="list-style-type: none"><li>• Summarize data on computer including text, tabulations &amp; graphics</li><li>• Perform Descriptive analysis of data on computer</li><li>• Run SPSS</li></ul>		
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**Section – V**      **Time Table**

Faculty	Prof. Dr Fuad Ahmad Khan Niazi Dr. Ambreen Gul (Associate Professor) Dr. Sidra Jabeen (Associate Professor) Dr.Saira Bano (Senior Registrar) Dr. Maria Zubair (Senior Registrar) Dr. Fatima Sidra Tanveer (Senior Registrar) Dr. Salman Tariq (Senior Registrar) Dr Rafeeq Saleem (Senior Registrar)
Teaching Strategy	LGIS SDL CBD
Lecture Sites	All Lectures in Lecture hall 1 / 2 From Monday till Thursday All Lectures in Lecture hall 4 / 5 Friday and Saturday EVEN BATCH IN LECTURE HALL 2 AND 4 ODD BATCH IN LECTURE HALL 1 AND 5
List of Recommended books	Kanski’s Clinical Ophthalmology 9 <sup>th</sup> edition Parsons’ Diseases of the Eye 23 <sup>rd</sup> edition Basic Ophthalmology by Renu Jogi 4 <sup>th</sup> ed. Clinical Ophthalmology by Shafi M. Jatoi 5 <sup>th</sup> edition Comprehensive Ophthalmology by Dr. Nasir Chaudhary
Assessment Strategies	MCQs EMQ SEQs SAQ OSPE OSCE OSVE

## Categorization of Modular Content of Ophthalmology

### Category A

Professor Fuad Ahmad khan

#### Lens;

1. Cataract- diagnosis and management
2. cataract Surgery and its complications,
3. Ectopia Lentis

trauma

4. blunt ocular trauma
5. penetrating ocular trauma

#### Retina;

6. Retinal Vascular Disorders,
7. Retinal Detachment.

### Category B

Associate Professors

Dr Sidra Jabeen

#### Strabismus;

1. Squint diagnosis and assessment
2. Squint Management

#### Eyelids;

3. eyelid tumors and infections
4. anomalies of eyelid position

#### Pediatric Ophthalmology

5. ROP, RB and congenital cataract

#### Dr Ambreen Gul

#### Cornea;

1. corneal Ulcer
2. Corneal Dystrophies.

#### Uvea

3. Uveitis- diagnosis and management
4. complications of Uveitis

#### Glaucoma;

5. Approach to Glaucoma,
6. Open and Closed Angle Glaucoma,
7. Secondary Glaucoma

### Category C

Senior Registrar

1. Conjunctival Disorders – 1
2. Conjunctival Disorders – 2
3. Dry eye Syndrome
4. Lacrimal Drainage system

5. visual pathway
6. 3<sup>rd</sup>, 4<sup>th</sup>, 6<sup>th</sup> cranial nerve palsies
7. optic neuropathies
8. Lacrimal System

1. Refractive errors
2. Scleritis/ episcleritis

**8. acquired macular disorders**

9. Refractive surgery

3. Ocular manifestations of systemic diseases

**Contact Hours (Faculty) Ophthalmology**

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total hours
1.	Large Group Interactive Session (LGIS)	6 hours x 5 weeks = 30 hours
2.	Clinical Clerkship	4 hours x 6 weeks = 24 hours
3.	Case Based Learning (CBD)	4 hours x 6 weeks = 24 hours
4.	Operation theatre	8 hours x 6 weeks = 48 hours
		126 hours

**Block XI(Ophthalmology)**  
**- Module I**  
**3 Weeks**

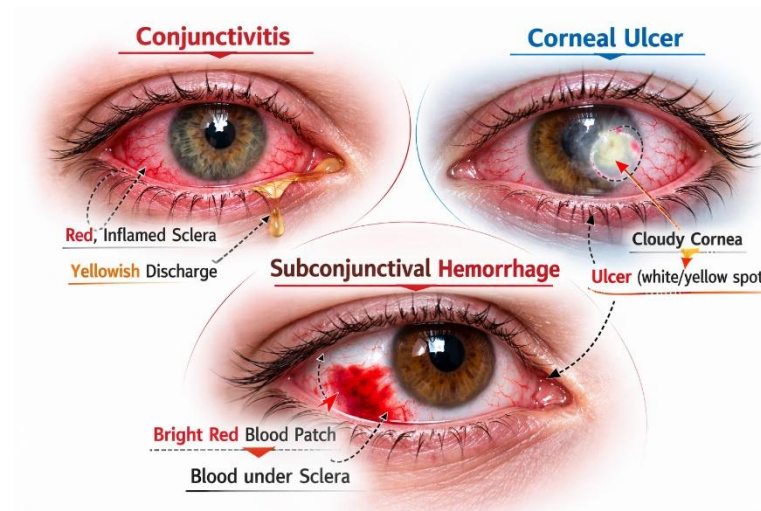
# Ophthalmology

## Module-1

### Week-1

THEME-1

## Red Eye



**RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI NEW TEACHING BLOCK**

**TENTATIVE TIME TABLE 4<sup>th</sup> YEAR MBBS – (EYE) Module I 2025**

**(1<sup>st</sup> WEEK/ gradual loss of vision)**

DATE / DAY	8:00 AM – 9:00 AM	09:00am – 10:00am		10:30am – 12:00pm	12:00pm - 01:00pm
Monday 14-4-2026	Pathology (LGIS)	EYE (LGIS)	BREAK 10:00AM – 10:30AM	Clinical Clerkship Annexure -1 (Complete 6 weeks rotation plan attached at the end of the curriculum)	
	Neoplasms of Eyelid (Squamous Cell CA, Basal Cell CA) <b>Prof. Dr. Mobina Ahsan Dhody/ Dr. Mudassara Zahid</b> Lect hall 1/ 2	Conjunctival disorders- 1 <b>Dr. Wajeehal/ Dr Sulman</b> Lect hall 1/ 2			
Tuesday 15-4-2026	COMMUNITY MEDICINE (LGIS)	Eye (LGIS)			
	Concepts of screening <b>Prof Rozina Shahadat Khan/ Dr. Sana Bilal</b> Lect hall 1/ 2	Conjunctival disorders- 2 <b>Dr. Wajeehal/ Dr Sulman</b> Lect hall 1/ 2			
Wednesday 16-4-2026	COMMUNITY MEDICINE (LGIS)	Eye (LGIS)			
	Interpretation of screening test <b>Prof Rozina Shahadat Khan/ Dr. Sana Bilal</b> Lect hall 1/ 2	Uveitis 1 <b>Dr. Ambreen/ dr Maria</b> Lect hall 1/ 2			
Thursday 17-4-2026	Community Medicine (LGIS)	EYE (LGIS)			
	Concepts of health education <b>Dr Khola Noreen/ Dr Afifa Kulsoom</b> Lect hall 1/ 2	Uveitis 2 <b>Dr. Ambreen/ dr Maria</b> Lect hall 1/ 2			
Friday 18-4-2026	8:00AM- 9:45AM	09:45AM – 10:30	10:30AM – 11:15AM	11:15AM – 12:00PM	
	Community Medicine/ pathology (SGD) Data Collection, Skills Behavior, Logistics and Field Issues (All Senior Faculty and Demonstrators) Non neoplastic lesions of eyelids <b>Dr Fatima/ dr mahjabeen/ dr mehreen/ dr Iqbal</b>	Ophthalmology LGIS Corneal ulcers <b>Dr. Ambreen/ Dr wajeeha</b> Lect hall 4/5	Community Medicine (LGIS) Development of questionnaire (LGIS) <b>Dr. Afifa Kulsoom/Dr Mehwish Riaz</b> Lect hall 4/5	Pharma (LGIS) Ophthalmic Dosage Forms of Drugs <b>Dr. Zunaira/ Dr zufishan</b> Lect hall 4/5	
Saturday 19-4-2026	08:00AM – 09:45AM	09:45AM – 11: 30AM	11:30AM – 12:00 PM	12:00 PM- 1:00PM	01:00PM – 02:00PM
	Community Medicine/ pathology (SGD) Data Collection, Skills Behavior, Logistics and Field Issues (All Senior Faculty and Demonstrators) Non neoplastic lesions of eyelids <b>Dr Fatima/ dr mahjabeen/ dr mehreen/ dr Iqbal</b>	TCRF 1 A 28 year old male with mild discomfort, redness and watery discharge <b>CPC hall</b>	Break	Ophthalmology LGIS Acute and secondary glaucoma <b>DR AMBREEN/ DR SAIRA</b> <b>LECT HALL 4/5</b>	Ophthalmology LGIS Episcleritis/ scleritis <b>Prof. Dr. Fuad/ Dr Sidra Jabeen</b> Lect hall 4/ 5

## Weekly LMS assessment

### LMS-1/ Week-1

#### Table of Specification (TOS)

#### MCQ Assessment of lectures and SDL

00-00- 2026 (Saturday)

(80% pass criteria for appearing in end block exam - 80% attendance)

Sr. #	Discipline	No. of MCQs	No. of MCQs according to cognitive domain			Total marks
			C1	C2	C3	
1.	Otorhinolaryngology	30	05	20	05	30
2.	Community Medicine	15	05	08	02	15
3	Pharmacology	05	02	02	01	05
		Total MCQs = 50	12	30	08	Total marks = 50

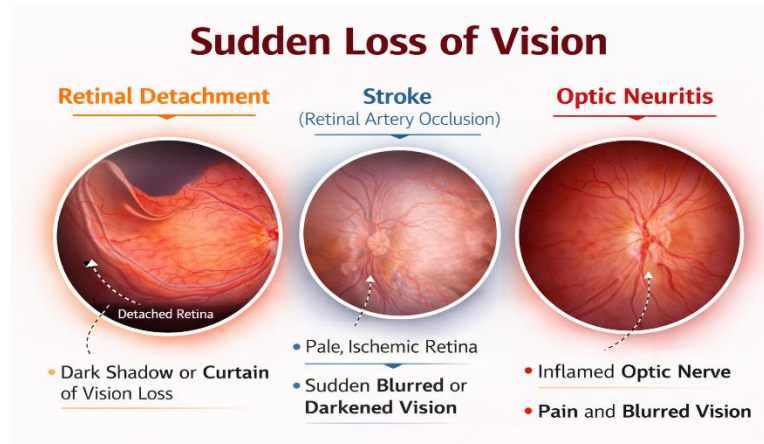
# Ophthalmology

## Module-1

## Week-2

## Theme-2

## Sudden loss of vision



**RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI NEW TEACHING BLOCK  
TENTATIVE TIME TABLE 4<sup>th</sup> YEAR MBBS – EYE Module I 2025**

**2<sup>nd</sup> week/ Sudden loss of vision**

DATE / DAY	8:00 AM – 9:00AM	09:00am – 10:00am	B R E A K : 3 0 A M - 1 0 : 3 0 A M		10:30am – 12:00pm	12:00pm - 02:00pm		
Monday 28-4-2025	Community Medicine (LGIS) Introduction to Biostatistics Dr. Imrana/Dr. Mehjabeen Lect hall 1/ 2	EYE (LGIS) Corneal dystrophies Dr. Ambreen/ dr Wajeeha Lect hall 1/ 2			<b>Clinical Clerkship Annexure -1 (Complete 6 weeks rotation plan attached at the end of the curriculum)</b>			
Tuesday 29-4-2025	Dermatology LGIS Approach to a patient with Urticaria CPC hall	Eye (LGIS) Corneal ectasia and keratoplasty Dr. Ambreen/ dr Wajeeha Lect hall 1/ 2						
Wednesday 30-4-2025	PATHOLOGY (LGIS) Corneal and Conjunctival degenerative and neoplastic disorders Dr. Kiran/ Dr. Fatima Lect hall 1/ 2	Eye (LGIS) Blunt trauma/ chemical injury Dr. Ambreen/ Dr Maria Lect hall 1/ 2						
Thursday 1-5-2024	Community Medicine (LGIS) Hypothesis testing Dr. Imrana/Dr. Mehjabeen Lect hall 5/4	Eye (LGIS) Penetrating trauma Dr. Fatima Sidra/ dr Wajeeha Lect hall 1/ 2						
Friday 2-5-2025	08:00AM – 09:45AM		09:45AM – 10:30AM		10:30AM – 11:15AM		11:15AM – 12:00PM	
	Community Medicine (PAL) Descriptive analysis (All Senior Faculty and Demonstrators)	Eye (CBL) Common ophthalmic surgeries Dr Rafeeq	Eye (LGIS) Retinal detachment Prof Fuad/ Dr Saira Lect hall 4/5	Eye (LGIS) Optic neuritis Dr Fatima/ Dr Sulman Lect hall 4/ 5	Community Medicine (LGIS) Hospital Administration Dr. Narjis/ Dr Abdul Quddus Lect hall 4/ 5			
Saturday 3-5-2025	08:00AM – 09:45AM		9:45am-1130am		12:00 PM – 1:00PM		1:00PM – 02:00PM	
	Eye (CBL) Common ophthalmic surgeries Dr Rafeeq/	Community Medicine (SGD) Descriptive analysis (All Senior Faculty and Demonstrators)	Eye TCRFS 2 A 60-year-old man with sudden painless loss of vision CPC hall	11:30 – 12:00 Break	Eye (LGIS) Retinal vein occlusion Prof Fuad/ Dr Saira Lect hall 5/4	pharma (LGIS) Drugs used in ocular infections Dr uzma/ dr Zaheer Lect hall 4/ 5		

**Mid Module-1- Block-1 Assessment (MCQ) Lectures and SDL (Week 2)**

**Table of Specification (TOS)**

**MCQ Assessment of lectures and SDL**

**00-00- 2026**

**(80% pass criteria for appearing in end block exam - 80% attendance)**

Sr. #	Discipline	No. of MCQs	No. of MCQs according to cognitive domain			Total marks
			C1	C2	C3	
1.	<b>Ophthalmology</b>	30	05	20	05	30
2.	<b>Community Medicine</b>	15	05	08	02	15
3		05	02	02	01	05
		Total MCQs = 50	12	30	08	Total marks = 50

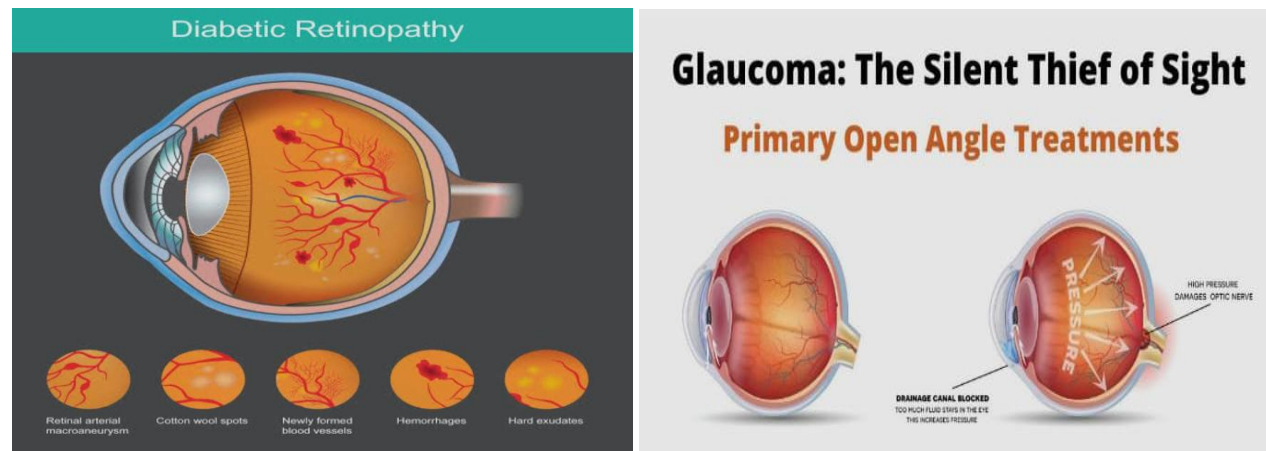
# Ophthalmology

## Module-1

## Week-3

## Theme-3

## Gradual loss of vision



**RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI NEW TEACHING BLOCK  
TENTATIVE TIME TABLE 4<sup>th</sup> YEAR MBBS – (EYE) Module 1 2026**

**(3rd WEEK/ gradual loss of vision)**

DATE / DAY	8:00 AM – 9:00 AM	09:00am – 10:00am			10:30am – 12:00pm	12:00pm - 02:00pm
Monday 5-5-2025	Community Medicine (LGIS)	Eye (LGIS)	BREAK 10:00AM – 10:30AM		<b>Clinical Clerkship Annexure -1 (Complete 6 weeks rotation plan attached at the end of the curriculum)</b>	
	Principles and practices of Health Education <b>Dr Khola Noreen/Dr Mehwish Riaz</b> Lect hall 1/ 2	Diabetic retinopathy/ retinal dystrophies & degeneration <b>Prof Fuad/ Dr Saira</b> Lect hall 4/5				
Tuesday 6-5-2025	Pathology (LGIS)	Eye (LGIS)				
	Pathology of cataract, glaucoma, intraocular infections and tumor <b>Dr. Mobina/ Dr. Mudassara</b> Lect hall 1/ 2	Open angle glaucoma <b>Dr. Ambreen/ Dr wajeeha</b> Lect hall 1/ 2				
Wednesday 7-5-2025	<b>Prep. Leave for End Module 1 Examination</b>					
Thursday 8-5-2025	<b>8:00 AM – 10:00AM End Module 1 Examination (written + AV OSPE)</b>					
Friday 9-5-2025	<b>08:00AM – 09:45AM</b> Community medicine (SGD)	<b>09:45AM – 10:30AM</b> PATHOLOGY (skill lab)	<b>10:30AM – 11:15AM</b> EYE (LGIS)	<b>11:15AM – 12:00PM</b> COMMUNITY MEDICINE (LGIS)		
	Health for All <b>Dr Asif, Dr Mehreen,Dr Mehrish</b>	Neoplastic lesions optic nerve <b>Dr Nida Fatima</b>	Cataract <b>Prof Fuad/ Dr Sidra</b> Lect hall 4/ 5	Secondary glaucoma <b>Dr. Ambreen/ Dr wajeeha</b> Lect hall 1/ 2	Hospital waste management practices <b>Dr. Narjis/ DrAsif</b> Lect hall 5/4	
Saturday 10-5-2025	<b>08:00AM – 09:45AM</b> PATHOLOGY (Skill lab)	<b>9:45AM – 11:30AM</b> Community medicine (SGD)	<b>12:00-1:00Pm</b> EYE (LGIS)	<b>1:00PM – 02:00PM</b> COMMUNITY MEDICINE (LGIS)		
	Neoplastic lesions optic nerve <b>Dr Nida Fatima</b>	Health for All <b>Dr Asif, Dr Mehreen,Dr Mehrish</b>	Elderly diabetic male with progressive painless visual loss <b>CPC hall</b>	<b>BREA K 11:30A M – 12:00PM</b> Ectopia lentis <b>Prof Fuad/ Dr Sidra</b> Lect hall 4/ 5	HMIS <b>Dr Farah/ Dr. Abdul Quddus</b> Lect hall 1/ 2	

## End Module 1

Sr. #	Discipline	No. of MCQs (1 mark each)	Cognitive domain			No of EMQs (5 marks each)	No. of SEQs (9 marks each)	Cognitive domain			No of SAQs (5 marks each)	Cognitive domain			Total	AV OSPE 5 marks
			C1	C2	C3			C1	C2	C3		C1	C2	C3		
1.	Ophthalmology	35 MCQ	25	05	05	1	5	03	01	01	3	---	01	01		10
		35 marks				5 MARKS	45 MARKS				15 Marks				100 marks	50 marks

### Topic wise distribution End module- I assessment:

Sr.No.	Topic	Weightage %	SAQ 3	SEQ 5	MCQ 35	EMQ 1	AV OSPE	
1	Lens disorders	10	1	1	5	1	1	
2	glaucoma	10					5	1
3	Sclera/ episclera	5					2	
4	Conjunctiva	10	1	1	2		1	
5	Cornea	10					5	1
6	Uvea	10					2	1
7	Retina	15			1		5	1

8	Pathology Pharmacology	10%			3		1
9	Family medicine, General surgery, basic sciences	10%	1	1	3		1
10	Bio ethics, Research, Artificial intelligence	10%			3		1

LMS4

Week-4

### Table of Specification (TOS)

#### LMS-MCQ Assessment of lectures and SDL

(Saturday)

(80% pass criteria for appearing in end block exam - 80% attendance)

Sr. #	Discipline	No. of MCQs	No. of MCQs according to cognitive domain			Total
			C1	C2	C3	
1.	Ophthalmology	30	05	20	05	30

2.	Community Medicine	15	06	07	02	15
3	Dermatology	05	02	02	01	05
		50	20	22	08	50 marks

**Ophthalmology Module II/ Block – II**  
**3 Weeks**

# **Ophthalmology**

## **Module-2**

### **Week-4**

#### **Theme-4**

#### **Ocular aesthetics**



**RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI NEW TEACHING BLOCK  
TENTATIVE TIME TABLE 4<sup>th</sup> YEAR MBBS – (EYE) Module 1 2026**

**(4th WEEK/ Ocular aesthetics)**

DAT	8:00 AM – 9:00 AM	09:00am – 10:00am	10:30am – 12:00pm	12:00pm – 02:00pm
<b>E / DAY</b>				
Monday 12-5-2025	EYE (LGIS) Orbit – 1 Dr. Maria/ dr Rafeeq Lect hall 1/ 2	EYE (LGIS) Eyelid and Eyelash Disorder -1 Dr. Wajeeha Rasool/ Dr Fatima Sidra Lect hall 1/ 2	BREAK 10:00 – 10:30	Clinical Clerkship Annexure -1 (Complete 6 weeks rotation plan attached at the end of the curriculum)
	COMMUNITY MEDICINE (LGIS) Primary Health Care Dr. Mehwish/ Dr. Afifa Lect hall 1/ 2	EYE (LGIS) Orbit – 2 Dr. Maria/ dr Rafeeq Lect hall 1/ 2		
Tuesday 13-5-2025	COMMUNITY MEDICINE (LGIS) Test of significance (t, z & chi-square tests) Dr Imrana / Dr Mehjabeen Lect Hall 1/2	Eye (LGIS) Eyelid and Eyelash Disorder -2 Dr. Wajeeha Rasool/ Dr Fatima Sidra Lect hall 1/ 2		
	Dermatology (LGIS) An approach to a pt. with Nail Disorders. Dr. Shahwana  CPC hall	Eye (LGIS) Refractive errors Prof. Dr. Fuad/ dr Saira Bano Lect hall 1/ 2		
Wednesday 14-05-2025	08:00AM – 09:45AM Community medicine/ Pathology (SGD) Disinfection Dr Abdul Quddus/Dr Aisha / Dr Maria Pathophysiology and manifestation of systemic diseases in eye Dr mudassira/ dr unaiza/ dr Ayesha/ dr faiza	09:45AM – 10:30 Eye (LGIS) Refractive surgery Prof. Dr. Fuad/ dr Saira Bano Lect hall 1/ 2		
	08:00AM – 09:45am Community Medicine/ PATHOLOGY (SGD) Disinfection Dr Abdul Quddus/Dr Aisha / Dr Maria Pathophysiology and manifestation of systemic diseases in eye Dr mudassira/ dr unaiza/ dr Ayesha/ dr faiza	09:45AM – 1115 AM Eye TCRFS 4 A young female with progressive proptosis and diplopia  CPC hall	1145AM – 1230PM Eye (LGIS) Pupillary disorder & nerve palsies Dr Fatima/ Dr sulman Lect hall 1/ 2	1230PM- 1:15PM Community medicine (LGIS) Health Planning and Management Dr. Narjis/ Dr. Asif Lect hall 4/5
Thursday 15-5-2025	Friday 16-05-2025	Saturday 17-05-2025		

LMS-4

Week-4

**Table of Specification (TOS)**

**LMS-MCQ Assessment of lectures and SDL**

**April 2026 (Saturday)**

**(80% pass criteria for appearing in end block exam - 80% attendance)**

Sr. #	Discipline	No. of MCQs	No. of MCQs according to cognitive domain			Total
			C1	C2	C3	
1.	Ophthalmology	30	05	20	05	30
2.	Community Medicine	15	08	05	02	15
3	Dermatology, pharma, patho	05	07	02	01	05
		50	37	15	08	50 marks

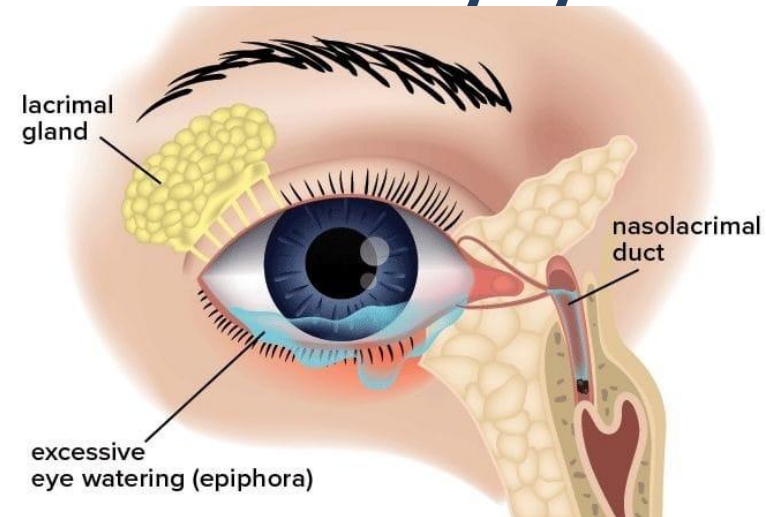
# Ophthalmology

## Module-2

## Week-5

## Theme-5

## Watery Eye



RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI NEW TEACHING BLOCK TENTATIVE TIME TABLE

4<sup>th</sup> YEAR MBBS – (EYE) Module II 2025

(5th WEEK/ / watery eye))

DATE / DAY	8:00 AM – 9:00 AM	09:00am – 10:00am	10:30am – 11:00pm	11:00pm – 02:00pm		
Monday 19-05-2025	EYE (LGIS)	Eye (LGIS)		<b>Clinical Clerkship Annexure -1</b> (Complete 6 weeks rotation plan attached at the end of the curriculum)		
	Dry eyes Dr. Ambreen/ dr Saira Lect hall 1/ 2	3 <sup>rd</sup> , 4 <sup>th</sup> , 6 <sup>th</sup> and 7 <sup>th</sup> Cranial nerve palsies Dr. Fatima/ Dr Sulman Lect hall 1/ 2				
Tuesday 20-05-2025	Dermatology (LGIS)	EYE (LGIS)				
	An approach to a pt. with bullous disorders Dr Shawana CPC hall	Lacrimal system Dr. Ambreen/ dr Saira Lect hall 1/ 2				
Wednesday 21-05-2025	Community medicine (LGIS)	Eye (LGIS)				
	Correlation , regression and ANOVA Dr Imrana / Dr Mehjabeen Lect Hall 1/ 2	Ocular complications of systemic medications Dr Wajeeha/ Dr Sulman Lect Hall 4/5				
Thursday 22-05-2025	Eye (LGIS)	Eye (LGIS)				
	Pediatric Ophthalmology Dr. Sidra Jabeen/ Dr Saira Bano Lect hall 1/ 2	Strabismus 1 Dr Sidra/ Dr saira Lect hall 4/ 5				
Friday 23-05-2025	08:00AM – 09:45AM	09:45AM – 10:30AM	10:30AM – 11:15AM	11:15AM – 12:00PM		
	Community Medicine (SGD)	ophthalmology (CBL)	Eye (LGIS)	Eye (LGIS)		
	Control of surface infections Dr Asif/Dr Bushra / dr saba	OSCE essentials Dr Fatima	Systemic Diseases affecting Eye Dr. Wajeeha/ Dr Sulman Lect hall 4/ 5	Strabismus 2 Dr Sidra/ Dr saira Lect hall 4/ 5	Ophthalmic lasers Dr maria/ dr sulman Lect hall 4/ 5	
Saturday 24-05-2025	08:00AM – 09:45AM	09:45AM – 10:40AM	10:40AM – 11:40AM	12:00AM – 1:00PM	1:00PM-2:00PM	
	ophthalmology (CBL)	Community Medicine (SGD)	EYE TCRF 5	Dermatology (LGIS)	Community medicine (LGIS)	
	OSCE essentials Dr Fatima	Control of surface infections Dr Asif/Dr Bushra / dr saba	A middle aged woman with watering from left eye  CPC hall	An approach to a pt. with Lichen Planus Dr Shawana CPC hall	BREAK 11:40A M – 12:00p M	Pathology LGIS Optic neuropathies, retinal detachment, retinal vascular disease Dr.Fatima/ Dr. Kiran Fatima Lect hall 4/5

LMS-5

Week-5

**Table of Specification (TOS)**

**LMS-MCQ Assessment of lectures and SDL**

**April,2026 (Saturday)**

**(80% pass criteria for appearing in end block exam - 80% attendance)**

Sr. #	Discipline	No. of MCQs	No. of MCQs according to cognitive domain			Total
			C1	C2	C3	
1.	Ophthalmology	30	05	20	05	30
2.	Community Medicine	15	06	07	02	15
3	Dermatology	05	02	02	01	05
		50	20	22	08	50 marks

# **Ophthalmology**

## **Module-2**

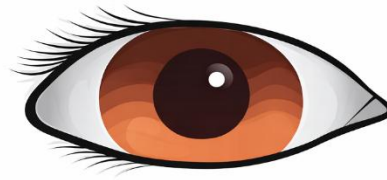
### **Week-6**

#### **Theme-6**

#### **White Pupil**

# White Pupil

(leukocoria)



Normal eye



White Pupil

**RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI NEW TEACHING BLOCK**

**TENTATIVE TIME TABLE 4<sup>th</sup> YEAR MBBS – (EYE) 2025 -**

**Week 6: white pupil**

<b>DATE / DAY</b>	<b>8:00 AM – 9:00 AM</b>	<b>09:00am – 10:00am</b>		<b>10:30am – 12:00pm</b>	<b>12:00pm - 02:00pm</b>
Monday 26-05-2025	<b>End module-II exam (written+ AV OSPE)</b>		<b>BREAK 10:00A M – 10:30A M</b>	<b>Clinical Clerkship Annexure -1 (Complete 6 weeks rotation plan attached at the end of the curriculum)</b>	
Tuesday 27-5-2025					
Wednesday 28-05-2025					
Thursday 29-05-2025					
Friday 30-5-2025	<b>08:00AM – 09:45AM</b>	<b>09:45AM – 10:30AM</b>	<b>10:30AM – 11:15AM</b>	<b>11:15AM – 12:00PM</b>	
Saturday 31-5-2025					

## End Module 2

Sr. #	Discipline	No. of MCQs (1 mark each)	Cognitive domain			No of EMQs (5 marks each)	No. of SEQs (9 marks each)	Cognitive domain			No of SAQs (5 marks each)	Cognitive domain			Total	AV OSPE 5 marks
			C1	C2	C3			C1	C2	C3		C1	C2	C3		
1.	Ophthalmology	35 MCQ	25	05	05	1	5	03	01	01	3	---	01	01		10
		35 marks				5 MARKS	45 MARKS				15 Marks				100 marks	50 marks

i) **Topic wise distribution End module- 2 assessment:**

Sr.No.	Topic	Weightage %	SAQ 3	SEQ 5	MCQ 35	EMQ 1	AV OSPE
1	Refractive errors/ surgery	5	1	1	2	1	1
2	Lids & Adnexa	5			2		1
3	Lacrimal System	5			2		
4	Dry eyes	5		1	2		1
5	Nerve palsies, pupillary disorders	10			4		1
6	strabismus	15	1		5		1

<b>7</b>	Dry eyes	15		1	5		1
<b>8</b>	Orbit/ ocular tumors	10		1	4		1
<b>9</b>	Pathology Pharmacology	10%	1	1	3		1
<b>10</b>	Family medicine, General surgery, basic sciences	10%			3		1
<b>11</b>	Bio ethics, Research, Artificial intelligence	10%			3		1
			3	5	35		



## 4th Year MBBS Clinical Clerkship



## Trans Disciplinary Clinico Connect Session (CCS)

## Ophthalmology Integrated Clinical Clerkship (4th Year MBBS) — Rationale

The 4th Year MBBS Ophthalmology Clinical Clerkship is organized around **high-frequency presenting complaints** rather than traditional anatomical divisions. Core themes include:

- Gradual loss of vision
- Red eye
- Sudden loss of vision
- Watery eye
- Ocular aesthetics
- White pupil

This **symptom-oriented structure** mirrors real clinical practice, where patients present with complaints rather than diagnoses. It fosters development of **clinical reasoning** by enabling students to build illness scripts, prioritize differential diagnoses, distinguish benign from vision-threatening conditions, and recognize red-flag features requiring urgent intervention.

The design promotes **hypothesis-driven diagnostic thinking**, moving beyond memorization toward practical decision-making. The clerkship is delivered within a **workplace-based, competency-driven framework**, where students progress from basic examination skills to integrated clinical judgment across outpatient clinics, wards, and emergency settings. This spiral progression ensures increasing complexity, contextual learning, and refinement of skills in authentic patient environments.

## Ophthalmology Integrated Clinical Clerkship (6 Weeks)

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

### 1. Clinical Assessment Competencies

1. Take a focused ophthalmic history for patients presenting with:
  - Gradual visual decline
  - Red eye
  - Sudden vision loss
  - Watering or discharge
  - Cosmetic or eyelid concerns
  - White pupillary reflex
2. Perform systematic ophthalmic examination including:
  - Visual acuity assessment
  - Pupillary reactions
  - Extraocular movements
  - Torch and slit-lamp observation
  - Fundoscopy (observation)
  - Confrontation visual fields
  - Lacrimal system assessment basics

### 2. Clinical Reasoning Competencies

## Educational Framework Alignment

The program aligns with established medical education models:

- **Ronald Harden’s Integration Ladder (Levels 9–11)**  
Promoting vertical and horizontal integration of basic sciences with clinical practice.
- **George Miller’s Pyramid**  
Progressing from *Knows How* → *Shows How* → *Does* under supervision.
- **Competency-Based Medical Education (CBME)**  
Emphasizing observable, measurable clinical competencies.
- **Patient-centered care principles**  
Highlighting communication, ethics, and professionalism.

## Contextual & Public Health Relevance

Selected themes reflect **regional disease burden and real-world practice**, including:

- Cataract as a leading cause of reversible blindness
- Diabetic retinopathy and hypertensive eye disease
- Infective keratitis and ocular trauma
- Glaucoma-related visual morbidity
- Vitamin A deficiency and pediatric ocular conditions

This ensures the clerkship remains **contextually relevant**, clinically integrated, and focused on safe practice readiness.

3. Generate differential diagnoses based on presenting complaints.
4. Distinguish benign from sight- or life-threatening conditions.
5. Recognize ophthalmic emergencies including:
  - Acute angle-closure glaucoma
  - Retinal detachment
  - Central retinal artery occlusion
  - Severe keratitis
  - Pediatric ocular malignancy suspicion
6. Plan initial investigations and interpret basic findings:
  - Visual acuity charts
  - OCT and visual field principles
  - B-scan basics
  - Blood glucose relevance

## 3. Management & Patient Safety Competencies

7. Outline initial management strategies for common ophthalmic conditions.
8. Identify cases requiring urgent referral or surgical management.
9. Demonstrate understanding of:
  - Rational use of topical medications
  - Steroid precautions
  - Infection prevention
10. Participate in clinics and observe procedures such as slit-lamp exam, cataract workflow, and intravitreal injection.

## 4. Communication & Professionalism

	<p>11. Counsel patients regarding:</p> <ul style="list-style-type: none"> <li>• Disease condition and prognosis</li> <li>• Medication adherence</li> <li>• Post-operative care</li> <li>• Warning signs</li> </ul> <p>12. Communicate sensitively with visually impaired patients and parents of children with suspected serious disease.</p> <p>13. Maintain confidentiality and professional conduct.</p>
	<p><b>5. Integration &amp; Systems-Based Competencies</b></p> <p>14. Integrate basic sciences (anatomy, physiology, optics, pathology, microbiology, pharmacology) with clinical findings.</p> <p>15. Collaborate effectively with multidisciplinary teams including pediatrics, medicine, endocrinology, neurology, oncology, radiology, and rehabilitation services.</p>

**Six Week Curriculum**

<b>Week</b>	<b>Theme</b>	<b>Learning Outcomes</b>	<b>Teaching Strategies</b>	<b>Learning Resources</b>	<b>Assessment Methods</b>
<b>Week 1</b>	Red Eye – Anterior Segment &	<ul style="list-style-type: none"> <li>• Focused ocular history including trauma &amp; CL use</li> <li>• Examine lids, conjunctiva, cornea, AC, IOP</li> </ul>	Bedside teaching - OPD exposure - Pre-reading	- Textbooks: Clinical Ophthalmology by Jack J. Kanski	MCQs/SAQs - OSCE: slit-lamp exam, corneal staining, IOP measurement

	Acute Conditions	<ul style="list-style-type: none"> <li>• Differentiate common acute conditions</li> <li>• Participate in urgent management planning- Establish rapport with patients and educate them about red eye prevention</li> </ul>	<ul style="list-style-type: none"> <li>- Video demonstrations</li> <li>- Small group discussions</li> </ul>	<ul style="list-style-type: none"> <li>- Videos on keratitis, glaucoma, and uveitis</li> <li>- Tools: Slit-lamp, tonometer, fluorescein strips.</li> </ul>	<ul style="list-style-type: none"> <li>- Faculty feedback</li> <li>- Logbook review</li> </ul>
<b>Week 2</b>	Sudden Loss of Vision	<ul style="list-style-type: none"> <li>- Establish rapport with patients while taking history and explaining disease progression. - Assess vision and examine the anterior segment. - Perform pupillary reflex examination. - Conduct basic fundus examination using a direct ophthalmoscope. - Enlist common ophthalmic instruments like those used in cataract and glaucoma surgeries. - Participate in formulating management plans for cataracts, glaucoma, and diabetic retinopathy under supervision.</li> </ul>	<ul style="list-style-type: none"> <li>- Emergency bedside teaching</li> <li>- Case-based discussions</li> <li>- Trauma simulations</li> <li>- Fundus photograph interpretation</li> <li>- Interdepartmental session</li> <li>- Small group discussions</li> <li>- Problem-based learning</li> </ul>	<ul style="list-style-type: none"> <li>- Clinical Ophthalmology (Kanski)</li> <li>- AAO Basic Ophthalmology</li> <li>- Fundus photo atlas</li> <li>- Slit-lamp</li> <li>- Direct ophthalmoscope</li> <li>- Visual acuity charts</li> </ul>	<ul style="list-style-type: none"> <li>- OSCE (RAPD, anterior segment exam)</li> <li>- OSCE (fundus findings)</li> <li>- Trauma triage station</li> <li>- MCQs and SAQs</li> <li>- Case-based viva - Logbook review</li> <li>- Faculty feedback</li> </ul>
<b>Week 3</b>	Gradual Loss of Vision	<ul style="list-style-type: none"> <li>Refractive Errors &amp; Amblyopia- Take focused history of gradual painless vision loss- Measure distance &amp; near visual acuity- Perform pinhole test- Corneal &amp; Ocular Surface Differentiate reversible vs progressive corneal disease-</li> </ul>	<ul style="list-style-type: none"> <li>- Bedside teaching- Slit-lamp demonstrations- Fundus photograph interpretation- Case-based discussions (CBD)- Small group discussions (SGD)- Problem-based</li> </ul>	<ul style="list-style-type: none"> <li>- Clinical Ophthalmology (Kanski)- AAO Basic &amp; Clinical Science Course- Fundus photograph atlas- Slit-lamp- Direct ophthalmoscope-</li> </ul>	<ul style="list-style-type: none"> <li>- OSCE (VA, IOP, slit-lamp)- OSVE (fundus interpretation)- Mini-CEX- Case-based viva- MCQs &amp; SAQs- Logbook review- Reflective portfolio</li> </ul>

		Outline management & preventive strategies Lenticular Causes- Grade cataract - Recognize lens-induced glaucoma- Counsel regarding surgical indications Glaucomatous & Optic Nerve Causes - Interpret visual field defects- Recognize papilledema & chronic optic neuropathies- Identify diabetic & hypertensive retinopathy- Recognize macular edema- Formulate algorithm for gradual vision loss	learning- Interdepartmental sessions	Visual acuity charts- Perimetry	
<b>Week 4</b>	Ocular Aesthetics & Lid/Orbital Disorders	Ptosis, Non-neoplastic & Neoplastic Lid Masses- Recognize common benign (Ptosis, chalazion, papilloma) and malignant (BCC, SCC, melanoma) lesions- Outline referral and management principles Ectropion / Entropion- Identify lid malposition types- Recognize signs of corneal exposure or irritation Proptosis- Differentiate axial vs non-axial proptosis- Identify inflammatory, neoplastic, vascular, and thyroid causes	- Bedside teaching with live patient demonstration- Lid and orbital anatomy demonstration- Case-based discussions (CBD)- Small group discussions (SGD)- Problem-based learning (PBL)- Interdepartmental sessions (ENT, Endocrinology, Radiology, Plastic Surgery)	- Clinical Ophthalmology (Kanski)- AAO Basic & Clinical Science Course (Oculoplastics Chapter)- Fundus & external eye atlas- eyelid ruler, slit-lamp- Ocular motility charts	- OSCE (lid measurements, OSVE (lid/orbital mass identification, proptosis measurement)- Mini-CEX- Case-based viva (thyroid eye disease, blow-out fracture)- MCQs & SAQs- Logbook review- Reflective portfolio

		Strabismus (Esotropia / Exotropia) & Principles of Management- Identify types and clinical assessment of strabismus			
<b>Week 5</b>	Watery Eye & Eyelid Disorders	<ul style="list-style-type: none"> <li>-Take detailed history focusing on tearing, irritation, discharge, and allergy history.</li> <li>- Perform slit-lamp examination and assess anterior segment.</li> <li>- Identify and differentiate causes of epiphora: dry eye syndrome, blepharitis, infective and allergic conjunctivitis, congenital NLDO, acute/chronic dacryocystitis.</li> <li>- Examine eyelid malpositions such as ectropion and entropion.</li> <li>- Participate in formulation of basic management plans under supervision.</li> </ul>	<ul style="list-style-type: none"> <li>Bedside teaching</li> <li>- OPD exposure</li> <li>- Pre-reading</li> <li>- Recorded videos</li> <li>- Small group discussions</li> </ul>	<ul style="list-style-type: none"> <li>Textbook: Clinical Ophthalmology: A Systematic Approach by Jack J. Kanski</li> <li>- Videos of lacrimal and eyelid procedures</li> <li>- Tools: Slit-lamp, fluorescein strips, Schirmer's test</li> </ul>	<ul style="list-style-type: none"> <li>MCQs/SAQs</li> <li>- OSCE: eyelid exam &amp; lacrimal assessment</li> <li>- Faculty feedback</li> <li>- Logbook review</li> </ul>
<b>Week 6</b>	Leukocoria, Emergency Recognition & Integrated Approach	<ol style="list-style-type: none"> <li>1. Perform Red Reflex Examination <ul style="list-style-type: none"> <li>- Identify leukocoria early</li> <li>- Differentiate unilateral vs bilateral</li> </ul> </li> <li>2. Media Opacity Causes <ul style="list-style-type: none"> <li>- Congenital cataract</li> <li>- Endophthalmitis</li> </ul> </li> <li>3. Retinal Pathology <ul style="list-style-type: none"> <li>- Retinoblastoma</li> </ul> </li> </ol>	<ul style="list-style-type: none"> <li>- Case-based discussions</li> <li>- Fundus photo interpretation</li> <li>- Red reflex examination practice</li> <li>- Small group discussions</li> <li>- Interdepartmental sessions</li> </ul>	<ul style="list-style-type: none"> <li>- Kanski Clinical Ophthalmology</li> <li>- AAO Basic Ophthalmology</li> <li>- Pediatric ophthalmology atlases</li> <li>- Retinal images</li> <li>- B-scan ultrasonography</li> </ul>	<ul style="list-style-type: none"> <li>- OSCE: Red reflex examination</li> <li>- OSCE: Fundus photo diagnosis</li> <li>- Case-based viva (RB management)</li> <li>- MCQs and SAQs</li> <li>- Logbook review</li> <li>- Faculty feedback</li> </ul>

		<ul style="list-style-type: none"> <li>- ROP</li> <li>- Retinal detachment</li> <li>- Coats disease</li> <li>4. Vitreous Anomalies</li> <li>5. Management &amp; Referral</li> <li>- Identify life-threatening causes</li> <li>- Plan urgent referral</li> <li>- Counsel parents</li> </ul>			
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### Clinical Skills/ competencies Required

Keyword/Topic	Competency Description
Common Ocular Conditions	Identify and describe common ocular conditions, along with their treatment and management strategies.
History Taking and Case Presentation	Take a detailed and comprehensive ophthalmic history. Present patient cases in a structured and professional format.
Vision Assessment	Demonstrate the steps for assessing visual acuity, including distance, near vision, colour vision, and pinhole testing.
Pupil Examination	Perform a thorough examination of pupils, including anisocoria, heterochromia, light and near reflex
Slit Lamp Examination	Demonstrate the correct use of the slit lamp for evaluating the anterior segment of the eye, including lids, cornea, and iris.
Direct Ophthalmoscopy	Perform direct ophthalmoscopy to examine the optic disc, macula, and retinal vessels.
Extraocular Movements	Examine uniocular and binocular extraocular movements and interpret findings related to ocular alignment and motility.
Ophthalmologic Emergencies	Recognize common ophthalmic emergencies, describe their clinical features, and determine the need for urgent referral.
Patient Counselling and Education	Counsel patients effectively regarding common conditions such as cataracts, including obtaining informed consent in a simulated environment.
Surgical Exposure	Observe ophthalmic surgical procedures to gain an understanding of surgical techniques, patient preparation, and teamwork.
Preoperative Patient Preparation	Demonstrate the steps of preoperative preparation, including patient education, hygiene, and administration of pre-surgical medications.
Practical Skills in a Simulated Environment	Eyedrop instillation, lacrimal regurgitation techniques and biometry in a simulated setting.

### Entrustable Professional Activities (EPA) Framework for Undergraduate Ophthalmology Clinical Clerkship

EPA	Description	Key Competencies	Assessment Methods	Expected Level of Entrustment
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1. Perform a Basic Ophthalmic Assessment	Obtain a focused history and perform essential eye examinations, including visual acuity, pupil reflexes, and anterior segment examination.	- Communication skills for history taking - Psychomotor skills for examinations - Basic knowledge of normal/abnormal findings	- OSCE (history taking, torchlight exam) - Faculty feedback - Logbook review	Supervised with direct guidance for performing a complete ophthalmic evaluation
2. Perform Direct Ophthalmoscopy	Conduct direct ophthalmoscopy to examine the fundus, identify abnormalities (e.g., optic disc changes, diabetic retinopathy), and correlate findings with patient symptoms.	- Psychomotor skills for handling the ophthalmoscope - Knowledge of normal and pathological fundus features	- OSCE (direct ophthalmoscopy station) - Faculty feedback - Logbook entries	Supervised with minimal guidance for identifying basic fundus abnormalities
3. Recognize and Manage Red Eye Conditions	Identify common causes of red eye, such as conjunctivitis, keratitis, and uveitis, and propose initial management strategies, including patient education.	- Critical thinking for differential diagnosis - Clinical reasoning for management - Patient communication skills	- OSCE (red eye management station) - Case-based discussions - Ward tests	Indirect supervision; can manage common red eye conditions independently but consult for complex cases
4. Counsel Patients About Cataracts	Educate patients about cataracts, including disease progression, treatment options, and postoperative care, addressing patient concerns empathetically.	- Communication skills for patient-centered counseling - Professionalism and empathy	- OSCE (counseling station) - Faculty feedback - Reflective portfolios	Supervised with minimal guidance for structured counseling sessions
5. Identify and initiate management of Ophthalmic emergencies	Recognize critical conditions such as chemical burn, trauma, retinal detachment or central retinal artery occlusion and escalate appropriately for urgent management.	- Clinical acumen in identifying emergencies - Effective communication with the healthcare team	- OSCE - Logbook review - Case-based discussions	Supervised with direct guidance in identifying emergencies and initiating appropriate management
6. Assist in Common Ophthalmic Procedures	Observe or assist in procedures like cataract surgery or laser therapies, understanding procedural steps and ensuring aseptic techniques.	- Familiarity with instruments - Teamwork in the surgical setting - Adherence to aseptic protocols	- Logbook of observed/assisted procedures - Video interpretation of surgical steps - Supervisor feedback	Supervised with direct guidance for assisting in procedures; independently perform pre- and post-procedure patient preparation tasks

<b>Duration:</b>	6 Weeks (24 Days)
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	<p><b>Week 1 and 2 RTH</b></p> <p><b>Week 3 and 4 BBH</b></p> <p><b>Week 5 and 6 HFH</b></p> <p><b>Time 10:30 – 02:00 PM</b></p>
	<ul style="list-style-type: none"> <li>• 21 Clinical Days</li> <li>• 3 Assessment Days</li> </ul> <p><b>Model:</b> Symptom-Based Integrated Clinical Clerkship</p> <p><b>Integration Level:</b> Harden Level 9–11</p>

## Ophthalmology Clerkship Matrix

Topic	Must Know	Should Know	May Know
<b>Visual acuity assessment</b>	Principles and correct method	Interpretation of findings	LogMAR charts
<b>Pupillary reflexes</b>	Direct, consensual reflex, RAPD	Causes of abnormal reflexes	Detailed neuro-ophthalmic pathways
<b>Red eye</b>	Conjunctivitis, keratitis, uveitis, acute angle-closure glaucoma	Episcleritis, scleritis	Rare inflammatory causes
<b>Corneal diseases</b>	Corneal ulcer recognition and urgency	Fungal vs viral keratitis	Corneal dystrophies
<b>Cataract</b>	Types, symptoms, indications for surgery	Complications of cataract surgery	IOL power calculation

<b>Glaucoma</b>	POAG risk factors, optic disc changes	Basic visual field interpretation	Detailed pharmacology of drugs
<b>Sudden loss of vision</b>	CRAO, CRVO, retinal detachment, optic neuritis	Investigation pathway	Advanced neuro-ophthalmology
<b>Gradual loss of vision</b>	Cataract, glaucoma, diabetic retinopathy	Macular degeneration	Retinal imaging interpretation
<b>Diabetic retinopathy</b>	Stages and screening importance	Treatment options	Anti-VEGF pharmacology
<b>Leukocoria (white pupil)</b>	Retinoblastoma, congenital cataract	Differential diagnosis	Genetic mutations
<b>Lacrimal system disorders</b>	Causes of epiphora, dacryocystitis	Dacryocystorhinostomy indications	Surgical techniques
<b>Ocular trauma</b>	Chemical injury management, open globe recognition	Imaging and referral	Surgical repair techniques
<b>Strabismus</b>	Identification and amblyopia risk	Cover test principles	Surgical correction
<b>Refractive errors</b>	Myopia, hypermetropia, astigmatism	Presbyopia	Refractive surgery
<b>Eyelid disorders</b>	Ptosis, entropion, ectropion, lid tumors	Chalazion management	Cosmetic procedures
<b>Community ophthalmology</b>	Causes of preventable blindness	Screening programs	Epidemiology in detail

## Essential Ophthalmic Surgical Procedures

(Psychomotor Domain – Observation Level)

Surgical Procedure	Learning Objectives (Observation Level)	Teaching Methods	Assessment
Phacoemulsification with IOL implantation	Observe the sequence of steps in cataract surgery including capsulorhexis, phacoemulsification and IOL implantation. Identify key surgical instruments used	OT observation under microscope, surgical video demonstration, faculty explanation of	OSCE, OSVE, reflective logbook

	during the procedure.	steps	entry
Extracapsular Cataract Extraction (ECCE)	Observe incision construction and nucleus delivery. Identify instruments used for manual cataract extraction and suturing.	Operating room observation, video-based demonstration	OSCE, OSVE, reflective logbook entry
Trabeculectomy	Observe formation of scleral flap and filtration pathway for aqueous drainage. Identify instruments used in glaucoma surgery.	OT exposure, guided surgical discussion	OSCE, OSVE, reflective logbook entry
Peripheral Iridectomy	Observe removal of a peripheral iris segment to improve aqueous flow. Identify instruments used for iris handling.	Surgical observation, video-based learning	OSCE, OSVE, reflective logbook entry
Dacryocystorhinostomy (DCR)	Observe exposure of lacrimal sac and formation of a bony ostium connecting lacrimal sac to nasal cavity.	OT observation, surgical video session	OSCE, OSVE, reflective logbook entry
Nasolacrimal Duct Probing	Observe probing technique through punctum into nasolacrimal duct. Identify punctal dilator and probes used.	Demonstration in OT or skills lab	OSCE, OSVE, reflective logbook entry
Chalazion Incision & Curettage	Observe conjunctival incision and curettage of chalazion contents. Identify chalazion clamp and curette.	Minor OT observation, demonstration	OSCE, OSVE, reflective logbook entry
Ptosis Surgery	Observe identification and tightening of levator muscle.	OT exposure, surgical video teaching	OSCE, OSVE, reflective logbook entry
Entropion Repair	Observe correction of inward eyelid margin and suturing technique used to reposition eyelid.	OT observation	OSCE, OSVE, reflective logbook entry
Ectropion Repair	Observe surgical tightening of eyelid and steps involved in lateral tarsal strip procedure.	OT observation	OSCE, OSVE, reflective logbook entry
Strabismus Surgery	Observe isolation of extraocular muscles and steps of muscle recession or resection.	Surgical observation, video demonstration	OSCE, OSVE, reflective logbook entry
Pars Plana Vitrectomy	Observe insertion of vitrectomy ports and removal of vitreous gel. Identify vitrectomy instruments.	Video-based teaching and OT observation	OSCE, OSVE, reflective logbook entry
Laser Photocoagulation	Observe application of retinal laser burns and patient positioning during procedure.	Laser room observation, video demonstration	OSCE, OSVE, reflective logbook

Penetrating Keratoplasty	Observe trephination of diseased cornea and suturing of donor corneal graft.	Surgical video and OT observation	entry OSCE, OSVE, reflective logbook entry
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## Integration of Artificial Intelligence in Clinical Clerkship

### 1. Rationale

Artificial Intelligence (AI) is increasingly used in ophthalmology for **screening, diagnosis, and teleophthalmology services**. Introducing medical students to basic AI applications during clinical clerkship helps them understand how technology can support clinical decision-making and improve access to eye care.

The objective is **not to teach programming or algorithm development**, but to familiarize students with **clinical applications of AI tools in ophthalmic practice**.

### 2. Learning Objectives

At the end of the clinical clerkship, students should be able to:

- Define basic concepts of artificial intelligence in medicine
- Describe common AI applications in ophthalmology
- Recognize how AI assists in screening and diagnosis
- Interpret AI-generated screening reports in clinical settings
- Understand ethical considerations and limitations of AI tools

# 3. Areas of AI Application in Ophthalmology

Students will be introduced to examples of AI-assisted clinical practice.

## 1. Diabetic Retinopathy Screening

AI algorithms can analyze **fundus photographs** and detect diabetic retinopathy automatically.

Students will learn:

- How AI identifies retinal lesions
- Role of AI in community screening programs
- Interpretation of AI-generated reports

Example system:

- Drishti

## 2. Glaucoma Detection

AI systems can analyze:

- Optic disc photographs
- Optical coherence tomography (OCT)

Students will observe how AI assists in identifying **optic nerve damage and visual field patterns**.

## 3. Age-Related Macular Degeneration Detection

AI models can analyze **retinal OCT images** to detect:

- Macular edema
- Neovascular AMD
- Geographic atrophy

Students will review example cases where AI helps flag abnormal scans.

#### **4. Retinopathy of Prematurity (ROP) Screening**

AI tools can assist in identifying **plus disease and vascular abnormalities** in neonatal retinal images.

Example research system:

- i-ROP Deep Learning System

Students will observe how AI supports pediatric retina specialists in screening programs.

## **4. AI Activities During Clinical Clerkship**

Students will participate in **simple structured activities**.

### **1. Fundus Image Analysis**

Students review fundus photographs and compare their interpretation with **AI-generated reports**.

Learning outcomes:

- Identify retinal lesions
- Understand how AI highlights abnormal features

## 2. AI-Assisted Case Discussion

Faculty present clinical cases where AI-assisted diagnosis was used.

Example:

Case of diabetic retinopathy screening using AI.

Students discuss:

- AI diagnosis
- Clinical confirmation
- Management plan

## 3. Teleophthalmology Demonstration

Students observe how AI can be integrated into **telemedicine screening programs**.

Example workflow:

Community fundus camera → AI screening → ophthalmologist review

Organizations using such systems include:

- Orbis International
- Aravind Eye Care System

## 5. Ethical Considerations

Students will briefly discuss important ethical issues related to AI in healthcare:

- AI cannot replace clinical judgment
- Importance of data privacy and patient confidentiality
- Risk of algorithm bias
- Need for ophthalmologist oversight

## 6. Assessment in Clinical Clerkship

AI-related learning will be assessed through:

Assessment Method	Description
<b>OSCE station</b>	Interpretation of AI-generated fundus report
<b>Case discussion</b>	AI screening result interpretation
<b>Viva questions</b>	Basic concepts of AI in ophthalmology

## 7. Expected Competency

By the end of the clerkship, students should be able to:

- Explain the role of AI in ophthalmic screening
- Interpret basic AI-generated screening outputs
- Recognize the advantages and limitations of AI in clinical practice

**WEEK 1**

**Red Eye**

**Time 10:30 – 02:00 PM**

Day	Clinical Case	Core Teaching Points	Harden Integration Level	Multidisciplinary (Level 11)	Skills	Attitude
Day 1	Young adult with painful red eye and photophobia	Infective vs allergic conjunctivitis; blepharitis; keratitis; differentiating discharge types; red flag identification	Steps 1–4: Applied anatomy & microbiology; Steps 7–9: Clinical reasoning; Step 10: Slit-lamp correlation	Ophthalmology + Microbiology	Focused red eye history; torch exam; slit-lamp basics; regurgitation test	Hygiene counseling; infection prevention awareness
Day 2	Contact lens wearer with severe pain & reduced vision	Corneal ulcer; fluorescein staining patterns; microbial vs viral keratitis; risk factors; emergency identification	Level 9–10 (Clinical integration & procedural reasoning)	Ophthalmology + Pathology	Fluorescein staining; corneal exam; identifying epithelial defects	Responsibility in vision-threatening cases
Day 3	Severe painful red eye with decreased vision and headache	Acute anterior uveitis; episcleritis vs scleritis; acute angle-closure glaucoma; pupil and AC assessment	Level 9–11 (Ophthalmology + Medicine integration)	Ophthalmology + Medicine	Pupil examination; AC depth estimation; IOP screening awareness	Urgency recognition; escalation behavior
Day 4	Integrated red eye cases	Differential formulation; emergency triage; investigation selection	Level 10–11 (Interdisciplinary reasoning)	Ophthalmology + Emergency Medicine	Case presentation; structured differential building	Professional communication; safe referral practice

### Skill-Based Clerkship Learning Outcomes

Specialty	Skill-Based Clerkship Learning Outcomes (LOs)
Ophthalmology (Primary Discipline)	Perform focused red eye history (pain, discharge, photophobia, vision change)
	Conduct systematic external and anterior segment examination
	Differentiate conjunctival vs ciliary congestion

	Perform fluorescein staining and interpret patterns
	Identify vision-threatening red eye and escalate appropriately
	Present structured red eye case with differential diagnosis
	Counsel patient regarding hygiene, contact lens care, and medication adherence
<b>Microbiology</b>	Correlate discharge type with likely organism
	Justify empirical antibiotic selection during discussion
<b>Pathology</b>	Correlate corneal ulcer appearance with pathological process
	Interpret basic culture & sensitivity report (conceptually)
<b>Medicine / Emergency</b>	Recognize systemic associations (autoimmune disease, herpetic history)
	Identify glaucoma emergency features
	Integrate systemic findings with ocular presentation during case discussion

## Week 2

## Sudden Loss of Vision

Time 10:30 – 02:00 PM

Day	Clinical Case	Core Teaching Points	Harden Integration Level	Multidisciplinary (Level 11)	Skills	Attitude
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<b>Day 5</b>	Patient with painful sudden vision loss and red eye	Corneal ulcer; acute anterior uveitis; angle-closure glaucoma; hyphema; differentiating inflammatory vs pressure-related causes	Steps 1–4: Applied anatomy & pathology; Steps 7–9: Clinical reasoning; Step 10: Emergency anterior segment integration	Ophthalmology + Emergency Medicine	Focused painful vision loss history; VA recording; torch exam; anterior chamber assessment; emergency plan formulation	Urgency recognition; safe referral behavior
<b>Day 6</b>	Sudden painless severe vision loss in elderly patient	CRAO, CRVO, retinal detachment, vitreous hemorrhage, optic neuritis; RAPD identification; fundus correlation	Level 9–11 (Clinical reasoning + posterior segment integration)	Ophthalmology + Medicine + Neurology	RAPD assessment; direct ophthalmoscopy; fundus photo interpretation; emergency outline	Time-sensitive decision-making; stroke awareness
<b>Day 7</b>	Trans-Disciplinary Clinical Connect Session Theme: Sudden Vision Loss and Painful Red Eye					
<b>Day 8</b>	End Module Assessment					

### Skill-Based Clerkship Learning Outcomes

Specialty	Skill-Based Clerkship Learning Outcomes (LOs)
<b>Ophthalmology (Primary Discipline)</b>	Take focused history in painful vs painless sudden vision loss
	Record visual acuity accurately in emergency setting
	Perform systematic anterior segment examination using torch
	Identify RAPD correctly
	Perform basic fundoscopy and correlate findings clinically
	Differentiate retinal, optic nerve, corneal, and glaucomatous causes
	Formulate immediate emergency management plan

	Present structured sudden vision loss case with prioritized differential
<b>Medicine / Neurology</b>	Correlate CRAO with systemic vascular risk factors
	Identify stroke risk and justify urgent referral
	Recognize demyelinating association in optic neuritis
<b>Radiology</b>	Identify indications for urgent OCT, B-scan, CT orbit, MRI brain
	Justify imaging selection during interdisciplinary discussion
<b>Emergency Medicine</b>	Recognize globe rupture and implement protective measures
	Prioritize triage in ocular emergencies
<b>Pathology / Microbiology</b>	Correlate infective endophthalmitis presentation with likely pathogens
	Justify empirical therapy principles during discussion

## Trans-Disciplinary Clinical Connect Session

**Theme: Sudden Vision Loss and Painful Red Eye**

**Clinical Scenario (Problem Trigger)**

A 28-year-old man presents to the emergency department with sudden painful loss of vision in the right eye for 24 hours.

He reports severe eye pain, redness, photophobia, and watering. Two days earlier he felt foreign body sensation after working in a dusty environment.

On examination:

- Visual acuity: Counting fingers
- Conjunctival congestion present

- Corneal epithelial defect with fluorescein staining
- Anterior chamber reaction with cells and flare
- Irregular pupil
- Intraocular pressure: 28 mmHg

Further findings:

- No obvious penetrating injury
- Fundus view hazy

The patient requires urgent evaluation and management to prevent permanent visual loss.

### **Student Task (Problem-Based Trigger)**

Students are asked to:

1. Identify the possible causes of sudden painful vision loss in this patient.
2. Explain the pathophysiology of corneal ulcer, uveitis, and acute angle-closure glaucoma.
3. Interpret clinical signs such as fluorescein staining, anterior chamber reaction, and pupil abnormalities.
4. Perform visual acuity assessment and torch examination findings interpretation.
5. Develop an emergency management plan for painful red eye with vision loss.
6. Identify red-flag signs requiring urgent referral or surgical intervention.
7. Counsel the patient regarding prognosis, medication adherence, and prevention of ocular trauma or infection.

### **What Makes This a Trans-Disciplinary Clinical Connect Session**

- No isolated subject-based teaching.
- Clinical problem (sudden vision loss) is the organizing principle.
- Students integrate clinical reasoning, pathophysiology, examination skills, and emergency management.

- Learning simulates real emergency decision-making.

**Students Integrate**

- Clinical reasoning in Sudden painful vs painless vision loss
- Ocular examination skills (visual acuity, torch examination, fluorescein staining)
- Recognition of ophthalmic emergencies
- Trauma assessment
- Immediate management and referral

**Trans-Disciplinary Integration**

Discipline	Nature of Contribution	Approximate Integration Weight
Ophthalmology	Diagnosis and emergency management of corneal ulcer, uveitis, glaucoma	45%
Microbiology	Infective causes of corneal ulcer and ocular infections	15%
Pharmacology	Antibiotics, cycloplegics, anti-glaucoma drugs	15%
General Medicine	Systemic diseases associated with uveitis and vascular occlusions	15%
Emergency Medicine	Initial triage and stabilization of ocular emergencies	10%

**End Module Assessment: 50 Marks**  
 Week 1 & 2

- OSCE: 6 stations × 5 = 30 marks
- OSVE: 2 stations × 10 = 20 marks

Topic	I × F	Weightage (%)	No. of Stations
Acute Red Eye (Conjunctivitis, Keratitis, Uveitis)	3 × 3	20	1
Acute Angle-Closure Glaucoma	3 × 2	15	1
Corneal Ulcer & Hyphema	3 × 2	15	1
Retinal Vascular Occlusions (CRAO/CRVO)	3 × 3	20	1
Retinal Detachment & Vitreous Hemorrhage	3 × 2	15	1
Optic Neuritis & RAPD	2 × 3	15	1
<b>Total</b>		<b>100</b>	<b>6</b>

**Week 3**

**Gradual Loss of Vision**

**Time 10:30 – 02:00 PM**

Day	Clinical Case	Core Teaching Points	Harden Integration Level	Multidisciplinary (Level 11)	Skills	Attitude
Day 9	Young student with progressive blurred distance vision	Myopia, hypermetropia, astigmatism, presbyopia; amblyopia; refractive vs pathological differentiation; compliance issues	Steps 1–4: Optics & visual physiology; Steps 7–9: Clinical reasoning; Step 10: Refraction integration	Ophthalmology + Optometry	VA recording (distance & near); pinhole test; basic refraction screening; amblyopia identification	Counseling for spectacle adherence; amblyopia compliance sensitivity
Day 10	Elderly patient with progressive painless vision loss	Cataract types; lens-induced glaucoma; congenital glaucoma red flags; IOP awareness; surgical indications	Level 9–10 (Anterior segment integration & procedural reasoning)	Ophthalmology + Pediatric Ophthalmology	Slit-lamp lens assessment; digital tonometry; direct ophthalmoscopy; surgical counseling basics	Empathy in elderly care; reassurance regarding surgery
Day 11	Middle-aged patient with insidious peripheral vision loss	POAG; chronic angle-closure glaucoma; optic neuropathies; papilledema differentiation; visual field interpretation	Level 10–11 (Ophthalmology + Medicine integration)	Ophthalmology + Neurology	Confrontation visual fields; optic disc cupping identification; interpretation of basic field defects	Emphasis on long-term follow-up; chronic disease responsibility
Day 12	Diabetic patient with gradual visual decline	Diabetic & hypertensive retinopathy; macular edema; AMD; RP; myopic degeneration; screening algorithms	Level 11 (Transdisciplinary reasoning)	Ophthalmology + Medicine + Endocrinology	Dilated funduscopy; lesion identification (microaneurysms, exudates, NV); algorithm formulation	Preventive counseling; lifestyle modification advocacy

### Skill-Based Clerkship Learning Outcomes

Specialty	Skill-Based Clerkship Learning Outcomes (LOs)
Ophthalmology (Primary Discipline)	Take focused history of gradual painless visual decline
	Measure and document distance & near visual acuity

	Perform pinhole test and differentiate refractive vs pathological causes
	Perform confrontation visual fields
	Identify optic disc cupping and papilledema
	Perform basic dilated funduscopy
	Differentiate lenticular, retinal, optic nerve, and refractive causes
	Formulate structured differential diagnosis for gradual vision loss
	Counsel regarding chronic disease monitoring and follow-up
<b>Medicine / Endocrinology</b>	Correlate diabetic & hypertensive retinopathy with systemic control
	Justify screening intervals for high-risk patients
<b>Neurology</b>	Differentiate glaucomatous cupping from optic neuropathy
	Recognize papilledema as neurological emergency
<b>Optometry</b>	Correlate refractive findings with VA and pinhole improvement
	Demonstrate basic refraction principles during discussion
<b>Radiology</b>	Identify indications for OCT and visual field testing
	Correlate imaging findings with clinical suspicion

**WEEK 4**

**Ocular Aesthetics**

**Time 10:30 – 02:00 PM**

Day	Clinical Case	Core Teaching Points	Harden Integration Level	Multidisciplinary (Level 11)	Skills	Attitude
Day 13	Young adult with drooping eyelid affecting vision	Congenital vs acquired ptosis; levator function assessment; ectropion vs entropion differentiation; exposure complications	Steps 1–4: Applied anatomy of eyelid; Steps 7–9: Clinical reasoning; Step 10: Functional-aesthetic integration	Ophthalmology + Plastic Surgery	Levator function measurement; eyelid excursion assessment; lid margin examination	Sensitivity toward cosmetic concerns; respectful communication
Day 14	Elderly patient with enlarging eyelid lesion	Chalazion; papilloma; BCC; SCC; melanoma; red flag signs; biopsy & referral principles	Level 9–11 (Clinical reasoning + oncologic awareness)	Ophthalmology + Pathology + Oncology	Lid mass examination; identifying suspicious features; referral planning	Early malignancy suspicion; ethical counseling
Day 15	Trans-Disciplinary Clinical Connect Session Theme: Gradual Vision Loss with Ocular Structural Abnormalities					
Day 16	End Module Assessment					

### Skill-Based Clerkship Learning Outcomes

Specialty	Skill-Based Clerkship Learning Outcomes (LOs)
<b>Ophthalmology (Primary Discipline)</b>	Perform focused history for lid drooping, lid malposition, masses, and proptosis
	Assess levator function and eyelid excursion
	Differentiate ectropion and entropion clinically
	Examine lid lesions and identify suspicious malignant features
	Perform basic ocular motility examination

	Differentiate axial vs non-axial proptosis
	Formulate structured differential for orbital pathology
	Counsel patients regarding functional vs cosmetic indications for surgery
<b>Pathology / Oncology</b>	Correlate clinical features of lid tumors with likely histopathology
	Justify biopsy and referral indications
<b>Endocrinology</b>	Correlate thyroid dysfunction with orbital manifestations
	Explain systemic control in thyroid eye disease
<b>Radiology</b>	Identify indications for CT orbit in proptosis and trauma
	Correlate imaging findings with clinical suspicion
<b>Maxillofacial Surgery / Trauma</b>	Recognize orbital floor fracture features
	Understand principles of multidisciplinary trauma management

**Theme: Gradual Vision Loss**

**Clinical Scenario (Problem Trigger)**

A 58-year-old man presents to the eye clinic with gradual painless diminution of vision in both eyes for 2 years.

He reports difficulty reading small print and blurred distance vision, which has progressively worsened. Recently he noticed halos around lights at night and occasional headaches.

He is a known diabetic and hypertensive for 10 years with irregular follow-up.

On examination:

- Visual acuity: 6/60 in right eye, 6/36 in left eye

- Pinhole improves vision partially
- Lens shows nuclear sclerosis
- Intraocular pressure: 24 mmHg
- Fundus examination reveals:
  - Optic disc cupping
  - Microaneurysms and hard exudates at macula
- Eyelid examination shows mild ptosis in left eye

Further evaluation is required to determine the combined causes of visual loss and ocular abnormalities.

### **Student Task (Problem-Based Trigger)**

Students are asked to:

1. Identify possible causes of gradual painless vision loss in this patient.
2. Differentiate refractive errors, cataract, glaucoma, and retinal diseases as causes of progressive vision loss.
3. Explain the pathophysiology of cataract, glaucoma, and diabetic retinopathy.
4. Interpret clinical findings such as optic disc cupping, retinal microaneurysms, and visual acuity changes.
5. Perform visual acuity testing, pinhole test, confrontation visual field testing, and basic fundoscopy interpretation.
6. Develop a comprehensive management plan, including medical, surgical, and preventive strategies.
7. Counsel the patient regarding spectacle use, surgical options, systemic disease control, and follow-up.

### **What Makes This a Trans-Disciplinary Clinical Connect Session**

- Teaching revolves around a single patient problem: gradual vision loss.
- Knowledge from multiple domains is integrated into clinical reasoning.
- Students combine history, examination, imaging interpretation, and systemic disease links.

- Decision-making reflects real outpatient ophthalmology practice.

**Students Integrate**

- Clinical reasoning in gradual painless vision loss
- Visual acuity assessment and refraction screening
- Fundoscopy interpretation
- Recognition of optic nerve and retinal pathology
- Understanding ocular manifestations of systemic diseases
- Patient counseling and preventive ophthalmology

**Trans-Disciplinary Integration**

<b>Discipline</b>	<b>Nature of Contribution</b>	<b>Approximate Integration Weight</b>
Ophthalmology	Diagnosis of refractive error, cataract, glaucoma, retinal disease, lid disorders	45%
Radiology	Interpretation of orbital imaging in proptosis and trauma	15%
General Medicine	Diabetes and hypertension management affecting retina	20%
Endocrinology	Thyroid eye disease pathophysiology and management	10%
Oncology / Pathology	Identification of malignant eyelid lesions	10%

**Week 3 & 4**

### End Module Assessment:

- OSCE: 6 stations × 5 = 30 marks
- OSVE: 2 stations × 10 = 20 marks

Topic	I × F	Weightage (%)	No. of Stations
Refractive Errors & Amblyopia	3 × 3	20	1
Cataract (including lens-induced glaucoma)	3 × 3	20	1
Chronic Glaucoma & Optic Neuropathy	3 × 3	20	1
Diabetic/Hypertensive Retinopathy & Macular Disorders	3 × 2	15	1
Ptosis & Lid Malpositions	2 × 2	10	1
Orbital Disorders (Proptosis, Blow-out Fracture, Lid Tumors)	2 × 3	15	1
<b>Total</b>		<b>100</b>	<b>6</b>

WEEK 5

Watery Eye

Day	Clinical Case	Core Teaching Points	Harden Integration Level	Multidisciplinary (Level 11)	Skills	Attitude
Day 17	Adult patient with persistent watering and irritation	Reflex tearing vs lacrimal obstruction; dry eye paradox; blepharitis; conjunctivitis differentiation; tear film dynamics	Steps 1–4: Applied anatomy & tear physiology; Steps 7–9: Clinical reasoning; Step 10: Surface disorder integration	Ophthalmology + Microbiology	Focused lacrimal history; tear meniscus assessment; fluorescein staining; regurgitation test; differentiation of infective conjunctivitis	Patient-centered counseling; hygiene awareness
Day 18	Elderly patient with chronic tearing and medial canthal swelling	Chronic dacryocystitis; ectropion; entropion; punctal malposition; surgical indications	Level 9–11 (Clinical reasoning + procedural awareness)	Ophthalmology + Oculoplastic Surgery	Lid evaluation; punctal examination; lid eversion; obstruction recognition; surgical referral planning	Early referral responsibility; procedural consent awareness
Day 19	Infant with watering since birth	Congenital NLDO; ROPLAS; acute dacryocystitis recognition; syringing principles	Level 9–10 (Pediatric + infection integration)	Ophthalmology + Pediatrics	Lacrimal sac palpation (ROPLAS); infection recognition; observation of syringing procedure	Parental reassurance; infection risk sensitivity
Day 20	Integrated watery eye case	Algorithm formation for tearing; differentiating hypersecretion vs obstruction; complication recognition	Level 11 (Transdisciplinary reasoning)	Ophthalmology + Pediatrics + Oculoplastics	Structured case presentation; lacrimal pathway reasoning; management planning	Ethical communication; long-term follow-up counseling

### Skill-Based Clerkship Learning Outcomes

Specialty	Skill-Based Clerkship Learning Outcomes (LOs)
Ophthalmology (Primary Discipline)	Take focused lacrimal history (duration, discharge, infection, trauma)
	Assess tear meniscus height
	Perform fluorescein staining for tear film assessment

	Perform and interpret regurgitation test (ROPLAS concept)
	Differentiate reflex tearing from lacrimal obstruction
	Identify lid malposition contributing to epiphora
	Recognize acute dacryocystitis and initiate referral
	Formulate structured differential diagnosis for watery eye
	Counsel regarding lid hygiene and compliance
<b>Pediatrics</b>	Correlate congenital NLDO with developmental anatomy
	Counsel parents regarding massage and infection signs
<b>Oculoplastic Surgery</b>	Identify indications for DCR and lid correction procedures
	Understand principles of minor lacrimal procedures
<b>Microbiology</b>	Correlate discharge characteristics with infective causes
	Justify empirical therapy principles during discussion

## WEEK 6

### White Pupil

Day	Clinical Case	Core Teaching Points	Harden Integration Level	Multidisciplinary (Level 11)	Skills	Attitude
<b>Day 21</b>	Infant with absent red reflex noticed by parents	Congenital cataract; endophthalmitis; media opacity	Steps 1–4: Applied embryology & pathology; Steps 7–9: Clinical	Ophthalmology + Pediatrics	Red reflex assessment; pediatric history taking; media	Sensitivity in parental counseling; urgency awareness

		differentiation; urgency of amblyopia prevention	reasoning; Step 10: Pediatric anterior segment integration		opacity recognition; urgent referral planning	
<b>Day 22</b>	Child presenting with leukocoria in photographs	Retinoblastoma recognition; staging principles; imaging planning (B-scan, MRI); life-threatening implications	Level 10–11 (Ophthalmology + Oncology integration)	Ophthalmology + Oncology + Radiology	Fundus photo interpretation; staging discussion; imaging justification	Ethical communication; empathetic parental counseling
<b>Day 23</b>	Trans-Disciplinary Clinical Connect Session Theme: Child with Tearing and White Reflex					
<b>Day 24</b>	End Module Assessment					

### Skill-Based Clerkship Learning Outcomes

Specialty	Skill-Based Clerkship Learning Outcomes (LOs)
<b>Ophthalmology (Primary Discipline)</b>	Assess red reflex accurately in pediatric patients
	Identify media opacity clinically
	Differentiate lens, vitreous, and retinal causes of leukocoria
	Formulate urgent management plan for vision- or life-threatening causes
	Present structured pediatric ocular case
<b>Pediatrics / Neonatology</b>	Identify ROP risk factors and screening timelines
	Counsel parents regarding early detection importance
<b>Oncology</b>	Recognize retinoblastoma as life-threatening emergency

	Understand staging principles and referral pathways
<b>Radiology</b>	Justify imaging selection (B-scan, MRI orbit/brain)
	Correlate imaging findings with clinical suspicion
<b>Pathology</b>	Correlate congenital cataract and infective etiologies with pathological mechanisms

**Theme: White pupillary Reflex**

**Clinical Scenario (Problem Trigger)**

A 6-month-old infant is brought by his mother to the eye clinic with persistent watering from the right eye since birth.

The mother also reports that in some photographs taken with a mobile phone, the right pupil appears white instead of red. Recently she noticed mild swelling near the inner corner of the eye with occasional discharge.

On examination:

- Persistent epiphora with increased tear meniscus
- Regurgitation on pressure over lacrimal sac (ROPLAS) positive
- Mild conjunctival congestion
- Absent red reflex in right eye
- Fundus view not clear

Further evaluation is required to rule out serious ocular disease and prevent permanent visual loss.

**Student Task (Problem-Based Trigger)**

Students are asked to:

1. Identify possible causes of persistent tearing in infants.
2. Differentiate nasolacrimal duct obstruction from conjunctivitis and dry eye conditions.

3. Explain the significance of leukocoria (white reflex) in infants.
4. Demonstrate interpretation of tear meniscus, ROPLAS test, and red reflex examination.
5. List dangerous causes of leukocoria such as retinoblastoma and congenital cataract.
6. Outline initial management of congenital NLDO and acute dacryocystitis.
7. Discuss screening strategies for retinal diseases such as ROP and retinal detachment.
8. Counsel parents regarding urgency of referral and long-term follow-up.

**What Makes This a Trans-Disciplinary Clinical Connect Session**

- Learning is organized around one patient problem (tearing + leukocoria).
- Multiple ophthalmic subspecialties are integrated into one clinical reasoning process.
- Students apply history taking, examination skills, and emergency recognition.
- The session mirrors real pediatric ophthalmology decision-making.

**Students Integrate**

- Evaluation of watery eye and lacrimal drainage disorders
- Recognition of ocular infections and eyelid malpositions
- Identification of leukocoria and pediatric ocular tumors
- Interpretation of fundus findings and red reflex abnormalities
- Counseling parents regarding urgent ocular and nasal conditions

**Trans-Disciplinary Integration**

Discipline	Nature of Contribution	Approximate Integration Weight
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Ophthalmology	Diagnosis of lacrimal disorders, leukocoria, retinal disease	45%
Pediatrics	Neonatal history, prematurity risk factors, systemic associations	20%
Radiology	Imaging for retinoblastoma and orbital pathology (B-scan, MRI)	15%
Oncology	Management principles of retinoblastoma	10%
Otorhinolaryngology	Nasal anatomy	10%

## Week 5 & 6

### End module Assessment:

- OSCE: 6 stations × 5 = 30 marks
- OSVE: 2 stations × 10 = 20 marks

Topic	I × F	Weightage (%)	No. of Stations
<b>Lacrimal Disorders (Chronic Dacryocystitis, NLDO, Acute Dacryocystitis)</b>	3 × 3	20	1
<b>Dry Eye &amp; Surface Causes of Epiphora</b>	2 × 3	15	1
<b>Congenital Cataract &amp; Media Opacities</b>	3 × 2	15	1
<b>Retinoblastoma</b>	3 × 3	20	1
<b>ROP</b>	3 × 2	15	1

<b>Retinal Causes of Leukocoria (RD, Coats Disease)</b>	2 × 2	15	1
<b>Total</b>		<b>100</b>	<b>6</b>

## Teaching schedule

RAWALPINDI TEACHING HOSPITAL RAWALPINDI

Time 10:30 – 02:00 PM

### WEEK 1: Red Eye

Day	Topic	Specific Learning Objectives	Station	MOT/MIT	Level of Cognition C1 C2 C3	Psychomotor	Affective	MOA
<b>Monday</b>	Blepharitis; Ophthalmia neonatorum; Infective conjunctivitis; Allergic conjunctivitis; Degenerative conjunctival disorders	Focused history; differentiate causes; recognize conjunctival signs, perform regurgitation test	OPD	Clinical exposure SGD Role modeling Recorded videos Pre-reading  OMP	C3	P2	A3	OSVE; Ci-OSCE; Case discussion; Logbook

<b>Tuesday</b>	Dry eye syndrome; Keratitis/Corneal ulcer, Chemical injury; Corneal foreign body; Subconjunctival hemorrhage	Corneal exam; staining patterns; viral recognition; risk factors, Trauma recognition; fluorescein use	Eye OT/OPD	Bedside teaching; Simulation; Videos	C2	P2	A2	OSVE; Mini-CEX; Faculty feedback
<b>Wednesday</b>	Acute anterior uveitis; Episcleritis; Scleritis; Acute angle-closure glaucoma	Recognize emergencies; pupil/AC/IOP assessment; initial management	OPD/ER	Bedside teaching; Simulation	C2	P/P2	A2	OSCE; Case presentation; Faculty feedback
<b>Thursday</b>	End of ward assessment		Eye Ward					

**RAWALPINDI TEACHING HOSPITAL RAWALPINDI**

**Time 10:30 – 02:00 PM**

**WEEK 2: Sudden Loss of Vision**

Days	Topics	Specific Learning Objectives	Station	MOT/MIT	Level of Cognition C1/C2/C3	Psychomotor (P)	Affective (A)	MOA
<b>Monday</b>	Corneal ulcer Acute anterior uveitis Complications of uveitis Acute angle-closure	<ul style="list-style-type: none"> <li>Take focused history of painful sudden vision loss</li> <li>Record visual acuity</li> <li>Perform</li> </ul>	Eye OPD / Emergency	Bedside teaching Clinical exposure SGD CBD Pre-reading	C2 / C3	P2	A3	OSCE OSVE Mini CEX Logbook review

	glaucoma Hyphema	torch examination • Suggest emergency management						
<b>Tuesday</b>	Retinal vascular occlusions (CRAO, CRVO) Retinal detachment Vitreous hemorrhage Optic neuritis	• Take history of painless sudden vision loss • Identify RAPD • Perform fundoscopy • Outline emergency management	Eye Ward / OPD	Bedside teaching Fundus photo discussion CBD Interdepartmental session	C3	P2	A3	Ci-OSCE OSVE Mini CEX MCQs
<b>Wednesday</b>	Trans-Disciplinary Clinical Connect Session							
<b>Thursday</b>	End Module Assessment							

**BENAZIR BHUTTO HOSPITAL RAWALPINDI**

**WEEK 3**

**Gradual Loss of Vision**

**Time 10:30 – 02:00 PM**

Days	Topics	Specific Learning Objectives	Station	MOT/MIT	Level of Cognition (C1/C2/C3)	Psychomotor (P)	Affective (A)	MOA
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Monday	Refractive errors: Myopia, Hypermetropia, Astigmatism, Presbyopia Amblyopia	<ul style="list-style-type: none"> <li>Take focused history of gradual painless vision loss</li> <li>Measure and record distance &amp; near visual acuity</li> <li>Perform pinhole test</li> <li>Demonstrate basic refraction screening</li> <li>Differentiate refractive from pathological causes</li> <li>Counsel regarding spectacle use &amp; amblyopia compliance</li> </ul>	Eye OPD / Refraction Room	Bedside teaching Refraction demo SGD Pre-reading	C2	P2	A3	OSCE OSVE Mini-CEX Logbook review
Tuesday	Cataract Secondary Glaucoma (Lens-induced) Congenital Glaucoma	<ul style="list-style-type: none"> <li>Elicit symptoms of progressive lenticular opacity, Measure IOP through digital tonometry</li> <li>Counsel regarding surgical indications</li> <li>Perform direct ophthalmoscopy</li> </ul>	Eye OPD / Eye Ward	Clinical exposure Slit-lamp demo CBD Case discussion	C2 / C3	P2	A3	OSCE Case viva Mini-CEX
Wednesday	Primary Open-Angle Glaucoma Chronic Angle-Closure Glaucoma Chronic Optic Neuropathies Papilledema	<ul style="list-style-type: none"> <li>Take history of insidious visual field loss</li> <li>Perform confrontation fields</li> <li>Identify optic disc cupping</li> <li>Interpret basic visual field defects</li> <li>Recognize papilledema as red-flag</li> <li>Emphasize long-term follow-up</li> </ul>	Glaucoma Clinic / OPD	Bedside teaching Perimetry demo Fundus photo discussion SGD	C3	P3	A3	OSCE OSVE Mini-CEX MCQs
Thursday	Diabetic Retinopathy Hypertensive Retinopathy Macular Edema Retinal Dystrophies &	<ul style="list-style-type: none"> <li>Take systemic history (DM, HTN)</li> <li>Perform dilated funduscopy</li> <li>Identify microaneurysms, exudates, neovascularization</li> <li>Differentiate macular vs</li> </ul>	Retina Clinic / OPD	Fundus photo discussion Interdepartmental session PBL Multidisciplinary discussion	C3	P2	A3	Ci-OSCE Case-based viva MCQs Reflective portfolio

	Degenerations (RP, AMD, Myopic Degeneration) Integrated Approach	peripheral pathology • Outline screening & prevention strategies • Formulate algorithm for gradual vision loss						
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**BENAZIR BHUTTO HOSPITAL RAWALPINDI**

**WEEK 4**

**OCULAR AESTHETICS**

**Time 10:30 – 02:00 PM**

Days	Topics	Specific Learning Objectives	Station	MOT/MIT	Level of Cognition C1/C2/C3	Psychomotor (P)	Affective (A)	MOA
<b>Monday</b>	Ptosis & Eyelid Malpositions (Ectropion / Entropion)	<ul style="list-style-type: none"> <li>Identify congenital vs acquired ptosis</li> <li>Assess levator function and eyelid excursion</li> <li>Differentiate lid malposition types</li> </ul>	Eye OPD / ward	Bedside teaching, Lid exam demo, SGD	C2	P2	A3	OSCE, Case-based viva, Mini-CEX
<b>Tuesday</b>	Non-neoplastic & Neoplastic Lid Masses	<ul style="list-style-type: none"> <li>Recognize common benign lid lesions (chalazion, papilloma)</li> <li>Identify malignant lesions (BCC,</li> </ul>	Eye OPD / OT	Clinical exposure, Case discussion, SGD, Pre-reading	C2 / C3	P2	A3	OSCE, Case-based viva, Mini-CEX

		SCC, melanoma)• Plan referral & management strategies						
<b>Wednesday</b>	Trans-Disciplinary Clinical Connect Session							
<b>Thursday</b>	End Module Assessment							

## HOLY FAMILY HOSPITAL RAWALPINDI

### WEEK 5

### Watery Eyes

Time 10:30 – 02:00 PM

Day	Topic	Specific Learning Objectives	Station	MOT/MIT	Level of Cognition			Psychomotor	Affective (A)	MOA
					C1	C2	C3			
<b>Monday</b>	Watery eye; Dry eye syndrome, Blepharitis; conjunctivitis;	History for tearing; tear meniscus; staining perform regurgitation test, differentiate conjunctivitis; counselling	OPD	Bedside teaching; Clinical exposure			C3	P2	A3	OSCE OSVE Mini CEX Logbook review
<b>Tuesday</b>	Chronic dacryocystitis;	Lid evaluation;	OPD/Eye OT	Bedside teaching;				P2	A3	Ci-OSCE OSVE

	Ectropion; Entropion	obstruction signs; lid eversion; surgical indications		Minor procedure demonstration	C3			Mini CEX MCQs
<b>Wednesday</b>	Congenital NLDO; Acute dacryocystitis	Lacrimal history; ROPLAS; recognize infection; syringing demo	OPD/Eye OT	Procedure demo; Simulation	C2	P/P2	A3	OSCE Mini CEX Faculty feedback Logbook evidence
<b>Thursday</b>	End of ward assessment		OPD/Eye ward					

## HOLY FAMILY HOSPITAL RAWALPINDI

### WEEK 6

### White Pupil

Time 10:30 – 02:00 PM

Days	Topics	Specific Learning Objectives	Station	MOT/MIT	Level of Cognition C1/C2/C3	Psychomotor (P)	Affective (A)	MOA
<b>Monday</b>	Congenital cataract Endophthalmitis	<ul style="list-style-type: none"> <li>• Assess red reflex</li> <li>• Identify media opacity</li> <li>• Take pediatric history</li> <li>• Plan urgent management</li> </ul>	Eye OPD / Ward	Bedside teaching Clinical exposure SGD CBD	C2 / C3	P2	A3	OSCE Mini CEX Logbook review

<b>Tuesday</b>	Retinoblastoma	<ul style="list-style-type: none"> <li>• Recognize leukocoria as emergency</li> <li>• Understand staging</li> <li>• Plan imaging (B-scan, MRI)</li> <li>• Counsel parents</li> </ul>	Eye Ward / Oncology	Bedside teaching Fundus photo discussion CBD Interdepartmental session	C3	P2	A3	OSCE OSVE MCQs
<b>Wednesday</b>	Trans-Disciplinary Clinical Connect Session							
<b>Thursday</b>	End Module Assessment							

## Section – VII Assessment

### Introduction

Assessment refers to the processes employed to make judgments about the achievements of students over a course of study. *Hardlen W,2005*

Lack of assessment and feedback, based on observation of performance in the workplace, is one of the most serious deficiencies in current medical education practice.  
*John Norcini and Vanessa Burch 2007*

Assessing learners is a critical and challenging task for tutors. While students might manage to overcome subpar teaching, poor or inaccurate assessment of their abilities can have lasting impacts on their personal and professional development. Assessment is vital not only for students but also for tutors, course organizers, and accrediting bodies (such as affiliated universities or PMCs). Assessment data plays a crucial role in determining if learning outcomes have been met, thereby facilitating students' progression to the next course level.

Integrated assessment requires a comprehensive analysis and understanding of the process. To establish a strong foundation, key questions need to be addressed:

1. **Why assess students?**

- The purpose of assessment must be well-defined. It should include assessment for learning (as a strategy to enhance learning) and assessment of learning (summative assessment) for progression, remediation, or promotion purposes.

2. **Who should assess students?**

- The assessment should involve multiple stakeholders, including program advisors/organizers, accrediting bodies, affiliated universities, enrolled colleges, tutors, other healthcare professionals, and the students themselves, as well as standardized patients. The PMC will supervise the assessment process, which medical universities will carry out in their affiliated colleges.

3. **What should be assessed?**

- All relevant competencies must be assessed. The objectives of the integrated curriculum should align with the content being assessed, considering the teaching context. The chosen assessment materials should reflect valued competencies such as higher-order thinking, clinical skills, behavior/attitudes, and professionalism, among other essential requirements.

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

## Table of Specifications

**Preamble:**

The Table of Specifications (TOS)(TOS) is a detailed framework that describes how assessment items are distributed in terms of content in examination. The purpose of the TOS is to ensure that educational objectives, instructional content, and evaluation criteria are all in line with one other. This allows us to guarantee the validity, integrity, and reliability of assessments while supporting our students' overall growth. This paper describes structured mode of assessment by outlining the cognitive levels, domains, and weightings of assessment items.

**Statutes:**

1. **Schedule:** The Fourth Professional MBBS shall be held at the end of fourth year.
2. **Subjects:** Every candidate shall be required to study the following subjects in each block

- a. **Core subjects-** ENT, Eye, Pathology, Pharmacology & Community Medicine
  - b. **Clinical Examining Subjects:** Surgery & Allied (Neurosurgery, Orthopaedics, Urology) Medicine & Allied( Nephrology, Dermatology, Psychiatry, Family Medicine)
  - c. **Vertically integrated Subjects-** Medicine, Surgery, Gynae & OBS, Pediatrics
  - d. **Horizontally Integrated Subjects-** Inter departmental integration with 4<sup>th</sup> year subjects
  - e. **Spirally Integrated subjects-** Research, family medicine
  - f. **General Cluster ALPHA** (Artificial Intelligence, Leadership, Professionalism, Humanities and Arts).
3. **Assessments:** There will be six papers in fourth professional examination

#### **Fourth Professional Examination- 1600 Marks**

- i. Block 1 Assessment (ENT & Community Medicine)- : 300 Marks (Professional Exam:180 Marks+ CIA: 120 Marks)
- ii. Block 2 Assessment (EYE & Community Medicine) - 300 Marks ( Professional Exam:180 Marks + CIA: 120 Marks)
- iii. Block 3 Assessment(Pharmacology, Pathology&Community Medicine) -300 Marks (Professional Exam:180 Marks+ CIA:120 Marks )
- iv. Block 4 Assessment(Pharmacology, Pathology &Community Medicine) -300 Marks (Professional Exam:180 Marks +CIA:120 Marks)
- v. Block 5 Assessment (Medicine & Allied) -200 Marks(Professional Exam : 120 Marks+ CIA:80 Marks)
- vi. Block 6 Assessment (Surgery & Allied) -200 Marks(Professional Exam : 120 Marks+ CIA:80 Marks)

4. **Continuous Internal Assessment (CIA):** Continuous Internal Assessment means the assessment based on continuous internal assessment (CIA) tests given to the students during an academic period. Each block assessment will have a CIA of 40%.
5. **Block Assessments:** Each Block assessment will comprise of two Domains, “Theory (Cognitive)” and “Practical (Psychomotor)”.

#### **5.1. Domains**

- a. Cognitive domain: Theory/Written assessment
- b. Psychomotor domain: Practical/ Performance assessment

**5.2. Instructional strategies for assessment:** Separate Instructional strategies will be used for cognitive and psychomotor domain, which includes the following

**5.2.1. Cognitive Domain (Theory/written)**

**5.2.1.1. MCQs:**

It will be Single best type of Multiple-Choice Questions (MCQs) with one stem & with five options. Integration ratio in multiple choice questions will be 70% core subject knowledge, 10% will be Horizontally integrated subjects, 10% Vertical & 10% spiral Integration. Each MCQ will carry One Mark and Time allowed per MCQ will be 1 minute.

**5.2.1.2. Short Essay Type Questions (SEQs):**

- a. **SEQs:** Short essay questions serve as an effective tool for assessing students' comprehension, critical thinking, and formulate them in their own words. Each SEQ will carry 5 Marks and time allowed per SEQ will be 10 minutes.

**5.2.2. Practical (Psychomotor) Component:**

**5.1.2.1. Objective Structured Practical Examination (OSPE):**

It will consist of Objective Structured Practical Examination (OSPE) , time required for each station will be 5 min.

- i. **Laboratory OSPE (Lab OSPE):** This section will comprise of practical components of core subject areas.
- ii. **Integrated OSPE (i-OSPE):** This section will comprise of horizontal and vertical integration.
- iii. **Clinically integrated OSPE (Ci OSPE):** This section will comprise of stations, one from research and one from ALPHA
- iv. **Objective Structured Clinical Examination (OSCE):** This section will comprise of stations to evaluate the student's ability to apply theoretical knowledge in a practical, clinical setting.

- v. **Objectively Structured Viva Examinations (OSVE):** where student will be examined by the internal & external examiner using a structured making rubric for marking questions.

**6. Examination Eligibility:**

Eligibility to appear in professional will be as per RMU Assessment Policy approved by the Academic Council and Syndicate.

**7. Passing Criteria:**

A student will be declared successful in a exam as per passing criteria defined in RMU Assessment Policy approved by the Academic Council and Syndicate.

**8. Supplementary Examination Criteria:**

Will be according to RMU Assessment Policy approved by the Academic Council and Syndicate.

**Table of Specifications (TOS) of Annual MBBS third professional Examinations 2026, Batch 50**

- Total First Professional Marks: 1600
  - Annual Marks (60%) = 960 Marks
  - Continuous Internal Assessment (40%) =640 Marks
- Components of CIA:  
A: CIA calculated from on campus assessments including LMS (on campus) =30%=480 Marks  
B: CIA calculated from Online LMS Assessments =10%=160 Mark

**TABLE 1: ORIGINAL DISTRIBUTION OF MARKS IN ALL BLOCKS (SUBJECT WISE)**

Subjects	Marks in professional in respective Blocks	Theory marks in respective blocks	OSPE/OSVE marks in respective blocks	Internal Assessment		Total Marks
				Internal Assessment in respective blocks	LMS	
Community Medicine	180	90	90	90	30	300
Pathology	180	105	105	90	30	300
Pharmacology	120	60	60	60	20	200
ENT	120	60	60	60	20	200
EYE	120	60	60	60	20	200
Medicine & Allied	120	60	60	60	20	200
Surgery & Allied	120	60	60	60	20	200
<b>Grand Total</b>						<b>1600</b>

TABLE 2: CIA CALCULATED FROM ON CAMPUS AND OFF CAMPUS ASSESSMENTS

Blocks	Subjects	Total marks	Block & Modules Assessment		LMS Assessment		Total marks
			Theory	Practical	Theory	Practical	
<b>Block 1 120 Marks</b>	ENT	80 marks	30 marks	30 marks	10	10	120 Marks Theory =60 Marks Practical=60 Marks
	Community Medicine	40 marks	15 marks	15 marks	5	5	

<b>Block 2</b> <b>120 Marks</b>	EYE	80 marks	30 marks	30 marks	10	10	120 Marks Theory =60 Marks Practical=60 Marks
	Community Medicine	40 marks	15 marks	15 marks	5	5	
<b>Block 3</b> <b>120 Marks</b>	Pathology	60 marks	25 marks	25 marks	5	5	120 Marks Theory =60 Marks Practical=60 Marks
	Pharmacology	40 marks	15 marks	15 marks	5	5	
	Community Medicine	20 marks	7.5 marks	7.5 marks	2.5	2.5	
<b>Block 4</b> <b>120 Marks</b>	Pathology	60 marks	25 marks	25 marks	5	5	120 Marks Theory =60 Marks Practical=60 Mark
	Pharmacology	40 marks	15 marks	15 marks	5	5	
	Community Medicine	20 marks	7.5 marks	7.5 marks	2.5	2.5	
<b>Block 5</b>	Medicine & Allied	80 marks	30 marks	30 marks	10	10	120 Marks Theory =60 Marks Practical=60 Mark
<b>Block 6</b>	Surgery & Allied	80 marks	30 marks	30 marks	10	10	120 Marks Theory =60 Marks Practical=60 Mark

**Table of Specifications (TOS)of Annual MBBS fourth professional Examinations 2026, Batch 50**

**A: Subject wise distribution of Marks for 4<sup>th</sup> year MBBS (Batch 50)**

Block	Subjects	Theory	Practical	Total marks
<b>Block 1</b>	ENT	60 marks	60 marks	120 marks
	Community Medicine	30 marks	30 marks	60 marks
	<b>Total</b>	<b>90 marks</b>	<b>90 marks</b>	<b>180 marks</b>
<b>Block 2</b>	<b>Subjects</b>	<b>Theory</b>	<b>Practical</b>	<b>Total marks</b>
	EYE	60 marks	60 marks	120 marks

	Community Medicine	30 marks	30 marks	60 marks
	<b>Total</b>	<b>90 marks</b>	<b>90 marks</b>	<b>180 marks</b>
<b>Block 3</b>	<b>Subjects</b>	<b>Theory</b>	<b>Practical</b>	<b>Total marks</b>
	Pathology	50 marks	50 marks	100 marks
	Pharmacology	25 marks	25 marks	50 marks
	Community Medicine	15 marks	15 marks	30 marks
	<b>Total</b>	<b>90 marks</b>	<b>90 marks</b>	<b>180 marks</b>
<b>Block 4</b>	<b>Subjects</b>	<b>Theory</b>	<b>Practical</b>	<b>Total marks</b>
	Pathology	40 marks	40 marks	80 marks
	Pharmacology	35 marks	35 marks	70 marks
	Community Medicine	15 marks	15 marks	30 marks
	<b>Total</b>	<b>90 marks</b>	<b>90 marks</b>	<b>180marks</b>
<b>Block 5</b>	<b>Subjects</b>	<b>Theory</b>	<b>Practical</b>	<b>Total marks</b>
	Dermatology	15 Marks	15 Marks	30 Marks
	Nephrology	15 Marks	15 Marks	30 Marks
	Psychiatry	15 Marks	15 Marks	30 Marks
	Family Meidicine	15 Marks	15 Marks	30 Marks
	<b>Total</b>	<b>60 Marks</b>	<b>60 Marks</b>	<b>120 Marks</b>
<b>Block 6</b>	<b>Subjects</b>	<b>Theory</b>	<b>Practical</b>	<b>Total marks</b>
	Urology	20 Marks	20 Marks	40 Marks
	Orthopedic	20 Marks	20 Marks	40 Marks
	Neurosurgery	20 Marks	20 Marks	40 Marks
	<b>Total</b>	<b>60 Marks</b>	<b>60 Marks</b>	<b>120 Marks</b>
<b>GRAND TOTAL MARKS</b>				<b>960 Marks</b>

## **B. Block-wise distribution of Marks of 4<sup>th</sup> Year MBBS**

Subject	Theory			Practical			Total Marks
	Component	No of Items	Marks	Component	No of Items	Marks	
<b>Block 1</b> <b>(ENT &amp; Community Medicine)</b> <b>Total marks with CIA =210+90= 300</b>	Section I-MCQ		45	iOSPE	5	25	180
	Section II-SEQ	45	45	ciOSCE	5	25	
		45		GEC	1	05	
				OSVE	2	35	
	Continuous Internal Assessment (40%)		60	Continuous Internal Assessment (40%)		60	120
	<b>Total Marks</b>		<b>150</b>	<b>Total Marks</b>		<b>150</b>	<b>300</b>
<b>Block 2</b> <b>(Ophthalmology &amp; Community Medicine)</b> <b>Total marks with CIA =210+90= 300</b>	Section I-MCQ		45	iOSPE	5	25	180
	Section II-SEQ	45	45	ciOSPE	5	25	
		40		Research	1	05	
				OSVE	2	35	
	Continuous Internal Assessment (40%)		60	Continuous Internal Assessment (40%)		60	90
	<b>Total Marks</b>		<b>150</b>	<b>Total Marks</b>		<b>150</b>	<b>300</b>
<b>Block 3</b> <b>(Endocrinology &amp; Reproduction )</b> <b>Total marks with CIA =210+90= 300</b>	Section I-MCQ	55	55	LabOSPE	3	15	180
	Section II-SEQ	35	35	iOSPE	3	15	
				ciOSPE	3	15	
				Research	1	05	
				OSVE	3	40	
	Continuous Internal Assessment (40%)		60	Continuous Internal Assessment (40%)		60	120
	<b>Total Marks</b>		<b>150</b>	<b>Total Marks</b>		<b>150</b>	<b>300</b>
<b>Subject</b>	<b>Theory</b>			<b>Practical</b>			<b>Total Marks</b>

	Component	No of Items	Marks	Component	No of Items	Marks	
<b>Block 4 (CNS &amp; Psychiatry) Total marks with CIA =210+90= 300</b>	Section I-MCQ	55	55	Lab OSPE	3	15	180
	Section II-SEQ	35	35	iOSPE	3	15	
				ciOSPE	3	15	
			Research	1	05		
			OSVE	3	40		
	Continuous Internal Assessment (40%)		60	Continuous Internal Assessment (30%)		60	120
	<b>Total Marks</b>		<b>150</b>	<b>Total Marks</b>		<b>150</b>	<b>300</b>
<b>Block 5 Medicine &amp; Allied Total marks with CIA =120+80= 200</b>	<b>Component</b>	<b>No. of Items</b>	<b>Marks</b>	<b>Practical</b>			<b>Total Marks</b>
	<b>MCQs</b>			<b>Component</b>	<b>No of Items</b>	<b>Marks</b>	
	<b>Psychiatry</b>	15	15	<b>OSCE</b>	3	15	120
	<b>Nephrology</b>	15	15		3	15	
	<b>Family Medicine</b>	15	15		3	15	
<b>Dermatology</b>	15	15	3		15		
	Continuous Internal Assessment		40	Continuous Internal Assessment		40	80
	<b>Total Marks</b>		<b>100</b>	<b>Total Marks</b>		<b>100</b>	<b>200</b>
<b>Block 6 Surgery &amp; Allied Total marks with CIA =120+80= 200</b>	<b>Component</b>	<b>No. of Items</b>	<b>Marks</b>	<b>Practical</b>			<b>Total Marks</b>
	<b>MCQs</b>			<b>Component</b>	<b>No.of Items</b>	<b>Marks</b>	
	<b>Urology</b>	20	20	<b>OSCE</b>	4	20	120
	<b>Neurosurgery</b>	20	20		4	20	
	<b>Orthopedics</b>	20	20		4	20	
	Continuous Internal Assessment		40	Continuous Internal Assessment		40	80
	<b>Total Marks</b>		<b>100</b>	<b>Total Marks</b>		<b>100</b>	<b>200</b>

## **Assessment Policy**

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

### **1. Guiding principles**

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

### **2. Purposes of assessment**

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

### **3. Forms of assessments**

## Formative Assessment

A formative assessment refers to a low-stakes assessment that does not normally contribute towards a student's final grade. A formative assessment may include summarizing the mainpoints in a lecture or a weekly quiz to test comprehension of the reviewed content.

(assessment for learning) is carried out throughout modules and clerkships using various strategies (at the discretion of module coordinators and clerkship directors) feedback. Formative assessment performance may be taken as a continuous assessment.

## Summative Assessment

A summative assessment is any method of evaluation performed at the end of a unit that allows a teacher to measure a student's understanding, typically against standardized criteria. Assessment of learning takes place at the end of modules/ blocks and clerkships and comprises of:

Written assessment (50%)

Multiple Choice Questions (MCQs)	40% Will be as USMLE format
Extended Match Questions (EMQ)	10%
Short answer questions (SAQs)	50%

### a. Performance (Practical) assessment (50%)

Objective Structured Practical Examination (OSPE) Years I, II and III Objective Structured Clinical Examination (OSCE) Years IV - V Shortcases will be included in OSCE

## 4. Assessment and their timings

- The module/ clerkship teams will be responsible for their assessment plan mentioning assessment strategies, timings, and other essentials (please refer to the individual plans).
- Students will be briefed about the pattern and scoring of the assessments before the examination.

- Professional examination will be taken by RMU.

## **5. Weekly LMS (learning management system) assessment of LGIS and SDL**

- There will be weekly assessment of LGIS and SDL of whole week at end of week through LMS.
- The LMS result will be shared by module coordinator and DME through vice chancellor on weekly basis.

## **6. Eligibility to appear in End Block Assessment (EBA)**

- This will be applicable to all the blocks of undergraduate program
- 80% attendance in each subject will be mandatory
- Student must pass in all LMS, mid module assessments to appear in EBA
- There will be no remedial classes for attendance compensation
- There will be no remedial of assessment after poor performance

## **7. Eligibility to appear in Pre-Annual Assessment (PAA)**

- 80% attendance in each block is required to appear in PAA
- It is mandatory to appear in all EBA to appear in PAA
- Appraisal letter from head of departments will be needed to appear in pre-annual assessment.

## **8. Attendance policy**

- 90% attendance in each block is required to appear in PAA
- There will be extra marks given as per rules.
- Attendance of the students will be shared by coordinator of module and DME through vice chancellor RMU on weekly basis.
- These marks will be counted in annual professional assessment.

## **9. Eligibility to appear in annual professional assessment**

- Minimum 60% score in pre-annual assessment is required to appear in annual professional examination.
- Written and practical /OSPE/OSCE should be passed separately.

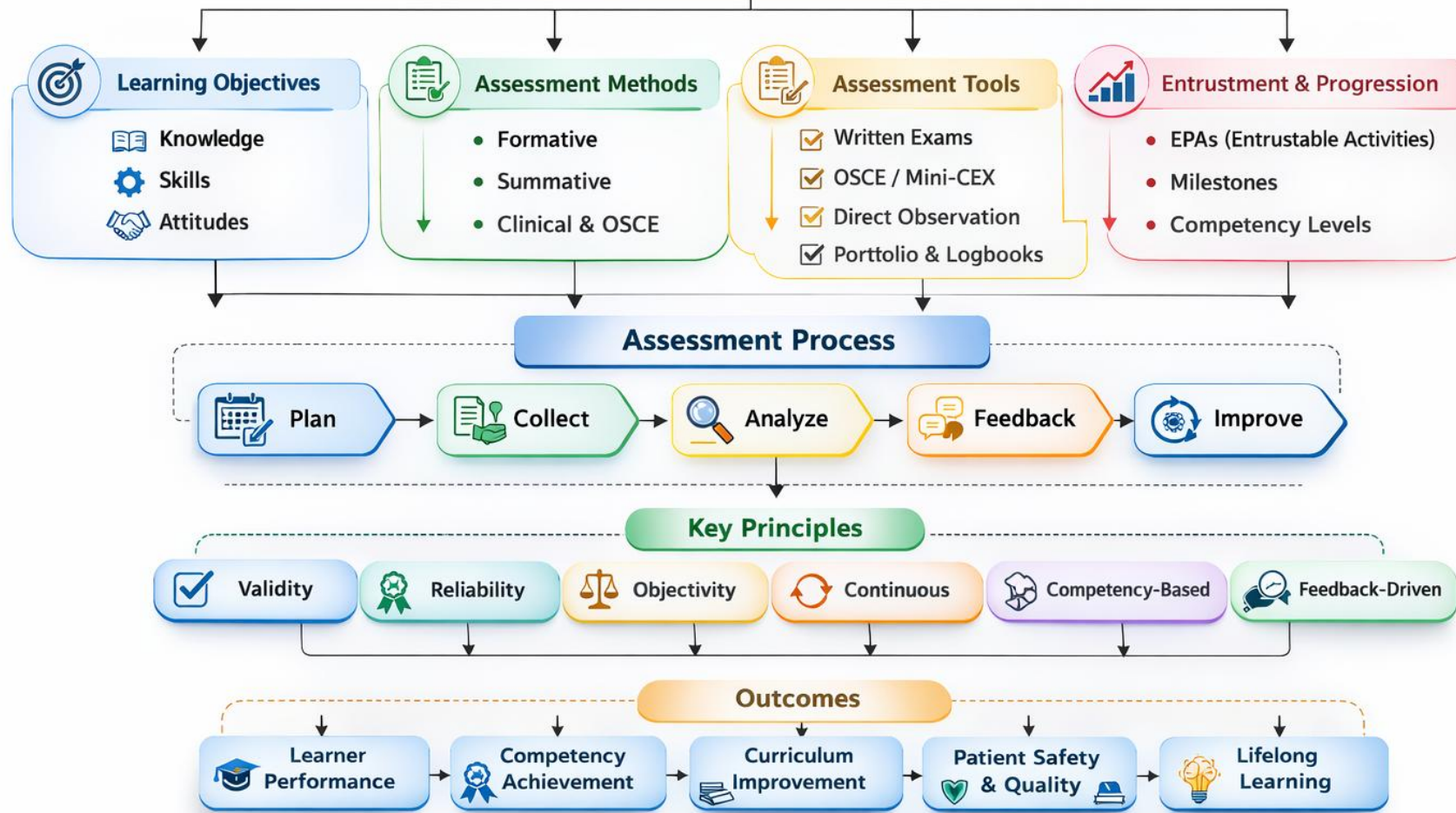
## **10. Passing criteria in annual professional examination**

- 50% marks will be needed to pass annual professional examination.

## **11. Total break up of assessment score**

- Annual professional exam weightage 70%
- Continuous internal assessment weightage 30%

# ASSESSMENT FRAMEWORK



# Assessment

Theoretical

workplace based  
assessment

LMS

Summative

Formative

Summative

Formative

Summative

End of  
Module-1

End of  
Module 2

End of  
lecture  
assessments  
(EOLA)

CI-  
OSCE+OSVE

End module  
clinical  
assessment

Mini-Cex

Case based  
discussion

Weekly Off-  
Campus

**Ophthalmology Block**  
**Table of Specifications (TOS)**



## Department of Medical Education

Rawalpindi Medical University/Allied Hospitals



### Preamble

The Table of Specifications (TOS)(TOS) is a detailed framework that describes how assessment items are distributed in terms of content among modules in our prestigious medical university's curriculum. The TOS was created with great care to ensure that educational objectives, instructional content, and evaluation criteria are all in line with one other. This allows us to guarantee the validity, integrity, and reliability of assessments while supporting our students' overall growth. This paper offers clarity and transparency by outlining the cognitive levels, domains, and weightings of assessment items. This helps faculty members create tests that appropriately measure students' understanding of critical competencies and knowledge areas. The TOS, which is based on pedagogical ideas and evidence-based practices, symbolizes our dedication to provide our graduates with the necessary skills, knowledge, and professionalism in medical education to achieve success in their chosen industries and contribute significantly to the medical community and society at large.

#### Components of TOS:

The following elements are usually included in a Table of Specifications (TOS)(TOS):

**Content Domains or Areas:** The assessment's broad categories or content domains are described in this section. These domains have to match the course or module's curriculum and learning objectives.

**Weightings or Percentages:** Gives each topic area or cognitive level a certain amount of weight or proportional value. This makes it easier to guarantee that the evaluation accurately captures the importance that the curriculum places on certain subjects or abilities.

**Assessment Items:** Describes the many kinds of assessment items that will be used in the assessment, such as essays, multiple choice questions, short answer questions, and practical tests. The number of items assigned to each content area and cognitive level may also be stated in this section.

**Blueprint:** A graphic depiction of the TOS that outlines how assessment items are distributed throughout curriculum categories. It frequently takes the shape of a table or matrix.

## Modules in 4<sup>th</sup> Year MBBS

Block	Module Name	Duration
(Block I)	Otorhinolaryngology I	3 weeks
	Otorhinolaryngology II	3 weeks
(Block II)	Ophthalmology I	3 weeks
	Ophthalmology II	3 weeks
(Block III)	Endocrinology I	3 weeks
	Population medicine& reproduction II	6 weeks
(Block IV)	Renal I	3 weeks
	CNS & Psychiatry II	6 weeks

### Assessment strategies to assess module:

**Formative:** Formative assessment is a process used by teachers during instruction that provides feedback to adjust ongoing teaching and learning to improve students' achievement of intended instructional outcomes.

**LMS (Learning Management System):** Weekly LMS based assessment will be carried out in all the modules from the topics already provided in the study guide.( TOS sample annexure 1)

**End Modular:** End Modular Assessment will be carried out at the end of the module from the course taught till that day. (TOS Sample Annexure 2) **Summative:** summative assessment evaluates student learning at the end of a block/ professional year.

**MCQs:** Multiple-choice questions (MCQs) are a type of assessment item commonly used in educational settings to evaluate a person's knowledge or understanding of a topic. In a multiple-choice question, the respondent is presented with a question or statement, known as the stem, along with several options, one of which is the correct answer (the key), while the others are incorrect (distractors). The respondent selects the option they believe to be the correct answer.

**SAQs:** Short answer questions are a type of assessment item used to evaluate a person's understanding of a topic or concept. Unlike multiple-choice questions, which provide a list of options for respondents to choose from, short answer questions require respondents to generate their own answers without the aid of options provided by the question.

# Assessment tools & strategies

## Tools of assessments:

### Theory assessment

- a. MCQs
- b. SAQs & SEQs
- c. EMQs
- d. AV-OSPE

### Clinical Assessment

- a. Objectively Structured Viva Examination (OSVE).
- b. Ci-OSCE (Clinically Integrated-OSCE)
- c. End module clinical assessment
- d. Log book

### LMS

1. Off campus
2. On-Campus

## Proposed TOS of on campus Assessments during whole Academic Year 2026 (RMU)

Block Name & Order	Modules Names & Numbers	Theory			Scheme of Integration						Practical Assessment						Total marks	End Block LMS (MCQs Based)	Total Block marks		
		25	5+1	5 SEQs (9marks each)	Core Subject. 70%		Hori- & Verti- Integ. 20%		*Spiral Integ. 10%		OSVE		OSPE (05 marks each)			Total marks					
		MCQs (1 mark each)	SAQ +EMQ (5 marks each)							Module 1	Module 2	Observed	Unobserved	Video assisted							
I Otorhinolaryngology	ENT I & II	Total marks	Total marks	Total marks	MC Qs (19)	SAQ/SEQ +EMQ (7+1)	MC Qs (4)	SAQ /SEQs (2)	MC Qs (2)	SAQ (1)	100	Viva marks	**Book marks	Viva marks	Book marks	5 stations	5 stations	10 stations	150	30	270
		25	25+5	45	19	46	4	12	2	7		45	5	45	5	25 marks	25 marks	50 Marks			
II Ophthalmology	EYE I & II	25	25 +5	45	19	46	4	12	2	7	100	45	5	45	5	5 stations	5 stations	10 stations	150	30	270
																25 marks	25 marks	50 marks			
	Endocrinology	25	25 +5	45	19	46	4	12	2	7	100								30		

III Population medicine & Reproduction	Pop Med & Reproduction	25	25+5	45	19	46	4	12	2	7	100	Viva marks	Book marks	Viva marks	Book marks	10 stations	10 stations	20 stations	250	460	
												45	5	45	5	50 marks	50 marks	100 marks			
IV CNS & Psychiatry	Renal	25	25+5	45	19	46	4	12	2	7	100									30	460
	CNS & Psychiatry		25+5	45	19	46	4	12	2	7	100	Viva marks	Book marks	Viva marks	Book marks	10 OPSEs	10 OPSEs	20 OSPEs	250		
												45	5	45	5	50 marks	50 marks	100 marks			

**\*Spiral Integration**

1. Biomedical Ethics & Professionalism
2. Family Medicine
3. Integrated Undergraduate Research Curriculum (IUGRC)
4. Artificial Intelligence

**\*\* “Log Book marks”** will be credited according to evidence of reading relevant subjects from the recommended books presented at the time of viva examination.

- In theory assessment SEQs and SAQs both tools may be used according to need and scope of assessment in the subject.
- **Time** allocated to 1 MCQ: 1min and 1SEQ/SAQ: 10min.

**Proposed Pre-Annual Assessment TOS 4th Year MBBS (batch 50)**

Blocks	Subjects	MCQs 1mark each	SAQs 5 marks each	Core Subject	Horizontal & Vertical Integration	Spiral Integration	OSCE 5 marks each	VIVA 75 marks	
								Attendance	Core subject
<b>Block 1 ***</b>	ENT	45	10	70%	20%	10%	10	5	40
	Community Medicine	30	5	70%	20%	10%	05	5	25
<b>Total Marks</b>		<b>75</b>	<b>75</b>	<b>100%</b>			<b>75</b>	<b>75</b>	
<b>Block II***</b>	Eye	45	10	70%	20%	10%	10	5	40
	Community Medicine	30	5	70%	20%	10%	05	5	25
<b>Total Marks</b>		<b>75</b>	<b>75</b>	<b>100%</b>			<b>75</b>	<b>75</b>	
<b>Block III ***</b>	Pharmacology	25	4	70%	20%	10%	5	5	20
	Pathology	25	5	70%	20%	10%	5	5	20
	Community Medicine	15	4	70%	20%	10%	5	5	20
<b>Total Marks</b>		<b>75</b>	<b>75</b>	<b>100%</b>				<b>75</b>	
<b>Block IV***</b>	Pharmacology	25	4	70%	20%	10%	5	5	20
	Pathology	25	5	70%	20%	10%	5	5	20
	Community Medicine	15	4	70%	20%	10%	5	5	20
<b>Total Marks</b>		<b>75</b>	<b>75</b>	<b>100%</b>			<b>75</b>	<b>75</b>	

\*\*\*Total marks of each Block = 300 marks, Grand Total = 1200 marks

## **Block Assessment Plan**

This plan of assessment intricately details the structure and evaluation criteria for the undergraduate otorhinolaryngology block exam, designed to align closely with the Accreditation Council for Graduate Medical Education (ACGME) competencies. The block unfolds across two distinct three-weeks modules, with weekly formative assessments strategically integrated to assess and reinforce students' proficiency in the ACGME-defined domains along with special emphasis on research as per university policy.

<b>ACGME competencies</b>	<b>Assessment tool</b>
Medical Knowledge	MCQ, SAQ, OSCE, end module clinical assessment
Patient care	OSCE, End module clinical assessment
Practice- based learning	OSCE, end module clinical assessment
System based practice	OSCE, end module clinical assessment
Professionalism	OSCE, end module clinical assessment
Communication skills	OSCE, end module clinical assessment
Research	Spirally integrated across all 5 years Research projects

Each formative assessment serves as a targeted gauge for students to showcase their evolving competencies, embracing the ACGME's focus on patient care, medical knowledge, practice-based learning, interpersonal and communication skills, professionalism, and systems-based practice. As the modules progress, these assessments provide iterative insights into learners' development across these crucial competencies.

The culmination of each module manifests in a summative assessment, meticulously crafted to evaluate the synthesis and application of knowledge within the context of the ACGME competencies. This comprehensive approach ensures that the evaluation process not only measures academic understanding but also holistically assesses the skills and attributes essential for effective and compassionate medical practice.

In essence, this Table of Specifications (TOS) serves as a dynamic framework for instructors, weaving ACGME competencies into the fabric of assessments to cultivate well-rounded, future-ready healthcare professionals. It underscores the commitment to nurturing individuals who excel not only in the theoretical aspects of otorhinolaryngology but also in the broader spectrum of competencies vital for patient-centered care.

University has followed the guidelines of Pakistan Medical and Dental Council for assessment. Assessment is conducted at the mid modular, modular and block levels.

### **1. Formative Assessment**

<b>Assessment Method</b>	<b>Description</b>	<b>Timing</b>
End of Lecture Assessment	Brief quizzes or concept checks to assess understanding after each lecture	End of each lecture
Weekly Quizzes	LMS based Short quizzes covering weekly topics	End of each weeks
TCRF	Discussions involving clinical scenarios to assess clinical reasoning and decision making.	Once a week

## **2. Summative Assessment:**

Summative assessment is taken at the

- End module-I and End module -II
- End block levels.

Assessment framework is specifically designed with careful consideration of subject importance and integration aspects. The distribution of marks is as follows

	Core concepts	70%
2	Horizontal/ Vertical integration <ul style="list-style-type: none"><li>● Pathology</li><li>● Community medicine/ public health</li><li>● Pharmacology</li></ul> Vertical integration <ul style="list-style-type: none"><li>● Family medicine</li><li>● General surgery</li><li>● Basic sciences</li></ul>	15%
3	Spiral integration <ul style="list-style-type: none"><li>● Research</li><li>● Artificial intelligence</li><li>● Bioethics</li></ul>	15%

This structure emphasizes a significant focus on core subjects, ensuring a substantial grasp of fundamental concepts. Simultaneously, horizontal, vertical, and spirally integrated subjects each contribute to 10% of the assessment, promoting a balanced understanding and application of knowledge across interconnected domains. The tabulated form provides a clear delineation of weightage assigned to each component, reflecting the comprehensive nature of the assessment strategy.

### Table of Specification (TOS) LMS Theme-1

#### MCQ Assessment of lectures and SDL

(80% pass criteria for appearing in end block exam - 80% attendance)

Sr. #	Discipline	No. of MCQs	No. of MCQs according to cognitive domain			Total marks
			C1	C2	C3	
1.	Ophthalmology	30	05	20	05	30
2.	Community Medicine	15	05	08	02	15
3	Dermatology	05	02	02	01	05
		Total MCQs = 50	12	30	08	Total marks = 50

**Table of Specifications (TOS)(TOS) LMS Theme-2**

**Assessment of lectures and SDL**

**March 2026**

**(80% pass criteria for appearing in end block exam - 80% attendance)**

Sr. #	Discipline	No. of MCQs	No. of MCQs according to cognitive domain			Total marks
			C1	C2	C3	
1.	Ophthalmology	30	05	20	05	30
2.	Community Medicine	15	05	08	02	15
3	Pathology	02	01	01	00	02
4	Obstetrics	03	01	01	01	03
		Total MCQs = 50	12	30	08	Total marks = 50

**Table of Specification (TOS) LMS Theme 3**

**LMS-MCQ Assessment of lectures and SDL**

**April,2026 (Saturday)**

**(80% pass criteria for appearing in end block exam - 80% attendance)**

Sr. #	Discipline	No. of MCQs	No. of MCQs according to cognitive domain			Total
			C1	C2	C3	
1.	Ophthalmology	30	05	20	05	30
2.	Community Medicine	15	06	07	02	15
3	Dermatology	05	02	02	01	05
		50	20	22	08	50 marks

**End Module 1**

**Table of Specifications (TOS)(TOS) Fourth Year MBBS**

**Mar 2026**

**MCQ+EMQ+SEQ+SAQ+AV-OSPE (150 marks)**

**(80% pass criteria and 80% attendance for appearing in end block exam)**

Sr. #	Discipline	No. of MCQs (1 mark each)	Cognitive domain			No of EMQs (5 marks each)	No. of SEQs (9 marks each)	Cognitive domain			No of SAQs (5 marks each)	Cognitive domain			Total
			C1	C2	C3			C1	C2	C3		C1	C2	C3	
1.	Ophthalmology	35 MCQ	15	15	0 5	1 x 5 = 5 marks	5x9 = 45	03	01	01	3 x5 = 15	01	01	01	
Theory (120 minutes)		35 marks 35 minutes				05 marks 05 minutes	45 marks 50 minutes				15 marks 30 minutes				Total = 100 Marks 120 minutes
<b>AV-OSPE (10 stations) 60 minutes</b>															

**Topic wise distribution End module I**

Sr.No.	Topic	Weightage %	SAQ 3	SEQ 5	MCQ 35	EMQ 1	AV OSPE	
1	Lens disorders	10	1	1	5	1	1	
2	glaucoma	10					5	1
3	Sclera/ episclera	5					2	
4	Conjunctiva	10	1	1	2		1	
5	Cornea	10					5	1
6	Uvea	10					2	1
7	Retina	15			1		5	1
8	Pathology Pharmacology	10%	1		3			1
9	Family medicine, General surgery, basic sciences	10%			1		3	1
10	Bio ethics, Research, Artificial intelligence	10%					3	1

**Table of Specification (TOS) LMS Theme 4**

**LMS-MCQ Assessment of lectures and SDL**

**April 2026 (Saturday)**

**(80% pass criteria for appearing in end block exam - 80% attendance)**

Sr. #	Discipline	No. of MCQs	No. of MCQs according to cognitive domain			Total
			C1	C2	C3	
1.	Otorhinolaryngology	30	05	20	05	30
2.	Community Medicine	15	08	05	02	15
3	Dermatology	05	07	02	01	05
		50	37	15	08	50 marks

**Table of Specification (TOS) LMS Theme 5**

**LMS-MCQ Assessment of lectures and SDL**

**April,2026 (Saturday)**

**(80% pass criteria for appearing in end block exam - 80% attendance)**

Sr. #	Discipline	No. of MCQs	No. of MCQs according to cognitive domain			Total
			C1	C2	C3	
1.	Ophthalmology	30	05	20	05	30
2.	Community Medicine	15	06	07	02	15
3	Dermatology	05	02	02	01	05
		50	20	22	08	50 marks

**End Module-2 (Block-1) Otorhinolaryngology**

**Table of Specifications (TOS)(TOS) Fourth Year MBBS 2026**

**MCQ+EMQ+SEQ+SAQ+AV-OSPE (150 marks)**

**(80% pass criteria and 80% attendance for appearing in end block exam)**

Sr. #	Discipline	No. of MCQs (1 mark each)	Cognitive domain			No of EMQs (5 marks each)	No. of SEQs (9 marks each)	Cognitive domain			No of SAQs (5 marks each)	Cognitive domain			Total
			C1	C2	C3			C1	C2	C3		C1	C2	C3	
1.	Ophthalmology	35 MCQ	25	05	0	1 x 5 = 5 marks	5x9 = 45	03	01	01	3 x5 = 15	---	01	01	
Theory (120 minutes)		35 marks 35 minutes				05 marks 05 minutes	45 marks 50 minutes				15 marks 30 minutes				Total = 100 marks 120 minutes
<b>AV-OSPE (10 stations) 60 minutes</b>															

## Topic wise distribution End module II

Sr.No.	Topic	Weightage %	SAQ 3	SEQ 5	MCQ 35	EMQ 1	AV OSPE		
1	Refractive errors/ surgery	5	1	1	2	1	1		
2	Lids & Adnexa	5					2	1	
3	Lacrimal System	5					2		
4	Dry eyes	5	1	1	2			1	
5	Nerve palsies, pupillary disorders	10					4	1	
6	strabismus	15					5	1	
7	Dry eyes	15			1		5	1	
8	Orbit/ ocular tumors	10			1		4	1	
9	Pathology Pharmacology	10%	1	1	3			1	
10	Family medicine, General surgery, basic sciences	10%						3	1
11	Bio ethics, Research, Artificial intelligence	10%						3	1
			3	5	35				

## Workplace Based Assessment Framework:

### 1. Continuous Formative Assessment

Assessment Method	Description	Timing
Case-Based discussions	Discussions involving clinical scenarios to assess clinical reasoning and decision making.	Twice a week
Mini CEX	Focused observation of clinical encounters with immediate feedback	Once a week
Feedback sessions	Dedicated time for discussing performance and identifying learning gaps.	Once a week

### 2. Log book and Reflective Learning

Logbook entries	Mandatory recording of key procedures (e.g., tonometry, visual acuity testing, slit lamp exam) with supervisor sign-off.
Record of patient interaction	Details of patient encounters, including history, examination, and learning outcomes.

### 3. End module clinical assessment

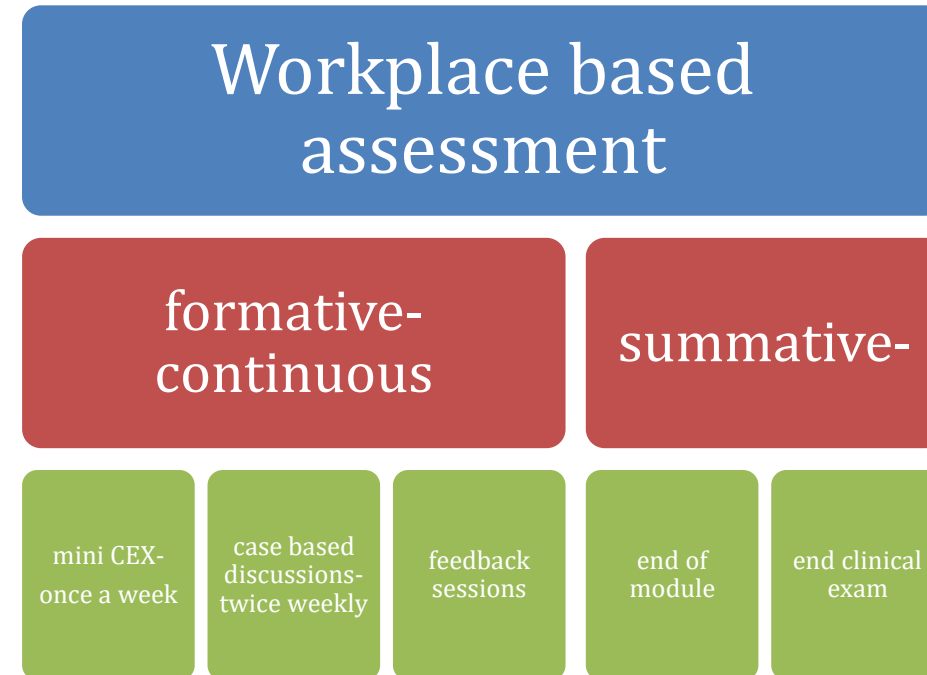
4<sup>th</sup> year MBBS students have to complete 6 weeks clinical clerkship in Ophthalmology which includes 2 weeks rotation individually in HFH, BBH and DHQ. Assessment of Psychomotor and Affect skill will be taken at the end of each fortnightly rotation in respective hospital.

#### 4. End clinical assessment:

Conducted after completion of the 6-week rotation in 4 clusters.

Total Marks: 50

- i. Ci-OSCE: 30 Marks
- ii. OSVE: 20 Marks



## A. OSCE

Station No.	Content	Task Description	No. of Stations	Cognitive Level (KSA)	Skills to be Assessed	Assessment Focus
1	History Taking <ul style="list-style-type: none"> <li>• Red Eye</li> <li>• Loss of vision(sudden/gradual)</li> <li>• Abnormal appearance of eye</li> </ul>	Take a focused history from a patient.	1	Knowledge, Skills, Attitude (KSA)	History-taking, logical reasoning	Identification of cause and associated risk factors.
2	Direct Ophthalmoscopy	Perform direct ophthalmoscopy on a dummy or model to identify fundus features.	1	Knowledge, Skills	Examination technique, interpretation	Accuracy in identifying fundus abnormalities (e.g., optic disc changes).
3	Counseling <ul style="list-style-type: none"> <li>• Cataract Surgery</li> <li>• Ocular tumors</li> </ul>	Counsel a patient about the risks, benefits, and postoperative care for cataract surgery.	1	Knowledge, Attitude	Communication, patient education	Empathy, clarity, and structured counseling.
4	Examination skills: <ul style="list-style-type: none"> <li>• Visual Fields by Confrontation</li> <li>• Pupil Examination</li> <li>• Extraocular movements</li> <li>• Cover/uncover test</li> </ul>	Perform <b>assigned skill</b> based on the examiner's instruction	1	Knowledge, Skills	Examination technique, perform and interpretation	Accuracy in performing the assigned technique and identifying any abnormalities.

	• Torchlight Examination					
5	Ophthalmic Instruments	Identify and explain the use of common ophthalmic instruments (e.g., slit lamp, tonometer).	1	Knowledge	Instrument identification, application	Accuracy in naming instruments and explaining their clinical use.
6	Surgical Video Interpretation	Watch a short surgical video (e.g., phacoemulsification) and describe the steps involved.	1	Knowledge, Skills	Identification, procedural knowledge	Recognition of surgical steps and their relevance.

**B. OSVE**

Station No.	Skill Assessed	Station Type	Marks Distribution (10 marks each)	Time (Minutes)	Key Competencies/Skills	Domain
1	Diagnosis and Management of anterior segment disorders	Case-Based Viva (Anterior Segment)	Diagnosis (3), Investigation (3), Management (4)	10	Discuss the diagnosis, appropriate investigations, and management plan.	C3

2	Interpretation of Fundus images/ videos	Image/ video Based Viva (Posterior Segment)	Identification (3), Interpretation (4), Management approach (3)	10	Identify key findings from a given fundus photograph (e.g., diabetic retinopathy) and suggest management options.	C3
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## Continuous internal assessment (CIA):

Department of Ophthalmology

# Continuous internal assessment (CIA)

(80 marks) (40%)

LMS test theory  
10 % 10 marks

end module I& II  
assessment  
20%-  
15marks

Work Place Assessment  
30%  
30 marks

LMS test clinical  
10%  
10 marks

End module clinical  
assessment  
50%  
15 marks

end clinical exam  
(OSCE/ OSVE)

### Module 1:

Roll no.	Name of student	Theory Marks	AV-OSPE Marks	Total Marks	Theory CIA	AV-OSPE CIA	TOTAL CIA
		100	50	150	12	3	15

### Module 2:

Roll no.	Name of student	Theory Marks	AV-OSPE Marks	Total Marks	Theory CIA	AV-OSPE CIA	TOTAL CIA
		100	50	150	13	2	15

### LMS: (20%)

Roll no.	Name of student	Theory Marks (10%)	Clinical (10%)	TOTAL
		10	10	20

**Summary Block-1 CIA: (40%)**

<b>Module-1</b>	<b>Module 2</b>	<b>Workplace based assessment</b>	<b>LMS</b>	<b>TOTAL</b>
<b>15</b>	<b>15</b>	<b>30</b>	<b>20</b>	<b>80</b>

## LMS-Based Teaching and Assessment Model

4th year MBBS 2026

Ophthalmology Block-XI



## Vision

To enhance **competency-based learning, clinical reasoning, and continuous assessment** among fourth-year medical students by utilizing a **Learning Management System (LMS)** integrated with **Self-Directed Learning (SDL), Directed Self Learning (DSL), and weekly LMS-based assessments**.

## Introduction

A **Learning Management System (LMS)** is a digital platform that enables the delivery, management, and evaluation of educational content. In medical education, LMS facilitates structured learning by integrating teaching resources, clinical discussions, and assessment tools into a unified digital environment.

The integration of LMS into undergraduate ophthalmology education promotes **student-centered learning, continuous evaluation, and improved engagement with clinical material**.

At **Rawalpindi Medical University**, the LMS platform (CLMS) provides students with centralized access to lectures, learning resources, assessments, and academic progress tracking.

## LMS Weblink

<https://clms.rmur.edu.pk/>

## Objectives of LMS Integration

The LMS-based model aims to:

1. Facilitate **structured delivery of ophthalmology learning resources**
2. Promote **self-directed and lifelong learning habits**
3. Improve **clinical reasoning through case-based discussions**
4. Enhance **interpretation of ophthalmic images and diagnostic findings**
5. Provide **continuous formative assessment**
6. Enable **real-time monitoring of student performance**
7. Encourage **regular engagement with weekly learning themes**
8. Integrate **technology into undergraduate medical education**

## Educational Strategy

The ophthalmology module utilizes a **blended learning model** consisting of three interconnected components:

Educational Component	Description	Learning Environment
Self-Directed Learning (SDL)	Students independently review assigned topics	Home / Online
Directed Self Learning (DSL)	Faculty-guided discussion of SDL topics	Classroom / Clinical setting
LMS-Based Assessment	Weekly MCQ assessment evaluating knowledge and clinical reasoning	LMS platform

This **SDL-DSL-LMS cycle** promotes **active learning and continuous assessment**.

## Learning Process (Weekly Cycle)

The ophthalmology module follows a **three-step weekly learning cycle**.

### Step 1 – Self-Directed Learning (SDL)

Students independently review learning material uploaded on the LMS.

#### SDL includes

- Recommended textbook reading
- Clinical videos
- Fundus and slit-lamp images
- Clinical case descriptions

#### Purpose

- Develop independent learning habits
- Prepare students for clinical discussions
- Encourage deeper understanding of disease mechanisms

## Step 2 – Directed Self Learning (DSL)

Following SDL, students attend **faculty-guided DSL sessions**.

During DSL sessions:

- Faculty review key concepts
- Students discuss clinical cases
- Ophthalmic images are interpreted
- Differential diagnosis is explored
- Students clarify misconceptions

DSL bridges the gap between **theoretical knowledge and clinical application**.

## Step 3 – LMS-Based Weekly Assessment

At the end of each week, students complete an **online LMS-based assessment**.

The purpose is to evaluate:

- Conceptual understanding
- Clinical reasoning
- Image interpretation
- Decision-making in clinical scenarios

# 6. Structure of LMS Assessment

Each weekly assessment consists of **50 Multiple Choice Questions (MCQs)**.

Assessment Component	Number of Questions
<b>Concept-based MCQs</b>	25
<b>Clinical scenario-based MCQs</b>	15
<b>Image-based MCQs</b>	10
Total	<b>50</b>

**Duration:** 40–50 minutes

## Assessment Format

- Automated grading
- Immediate feedback
- Performance analytics

## Contribution to Continuous Internal Assessment (CIA)

LMS assessments contribute to **Continuous Internal Assessment (CIA)**.

Key features include:

- Weekly assessments promoting regular study habits
- Performance tracking for each student
- Identification of students requiring academic support
- Integration of theory and clinical learning

LMS assessments contribute to **both theoretical and clinical components of Continuous internal assessment**.

## LMS Assessment Framework

An effective LMS-based assessment system evaluates **three core domains of medical education**.

Domain	Description
Knowledge	Understanding of ophthalmic diseases and principles
Skills	Clinical reasoning and interpretation of investigations
Attitudes	Professionalism and clinical decision-making

## Weekly Teaching Themes

The SDL-DSL-LMS model is implemented through **six clinical themes**.

Week	Theme
<b>Week 1</b>	Red Eye
<b>Week 2</b>	Sudden Loss of Vision
<b>Week 3</b>	Gradual Loss of Vision
<b>Week 4</b>	Ocular Aesthetics
<b>Week 5</b>	Watery Eye (Epiphora)
<b>Week 6</b>	White Pupil (Leukocoria)

## Example SDL Structure

### Week 1 – Red Eye

Component	Details
<b>Key Topics</b>	Conjunctivitis, Keratitis, Uveitis, Episcleritis, Acute angle-closure glaucoma
<b>Learning Objectives</b>	Identify causes of red eye, differentiate painful vs painless conditions
<b>Learning Resources</b>	Kanski's Clinical Ophthalmology
<b>SDL Activities</b>	Videos, clinical image review
<b>Assessment</b>	LMS MCQ test

## Implementation of LMS

Successful implementation requires the following components.

### Infrastructure

A robust LMS platform capable of handling multiple users simultaneously.

### IT Support

Dedicated IT team responsible for:

- System maintenance
- Technical support
- Data management

## **User Management**

Each student receives:

- Unique LMS login credentials
- Secure access to course material

## **Assessment Scheduling**

- Weekly LMS exams scheduled in advance
- Automated notifications sent to students

## **Communication**

LMS facilitates communication through:

- Announcements
- Discussion forums
- Messaging tools

## **Advantages of LMS-Based Learning**

Implementation of LMS provides several educational benefits.

### **For Students**

- Encourages continuous learning
- Improves clinical reasoning
- Provides immediate feedback
- Enhances digital literacy

## **For Faculty**

- Allows tracking of student progress
- Identifies struggling students early
- Facilitates structured assessment

## **Quality Assurance and Continuous Improvement**

Continuous monitoring ensures effective implementation.

Key measures include:

- Student feedback forms
- LMS performance analytics
- Periodic curriculum review
- Faculty evaluation meetings

## **General Learning Outcomes**

By completing the LMS-based ophthalmology module, students will be able to:

1. Apply theoretical knowledge to common ophthalmic clinical scenarios
2. Interpret slit-lamp findings and fundus images
3. Identify ophthalmic emergencies
4. Outline diagnosis and initial management of common eye diseases
5. Integrate knowledge from SDL and clinical clerkship activities
6. Evaluate personal learning progress through formative assessments

## **Self-Directed Learning (SDL) OPHTHALMOLOGY Module 1**

							Assessment Tools
WEEK	THEME	Key LGIS	Topics of SDL	Learning Objectives	Learning Resources	Video links	
<b>WEEK 1</b>	<b>RED EYE</b>	Blepharitis, Ophthalmia neonatorum, Infective conjunctivitis, Allergic conjunctivitis, Degenerative conjunctival disorders, Dry eye syndrome, Keratitis / Corneal ulcer, Herpes simplex keratitis, Herpes zoster ophthalmicus, Acute anterior uveitis, Episcleritis / Scleritis, Acute angle-closure glaucoma, Chemical injury, Corneal foreign body, Contact lens-related keratitis, Subconjunctival hemorrhage	<ul style="list-style-type: none"> <li>• Conjunctivitis (viral, bacterial, allergic)</li> <li>• Keratitis and corneal ulcer</li> <li>• Episcleritis vs scleritis</li> <li>• Anterior uveitis</li> <li>• Acute angle-closure glaucoma</li> <li>• Subconjunctival hemorrhage</li> <li>• Approach to painful vs painless red eye</li> </ul>	<ul style="list-style-type: none"> <li>• Recognize common and emergency causes of red eye</li> <li>• Take focused history and perform ocular examination</li> <li>• Identify urgent conditions requiring referral</li> <li>• Outline first-line management and preventive measures</li> </ul>	Kanski's Clinical Ophthalmology, 10th edition Basic Ophthalmology, Kanski & Bowling	<p>Approach to red eye  <a href="https://youtu.be/hBgI9SiU2nY">https://youtu.be/hBgI9SiU2nY</a></p>	LMS based MCQ
<b>WEEK 2</b>	<b>SUDDEN LOSS OF VISION</b>	Corneal ulcer, Acute anterior uveitis, Complications of uveitis, Retinal vascular occlusions (CRAO, CRVO), Retinal detachment, Acute angle-closure glaucoma, Vitreous hemorrhage, Optic	<ul style="list-style-type: none"> <li>• Retinal detachment</li> <li>• Central retinal artery occlusion</li> <li>• Central retinal vein occlusion</li> <li>• Vitreous hemorrhage</li> </ul>	<ul style="list-style-type: none"> <li>• Take detailed history of sudden vision loss</li> <li>• Differentiate painful vs painless causes</li> <li>• Perform VA, RAPD, fundoscopy, and confrontation fields</li> <li>• Identify ocular emergencies</li> </ul>	Kanski's Clinical Ophthalmology, 10th edition AAO Basic Ophthalmology Guidelines	<p>Sudden loss of vision differentials  <a href="https://youtu.be/1ggUC264TeQ">https://youtu.be/1ggUC264TeQ</a></p> <p>retinal detachment  <a href="https://youtu.be/HjpcwHpFBRU">https://youtu.be/HjpcwHpFBRU</a></p>	LMS based MCQ

		<p>neuritis, Endophthalmitis, Chemical injury, Blunt ocular trauma, Penetrating ocular trauma, Hyphema</p>	<ul style="list-style-type: none"> <li>• Optic neuritis</li> <li>• Acute angle-closure glaucoma</li> <li>• Approach to painless vs painful sudden vision loss</li> </ul>	<ul style="list-style-type: none"> <li>• Outline emergency management and referral</li> </ul>			
<b>WEEK 3</b>	<b>GRADUAL LOSS OF VISION</b>	<p>Refractive errors (Myopia, Hypermetropia, Astigmatism, Presbyopia), Dry eye syndrome, Keratoconus, Corneal dystrophies, Cataract, Retinal dystrophies &amp; degenerations (RP, AMD, myopic degeneration), Diabetic retinopathy, Hypertensive retinopathy, Macular edema, Primary open-angle glaucoma, Chronic angle-closure glaucoma, Secondary glaucoma (including lens-induced), Congenital glaucoma, Chronic optic neuropathies, Papilledema, Amblyopia, Trachoma</p>	<ul style="list-style-type: none"> <li>• Refractive errors and presbyopia</li> <li>• Cataract (age-related and complicated)</li> <li>• Open-angle glaucoma</li> <li>• Diabetic retinopathy</li> <li>• Age-related macular degeneration</li> <li>• Optic neuropathies (chronic)</li> <li>• Approach to painless progressive visual loss</li> </ul>	<ul style="list-style-type: none"> <li>• Define each cause of gradual visual loss</li> <li>• Identify anatomical site involved (cornea, lens, retina, optic nerve, ocular surface)</li> <li>• Differentiate reversible vs irreversible causes</li> <li>• Recognize red-flag features requiring urgent referral</li> <li>• Outline first-line management &amp; preventive strategies</li> <li>• Perform basic visual assessment and patient counseling</li> </ul>	Kanski's Clinical Ophthalmology	<p>Gradual loss of vision causes <a href="https://youtu.be/lfb6Akl2y7g">https://youtu.be/lfb6Akl2y7g</a></p> <p>Diabetic retinopathy <a href="https://youtu.be/SEU3UoM1fll">https://youtu.be/SEU3UoM1fll</a></p> <p>slit lamp examination of cataract <a href="https://youtu.be/fX4mUecybYU">https://youtu.be/fX4mUecybYU</a></p> <p>cataract surgery <a href="https://youtu.be/icYLMmENk_c">https://youtu.be/icYLMmENk_c</a></p>	LMS based MCQ

## SDL Ophthalmology module 2

Week	Themes	Key LGIS	Topic Of SDL	Learning objectives	Learning resources	Video link	Assessment Tool
<b>WEEK 4</b>	<b>OCULAR AESTHETICS</b>	Ptosis, Non-neoplastic & neoplastic lid masses, Ectropion / Entropion, Proptosis, Thyroid eye disease, Blow-out fracture, Haemangiomas, Neurofibroma, Esotropia / Exotropia, Principles of strabismus management, Refractive surgeries	<ul style="list-style-type: none"> <li>• Ptosis (congenital and acquired)</li> <li>• Dermatochalasis</li> <li>• Entropion and ectropion</li> <li>• Blepharitis</li> <li>• Chalazion and stye</li> <li>• Thyroid eye disease basics</li> <li>• Psychosocial aspects of cosmetic concerns</li> </ul>	Define ocular aesthetic and oculoplastic procedures • Describe indications and contraindications • Discuss surgical techniques and postoperative care • Recognize complications and follow-up strategies	Kanski's Clinical Ophthalmology, 10th edition Manual of Oculoplastic Surgery, AAO	Ptosis evaluation <a href="https://youtu.be/GTLBTP2CqjY">https://youtu.be/GTLBTP2CqjY</a>	LMS based MCQ
<b>WEEK 5</b>	<b>WATERY EYE (Epiphora)</b>	Dry eye syndrome, Blepharitis, Infective conjunctivitis, Allergic conjunctivitis, Congenital NLDO, Acute dacryocystitis, Chronic dacryocystitis, Ectropion, Entropion	<ul style="list-style-type: none"> <li>• Lacrimal drainage anatomy and physiology</li> <li>• Congenital nasolacrimal duct obstruction</li> </ul>	Identify congenital vs acquired causes of watery eye • Perform basic diagnostic tests (Jones test, syringing) • Outline management options (conservative, medical, surgical)	Kanski's Clinical Ophthalmology, 10th edition	Lacrimal drainage system <a href="https://youtu.be/VJo5z11rUYQ">https://youtu.be/VJo5z11rUYQ</a>  DCR surgery <a href="https://youtu.be/uLGhyhLL-fE">https://youtu.be/uLGhyhLL-fE</a>	LMS based MCQ

			<ul style="list-style-type: none"> <li>• Chronic dacryocystitis</li> <li>• Punctal stenosis</li> <li>• Reflex tearing (dry eye disease)</li> <li>• Evaluation of epiphora</li> </ul>				
<b>WEEK 6</b>	<b>WHITE PUPIL (Leukocoria)</b>	Congenital cataract, Mature cataract, Retinoblastoma, PHPV, Coats disease, Retinal detachment, ROP, Congenital glaucoma	<ul style="list-style-type: none"> <li>• Pediatric cataract</li> <li>• Retinoblastoma</li> <li>• Persistent fetal vasculature</li> <li>• Retinopathy of prematurity</li> <li>• Coats disease</li> <li>• Approach to white pupillary reflex</li> </ul>	Identify causes of leukocoria • Recognize red-flag signs • Outline diagnostic investigations (fundus, USG, CT/MRI) • Discuss management, surgical indications, and referral	Kanski's Clinical Ophthalmology	Approach to leukocoria <a href="https://youtu.be/pO2FvqnNZcQ">https://youtu.be/pO2FvqnNZcQ</a>	LMS based MCQ

# Communication of Self-Directed Learning (SDL)

Self-Directed Learning topics will be communicated to students **one week in advance through the Learning Management System (LMS)** used at Rawalpindi Medical University.

At the beginning of each week, faculty members will upload the following materials on the LMS:

- SDL topics for the week
- Learning objectives
- Recommended textbook readings
- Clinical videos and image-based learning material
- Short clinical scenarios for preparation

Students will receive **automated LMS notifications** informing them about newly uploaded learning material. They are expected to review the resources independently before attending the scheduled Directed Self Learning session.

This process ensures that students come prepared for **active participation in discussions and clinical reasoning exercises**.

# Implementation of Directed Self Learning (DSL)

Directed Self Learning sessions are conducted **after students complete SDL preparation**. These sessions allow faculty to guide students in applying theoretical knowledge to clinical situations.

DSL sessions will be conducted in **interactive classroom or clinical settings under faculty supervision**.

## Format of DSL Sessions

During DSL sessions, the following learning activities will take place:

- Brief review of SDL concepts
- Discussion of clinical case scenarios
- Interpretation of slit-lamp photographs and fundus images
- Identification of differential diagnoses
- Discussion of diagnosis and initial management
- Clarification of difficult concepts

Faculty members act as **facilitators**, encouraging students to analyze clinical situations and develop problem-solving skills.

## Structure of a Typical DSL Session

Activity	Description	Time
<b>Review of SDL topics</b>	Brief recap of key concepts	10 minutes
<b>Case discussion</b>	Clinical scenario analysis	15 minutes
<b>Image interpretation</b>	Fundus and slit-lamp findings	10 minutes
<b>Management discussion</b>	Diagnosis and treatment approach	10 minutes
<b>Summary</b>	Key take-home points	5 minutes

Total duration: **45–50 minutes**

## Integration of SDL, DSL, and LMS Assessment

The ophthalmology module follows a **structured weekly learning cycle**:

Step	Learning Activity
<b>Step 1</b>	Self-Directed Learning (independent preparation through LMS resources)
<b>Step 2</b>	Directed Self Learning (faculty-guided discussion and clinical reasoning)
<b>Step 3</b>	LMS-based weekly assessment (MCQs evaluating concepts and clinical application)

This cycle ensures that students **prepare independently, apply knowledge through discussion, and demonstrate understanding through assessment.**

Research

Cultivating the culture of Research has always been envisioned as one of the main pillars of Rawalpindi Medical University, as a means to develop healthcare professionals capable of contributing to the development of their country and the world. For the purpose thereof, right from the inception of Rawalpindi Medical University, efforts were concentrated to establish a comprehensive framework for research in Rawalpindi Medical University, as a matter of prime importance. With team efforts of specialists in the field of research, framework was made during the first year of the RMU, for the development and promotion of Research activities in RMU, called the Research Model of RMU, giving clear scheme and plan for establishment of required components for not only promoting, facilitating and monitoring the research activities but also to promote entrepreneurship through research for future development of RMU itself.



## **Biomedical ethics**

Ethical choices, both minor and major, confront us every day in the provision of health care for persons with diverse values living in a pluralistic and multicultural society.

Four commonly accepted principles of health care ethics, excerpted from Beauchamp and Childress (2008), include the:

1. Principle of respect for autonomy,
2. Principle of nonmaleficence,
3. Principle of beneficence, and
4. Principle of justice.

## **Family medicine**

Family Medicine is the primary care medical specialty concerned with provision of comprehensive health care to the individual and the family regardless of sex, age or type of problem. It is the specialty of breadth that integrates the biological, clinical and behavioral sciences. Family physicians can themselves provide care for the majority of conditions encountered in the ambulatory setting and integrate all necessary health care services.

## **Artificial intelligence**

Artificial intelligence in medicine is the use of machine learning models to search medical data and uncover insights to help improve health outcomes and patient experiences. Artificial intelligence (AI) is quickly becoming an integral part of modern healthcare. AI algorithms and other applications powered by AI are being used to support medical professionals in clinical settings and in ongoing research. Currently, the most common roles for AI in medical settings are clinical decision support and imaging analysis.

## Quality Assurance &amp; Quality Enhancement

- Student Feedback Performa
- Student Report
- Faculty Report
- SWOT Analysis
- Quality Enhancement Cell (QEC) Report



Figure 31 – RMU Quality Assurance Cycle

# Feedback & Evaluation

Rawalpindi Medical University is dedicated to advancing equality, diversity, and inclusion across all its activities, processes, and cultural practices, in line with its Public Sector Equality Duties. This commitment encompasses promoting equality and diversity for everyone, regardless of any protected characteristic, working pattern, family circumstance, socio-economic background, political belief, or any other irrelevant distinction. Where pertinent to the policy, decision-making panels will ensure a reasonable gender balance (with at least one man and one woman) and will actively consider the representation of other protected groups.

**Principles** Feedback from students is essential to inform the development of the University's programmes and to help shape all aspects of their current and future learning and broader experience. The University actively seeks and encourages students to share their views. Our approach aims to create openness, responsiveness and a sense of partnership.

## How feedback is received

### ➤ Informal Feedback

Informal feedback is received by day-to-day dialogue between students and staff,

### ➤ Formal Feedback

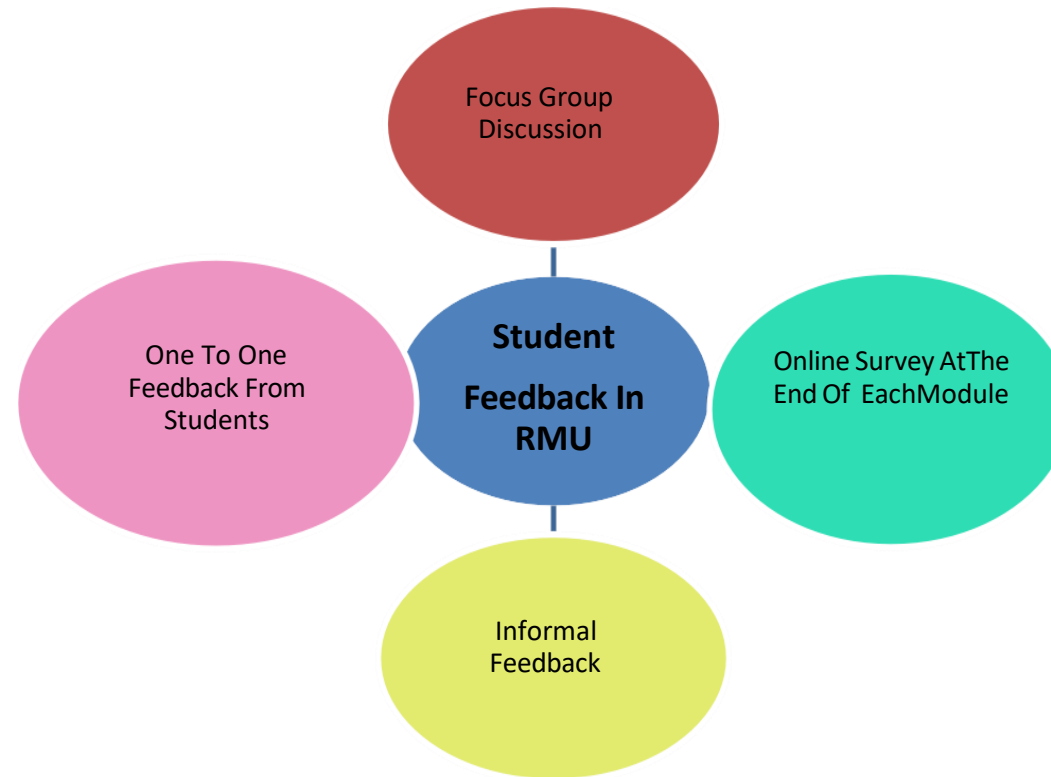
Feedback is received from students in more formal settings. These include:

- **Central survey campaign**

The University regularly invites students to participate in anonymous surveys (Appendix 1).

The central surveys take place after every module, after every Block and at the end of the academic year. This schedule enables the University to work in conjunction with the students and help to improve the teaching, learning and assessment methodologies.

- **Focus Group Discussion**
  - **One To One Feedback from Students**



**Figure 32 – RMU Feedback framework**

## Appendix -I Student Feedback Proforma for 2024

(to be conducted after every module completion)

### Module Content & Organization

Questionnaire	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
The module objectives were informed.					
At the beginning of module study guide was available.					
The module workload was manageable.					
The pace of the module was manageable.					
The module was well organized.					
Module started and ended on time.					
End of block feedback was taken					

### Learning Environment and Teaching Methods

Questionnaire	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
Lectures were delivered appropriately.					
Labs were conducted appropriately.					
Small group discussions were conducted appropriately					
Teaching sessions were as per schedule.					
CBLs were conducted appropriately					
Faculty was cooperative.					
Learning resources were communicated clearly					
SGDs were standardized between different batches					

### Quality of Delivery

Questionnaire	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
The module stimulated my interest.					
Ideas were presented clearly.					

**Learning Resources**

Questionnaire	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
Learning Material was provided / recommended.					
Learning Resources were available in the library.					
Digital / Web Based resources were available.					
Power points of lectures were available					

## Student Contribution

Questionnaire	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
I participated actively in the module.					
I believe I have made progress in this module.					

## Assessments

Questionnaire	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
Class tests were conducted regularly.					
Class tests were helpful					
Test difficulty was appropriate.					
Written Assessment was as per Table of Specifications.					
OSPE Exam was as per Table of Specification					
Table of Specification was shared					

## LMS and its working

Questionnaire	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
Easy Access to LMS					

Module Content was Available					
------------------------------	--	--	--	--	--

## SWOT Analysis of Curriculum

### SOWT Analysis of Implementation of IMC

- **Strength**
  - We are leading all public sector medical colleges in implementation of integrated modular curriculum
  - We are fulfilling the requirement of World Federation for Medical Education
  - Our future doctor will be able to correlate and integrate basic and clinical knowledge in a better way with the competencies of 7 Star Doctor-acting as leader, manager, decision make, and communicator and care provider, decision maker, researcher and lifelong learner.
  
- **Opportunities**
  - We have completed the phase –I of implementation for 1st ,2nd and 3rd year and we are now able to implement it in 4th and final year
  - We can further refine our integrated curriculum of 1st and 2nd year MBBS in coming years and can better tackle its flaws.
  - Proper committees for feedback and evaluation are developed with collaboration from QEC& DME.
  
- **Weaknesses**
  - A change in system is always difficult to be accepted by stakeholders
  - Inflexible as compared to Conventional System.

- The content of different subjects is sometimes jumbled up in various modules according to the requirement of that specific module which is difficult to be absorbed by the students.

- **Threats**

- The Modular System can totally collapse back to Conventional System if not vigilantly and expertly handled.



**Figure 33 : Centres for Disease Control and Prevention. Framework for program evaluation in public health. MMWR 1999;48 (No. RR-11)**

# Quality Enhancement Cell (QEC) Report

Quality Enhancement Cell- RMU since its inception has been active in promoting its core function of bringing standardization to university's academic programs in line with the guidelines enunciated by the Higher Education Commission. In this regard, first thing on which QEC team focused was QEC guidelines. Team achieved that milestone in record time. Approved QEC guidelines of RMU were implemented in 2018. Quality Enhancement Cells serve as focal points for quality assurance in the institutions in order to improve and uphold the quality of higher education. Capacity building of academia in quality assurance is one of the key functions of Quality Assurance Agency (QAA), HEC and subsequently of QEC. Thus, QAA and QECs of the Universities work hand in hand to move in this direction of capacity building arrangements that include awareness campaigns, development of quality assurance policy instruments, training to learn the processes and procedures of quality assurance in higher education institutions and development of Manual to equip the practitioners of quality assurance. In recent years it has become an obligation that institutions of higher education demonstrate the effectiveness of their academic programs in providing high quality education that positively impacts students. Furthermore, most accrediting bodies and others concerned with quality assurance are requesting that institutions assess students learning outcomes as a means of improving academic programs. This has led the accrediting bodies to develop methods for assessing the quality of academic programs. So, whole conventional system was needed to be revamped. Rawalpindi Medical University has the honor of being the first public sector Medical University of Punjab which has introduced the modern modular system of medical education for the MBBS course. It was a big challenge for Department of Medical Education (DME) and Quality Enhancement Cell to maintain the quality and standards of all the teaching and training practices. Quality enhancement cell, RMU appreciate the untiring efforts of DME in this regard. DME team has worked day and night for the implementation of the integrated modular curriculum.

Following are the compliments and recommendations by the Quality Enhancement Cell, RMU:

## **Commendations:**

1. Proper, well managed integrated modular curriculum is in place under the vibrant and energetic leadership of Vice Chancellor, Prof. Muhammad Umar and Department of Medical Education. This thing has also been acknowledged by different visits by accreditation bodies like Higher Education Commission (HEC) and Pakistan Medical & Dental Commission.
2. Proper curriculum committee is in place with appropriate representation of the students as members.
3. All stakeholders are on board and are on one page regarding implementation of the integrated modular curriculum.

4. Regular meetings have been done by the curriculum committee.
5. Feedback has been taken regularly with appropriate gap interval in between.
6. Proper record keeping has been done by the Department of Medical Education both in soft and hard form.
7. As far as the assessment is concerned, newly established Examination Department is doing commendable and admirable job.
8. Final results are indicating that both students and faculty has adapted well to integrated modular system and they are satisfied with the system.
9. Campus management system is working efficiently.
10. Standardized format of all teaching strategies has improved the quality of the deliverance of the subject matter.

### **Recommendations:**

1. Communication and coordination among the departments can be made better. This will help in normalizing the pressure on the Department of Medical Education.
2. Department of Medical Education should be equipped with more human resource.
3. Faculty members should be provided with more opportunities for updating themselves with modern teaching methodologies. They should be encouraged to have certification or masters in medical education.
4. Departments and DME should ensure equal distribution of responsibilities among faculty members.
5. Steps should be taken in account for improving the ladder of the curriculum according to the Harden's ladder of curriculum.
6. Faculty should be encouraged to participate actively in the Faculty Development Program of the university which is already working on a very good pace.
7. Subjects specialists are advised to have more frequent meetings with the aim of improving the quality of the content delivered to the students.
8. Student centered teaching should be encouraged more.
9. Any motivational lecture should be included in the time table for every class as it is very important for the students for personal growth and development.

The weightage of all clinical lectures should be increased in first and second year MBBS, as the attendance is on the lower side in clinical lectures of the above said years.

## Learning Resources

<b>Subject</b>	<b>Resources</b>
<b>Ophthalmology</b>	<ul style="list-style-type: none"><li>• Kanski's Clinical Ophthalmology 9<sup>th</sup> edition</li><li>• Parsons' Diseases of the Eye 23<sup>rd</sup> edition</li><li>• Basic Ophthalmology by Renu Jogi 4<sup>th</sup> ed.</li><li>• Clinical Ophthalmology by Shafi M. Jatoi 5<sup>th</sup> edition</li><li>• Comprehensive Ophthalmology by Dr. Nasir Chaudhary</li></ul>
<b>Community Medicine</b>	<ul style="list-style-type: none"><li>• Park's Textbook of Preventive and Social Medicine, 26<sup>th</sup> edition, Chapter 3, 4, 5</li><li>• Textbook of Community Medicine by Muhammad Ilyas and Dr Irfanullah Siddiqi</li><li>• Epidemiology by Leon Girdis</li></ul>



OFFICE OF THE VICE CHANCELLOR  
RAWALPINDI MEDICAL UNIVERSITY  
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No. 1372/RMU, Dated: 30/01/2026  
A-7

All Chairpersons/HoDs  
Basic & Clinical Sciences Departments,  
Rawalpindi Medical University,  
Rawalpindi.

**Subject:** Revised Professional Examinations Policy – MBBS (1<sup>st</sup> to Final Year) 2025

Please find attached the revised Professional Examinations Policy for 1<sup>st</sup> to Final Year MBBS, aligned with TOS for 2025, for reference and implementation please.

Vice Chancellor  
Rawalpindi Medical University  
Rawalpindi

**No. & Date Even**

Copy to:

1. All concerned
2. Office Superintendent, RMU, Rwp.
3. Office file.

Vice Chancellor  
Rawalpindi Medical University  
Rawalpindi

**Rawalpindi Medical University (RMU)**

**Revised Professional Examination Policy – MBBS (First to Final Year)**

*(Aligned with Final Annual Assessment Table of Specifications year 2025)*

**1. Purpose and Scope**

This policy defines the structure and rules for Final Professional Examinations for all MBBS professional years at Rawalpindi Medical University (RMU). It ensures consistency, transparency, and alignment with the Table of Specifications (TOS 2025) approved by Board of Faculty.

**2. Definitions**

- **Block:**  
A thematic academic unit (e.g., Block I, II, III etc) comprising multiple subjects.
- **Component (Subject):**  
Each subject within a Block (e.g., Pharmacology , Pathology , Community Medicine Physiology etc.).
- **Sub-components:**  
Each subject has two assessment parts:
  - Theory (Knowledge Component) – MCQs, SEQs.
  - Practical / Skills Component – OSPE, OSCE, OSVE, Viva.
- **Continuous Internal Assessment (CIA):**  
40% marks calculated from CIA (30% from module , block assessments and 10% from LMS-based assessments).
- **Final Annual Assessment:** Assessment taken at the end of academic year and carries 60% of the total marks for the final annual assessment

**3. Passing Criteria (As Per Final Annual Assessment TOS 2025)**

To be declared Pass in a Block, a student must:

**3.1. At Subject (Component) Level:**

- Secure at least 50% marks in each subject of the relevant Block.
- Within each subject, both theory and practical sub-components must be cleared separately ( $\geq 50\%$  in each)

**3.2. At Block Level (Aggregate):**

- Obtain at least 50% aggregate marks in the entire block (sum of all subjects +CIA)

### 3.4. Example Calculation for passing criteria

#### Block 3 of year 4 MBBS

Subject	Total Marks		Theory	Practical	Minimum marks required to pass theory	Minimum marks required to pass practical
	Prof	CIA	Prof Marks +CIA	Prof Marks +CIA		
Pharmacology	50	40	25+20=45	25+20=45	22.5	22.5
Community Medicine	30	20	15+10=25	15+10=25	12.5	12.5
Pathology	100	60	50+30=80	50+30=80	40	40
<b>Total Marks (Block)</b>	180	120	150	150	75	75

#### 4. Failing Criteria

Students not meeting criteria mentioned in clause 3.1 and 3.2 will be declared failed

#### 5. Examination Rules

- Each Block shall be considered a complete academic and assessment unit. A student shall be declared *pass in the Block* only when all its constituent components (subjects) are passed and the overall Block Aggregate reaches the prescribed level(score).
- It is mandatory to pass each subject within its respective block, not on the aggregate marks of that subject across all blocks.
- Failure in a Subject (Component):**  
If a student fails in any component (subject) within a Block, they shall appear in relevant block only in that failed subject (s) during the Supplementary Examination.
- Reappearance in Sub-components:**  
Within the failed subject, the student shall reappear in both Theory and Practical sub-components, regardless of which sub-component was failed earlier.
- Failure in Block Aggregate:**  
If a student passes all individual subjects (each securing  $\geq 50\%$ ) but fails to achieve the required Block Aggregate of 50%, the student shall reappear in the entire Block (all subjects) during the Supplementary Examination.
- Continuous Internal Assessment (CIA):**  
The CIA marks shall be carried forward to the Supplementary Examination.
- Structure and Weightage:**  
The Supplementary Examination shall follow the same format, structure, and weightage as the Final Annual (Professional) Examination.

#### 6. Eligibility for Supplementary Examination

A student shall be eligible for Supplementary Examination if:

1. They have completed the required regular attendance and CIA as per policy.
2. They have failed in one or more subjects (components) or failed to meet the aggregate as per passing criteria as mentioned in clause 3.1 and 3.2.



**Prof. Dr. Muhammad Umar**  
Vice Chancellor  
Rawalpindi Medical University  
Rawalpindi

**Reference:**

- *UHS Policy*
- *PMDC Policy*

## Sample paper

### **FOURTH YEAR BLOCK II (EYE) EXAM 2023**

#### **Sample Paper MCQs**

##### **MCQs**

**Time allowed: 60 mins**

**Total Marks: 35 (eye) + 20 (C.Med) = 55**

1. A one-year-old baby is brought to eye opd by her parents with complain of watering, photophobia and enlarged eye ball. On examination there is hazy cornea with inadequate view of the angle and increased intraocular pressure on digital tonometry. Topical and systemic iop lowering drugs were given and a surgical intervention was decided to be performed. The most appropriate surgical procedure for this patient is
  - a. Lens extraction
  - b. Goniotomy
  - c. Trabeculotomy
  - d. Cyclolaser ablation
  - e. Anterior chamber paracentesis
  
2. An 18 months old baby was brought to eye opd by her parents with complain of whitish pupillary reflex. She was diagnosed with retinoblastoma which was limited to eye ball occupying more than half of the vitreous volume and not invading the optic nerve. The most appropriate treatment option is
  - a. Evisceration
  - b. Exenteration
  - c. Chemotherapy
  - d. Radiotherapy
  - e. Enucleation
  
3. The most common primary orbital malignancy in childhood is
  - a. Rhabdomyosarcoma
  - b. Optic nerve sheath meningioma

- c. Capillary hemangioma
- d. Neuroblastoma
- e. Lacrimal gland carcinoma

### Sample Paper SEQs

1. **A 25 year's old, male presented in the emergency department with the complaint of spillage of acid in his right eye. On examination of the right eye, his corneal epithelium was swollen and opaque. You are suspecting an ocular chemical injury.**
  - a. What will be your immediate management of this case? (02)
  - b. Write Roper-Hall grading of the chemical injury? (02)
  - c. Write two long term complication of the chemical injury? (01)
  
2. **A 45 years old man presents to the OPD with complains of right sided ocular discomfort and painful rash involving the right peri-orbital region for the past 4 days. Examination reveals tender, vesicular rash involving the right sided forehead and upper lid which respects the midline. Slit lamp examination reveals dendritic ulcers on the cornea. Rest of the ocular examination is unremarkable.**
  - a. Based on the history and examination, the most probable diagnosis in this patient would be? (1)
  - b. What would be a suitable management plan for this patient? (3)
  - c. State two neurological complications that can be associated with this condition? (1)
  
3. **A 52 years old female presents to the ER with excruciating pain in the right eye and decreased vision in the right eye for the past 1 hour. She states that she is seeing "halos" around light and is also feeling extremely nauseous. Examination reveals severe circumciliary congestion with vertically oval, mid-dilated pupil that is poorly reactive to light. Applanation tonometry reveals IOP of 50mmHg**
  - a. Based on these findings, the most probable diagnosis in this case would be? (1)
  - b. What would the treatment plan for this patient? (2)
  - c. What are the options to prevent such attacks in future in this patient? (2)

4. A diabetic patient presents to eye OPD with complaint of gradual decrease in vision of his both eyes particularly effecting His central vision. His best corrected visual acuity is 6/36 and 6/18 respectively in both eyes. On detailed fundus examination of both eyes there are multiple dot blot and flame shaped hemorrhage in all quadrant along with clinically significant macular edema.
- a. What investigations you would like to do that in patient? (1)
  - b. What treatment modalities are available currently for this disease? (2)
  - c. What other complications can develop in this patient? (2)

### Sample Paper SAQs

A 29-year-old woman presents with a 3-month history of bilateral eye bulging, excessive sweating, palpitations, and weight loss. On examination, she has a diffusely enlarged, smooth thyroid gland.

- i. What is your most probable diagnosis? 1
- ii. Name any two ocular signs associated with this condition. 2
- iii. List two sight-threatening complications. 2

#### KEY:

- i. Thyroid Eye Disease (Graves' Orbitopathy)
- ii. Any two of the following:
  - Dalrymple's sign (lid retraction)
  - Von Graefe's sign (lid lag on downgaze)
  - Kocher's sign (staring appearance)
  - Exophthalmos (proptosis)

iii. Compressive optic neuropathy, Exposure keratopathy

**Sample AV OSPE:**



A 60-year-old female presents to the emergency department with sudden onset severe pain in her right eye, blurred vision, and headache. her anterior segment photograph is shown

a) What is the most likely diagnosis?

- b) What are the clinical signs shown?
- c) How will you manage the patient?
- d) What is the definitive treatment?

### **Sample Video Assisted OSPE**

Carefully watch the video and answer the following questions

<https://www.youtube.com/watch?v=cs0vAMfOVdY&t=33s>

- a. Identify the surgical procedure shown in the video.
- b. List two indications for performing this procedure.
- d. Name four potential postoperative complications.

