FRONTIER MEDICAL & DENTAL COLLEGE
ABBOTTABAD

CURRICULUM

BACHELOR OF MEDICINE, BACHELOR OF SURGERY

MBBS 2026

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LIST OF ABBREVIATIONS

Abbreviation	Full Form
AI	Artificial Intelligence
APPENDIX	Appendix (Supporting Curriculum Documents)
BLS	Basic Life Support
BU	Bahria University
CBL	Case-Based Learning
CPC	Clinicopathological Conference
CVS	Cardiovascular System
DME	Department of Medical Education
EBM	Evidence-Based Medicine
ECE	Early Clinical Exposure
EMR	Electronic Medical Record
ENT	Ear, Nose and Throat (Otorhinolaryngology)
EOM	End-of-Module Examination
FMDC	Frontier Medical & Dental College
GIT	Gastrointestinal Tract
HEC	Higher Education Commission (Pakistan)
KSA	Knowledge, Skills, and Attitudes
MBBS	Bachelor of Medicine, Bachelor of Surgery
MCQ	Multiple Choice Question
Mini-CEX	Mini Clinical Evaluation Exercise
MSK	Musculoskeletal System
OPD	Outpatient Department
OSCE	Objective Structured Clinical Examination
OSPE	Objective Structured Practical Examination
OT	Operating Theatre
PBL	Problem-Based Learning
PSIL	Problem-Solving Interactive Learning
PLACE	Professionalism, Leadership, Applied Research, Communication Skills, and Ethics
PMDC	Pakistan Medical and Dental Council
SDL	Self-Directed Learning
SEQ	Short Essay Question
SGD	Small Group Discussion
TBL	Team-Based Learning
TOS	Table of Specifications
WBA	Workplace-Based Assessment

PREFACE

This Curriculum Document serves as the official academic blueprint for the Bachelor of Medicine, Bachelor of Surgery (MBBS) program at Frontier Medical & Dental College, Abbottabad. It provides a comprehensive overview of the program's philosophy, structure, content, and implementation strategies, ensuring alignment with national and international standards of medical education. The curriculum follows a hybrid model as defined by the Pakistan Medical and Dental Council (PMDC), integrating subject-based and integrated approaches to facilitate meaningful learning and prepare graduates for contemporary medical practice. The program emphasizes progressive development of knowledge, clinical skills, professional attitudes, and research capabilities through a modular, student-centered framework.

The curriculum incorporates longitudinal themes of Professionalism, Leadership, Applied Research, Communication Skills, and Ethics (PLACE) throughout the program to ensure holistic development of well-rounded physicians. It is aligned with the standards of the PMDC, the World Federation for Medical Education (WFME), and the academic framework of Bahria University. I extend my sincere gratitude to the Department of Medical Education, the Academic Council, the Curricular Committee, and all faculty members for their dedication and contributions. It is our collective hope that this curriculum will produce competent, ethical, compassionate, and socially accountable physicians who will contribute meaningfully to the health and well-being of society.

DME
Frontier Medical & Dental College
Abbottabad

MESSAGE FROM THE CEO FMDC ABBOTTABAD

Frontier Medical & Dental College (FMDC) stands as a pioneering institution in Pakistan's medical education landscape. Founded in 1995, it holds the distinction of being the first private medical institute in Khyber-Pakhtunkhwa and the second private medical school in the country. The college is situated on a spacious campus at the foothills of a pine forest in Abbottabad, along the Karakoram Highway. FMDC is proud of its affiliation with Bahria University and maintains recognized status with the Pakistan Medical and Dental Council (PMDC) and the Higher Education Commission (HEC). Our commitment to excellence in medical education is supported by our own teaching hospital on campus, as well as through a public-private partnership with a government teaching hospital in Mansehra, ensuring our students receive comprehensive clinical exposure.

At FMDC, we are dedicated to producing medical graduates who are not only clinically competent but also compassionate, ethical, and committed to lifelong learning. Our curriculum is designed to foster critical thinking, effective communication, and teamwork—skills essential for the holistic care of patients and communities. We take pride in our distinguished faculty and our modern, purpose-built facilities that create an ideal environment for academic and professional growth. As you embark on this transformative journey, I encourage you to embrace the challenges ahead with dedication and integrity. Remember that the medical profession is a sacred trust, and your conduct must reflect the highest standards of professionalism. I wish you a rewarding and successful academic career at Frontier Medical & Dental College.

Dr. Asad Jamil Khan
CEO
Frontier Medical & Dental College
Abbottabad

MESSAGE FROM THE DEAN

Frontier Medical & Dental College Abbottabad was established in 1995 by the renowned educationist Prof. Dr. A. J. Khan as the first private medical institute in Khyber-Pakhtunkhwa and the second private medical school in Pakistan. Located on a spacious campus at the foothills of a beautiful pine forest in Abbottabad along the Karakoram Highway, the college is housed in purpose-built facilities with state-of-the-art laboratories, modern lecture halls, and a well-stocked library. FMDC is affiliated with Bahria University and is recognized by the Pakistan Medical and Dental Council (PMDC) and the Higher Education Commission (HEC). Our clinical training is supported by the Shahina Jamil Teaching Hospital on campus, alongside our partnership with King Abdullah Teaching Hospital in Mansehra, ensuring our students receive comprehensive clinical exposure across all major disciplines.

As the Dean of this esteemed institution, I take great pride in our commitment to producing medical graduates who are not only clinically competent but also compassionate, ethical, and dedicated to lifelong learning. Our curriculum is designed to foster critical thinking, effective communication, and teamwork—skills essential for holistic patient care. I encourage every student to embrace the challenges of medical education with dedication, integrity, and a spirit of inquiry. Remember that the medical profession is a sacred trust, and your conduct must reflect the highest standards of professionalism. I wish you a rewarding and successful academic journey at Frontier Medical & Dental College.

Prof. Dr. Shireen Jawed
Dean
Frontier Medical & Dental College
Abbottabad

VISION OF THE BAHRIA UNIVERSITY

To become a knowledge and creativity driven international university that contributes towards the development of society.

VISION OF FMDC

To become an internationally recognized medical institution that contributes towards development of community health through excellence in medical education.

MISSION OF FMDC

To attain highest standard in teaching, learning and research according to WFME and PMDC standards.

INTRODUCTION

The MBBS curriculum at FMDC, Abbottabad, is designed in accordance with the academic regulations of Bahria University and the standards prescribed by the Pakistan Medical and Dental Council (PMDC). The curriculum aims to develop competent, ethical, compassionate, and socially accountable physicians equipped with the knowledge, skills, attitudes, and professional values required for contemporary medical practice and lifelong learning.

A. Purpose

The curriculum is intended to provide students with a strong foundation in biomedical, clinical, behavioral, and community health sciences while fostering the development of clinical competence, professional behavior, critical thinking, communication skills, leadership, and research capabilities. It prepares graduates to deliver safe, evidence-based, and patient-centered healthcare and to respond effectively to the evolving health needs of individuals and communities.

B. Scope

The MBBS program is structured as a five-year hybrid curriculum comprising integrated modular learning and problem-based learning during the first three years, followed by discipline-based clinical training during the fourth and fifth years. The curriculum progresses from foundational medical sciences to path biological sciences, clinical sciences, and advanced clinical clerkships. It incorporates horizontal and vertical integration, early clinical exposure, community-oriented medical education, and longitudinal professional development through the PLACE framework (Professionalism, Leadership, Applied Research, Communication Skills, and Ethics).

C. Teaching Methodologies

A variety of student-centered educational strategies are employed to support achievement of program outcomes. These include interactive lectures, practical and laboratory sessions, problem-based learning (PBL), problem-solving interactive learning (PSIL), tutorials, self-directed learning (SDL), clinical skills training, simulation-based activities, community-based learning, workplace-based learning, and supervised clinical clerkships. These approaches promote active learning, critical thinking, clinical reasoning, teamwork, and reflective practice.

D. Assessment Framework

Assessment is aligned with curriculum outcomes and is designed to evaluate students' knowledge, clinical skills, professional attitudes, and competencies. The assessment Table of Specifications (TOS) is developed, shared, and finalized by Bahria University and is implemented across all modules. A combination of formative and summative assessments is used throughout the program. Theory assessments are conducted module-wise, with each module having its designated examination paper(s) (Paper I, Paper II, and Paper III, where applicable), comprising Multiple Choice Questions (MCQs) and Short Essay Questions (SEQs) according to the approved TOS. Practical assessments are also conducted on a module-wise basis and include practical examinations, Objective Structured Practical Examinations (OSPE), viva voce examinations, and other relevant skill-based assessments. In the clinical years, Objective Structured Clinical Examinations (OSCE), workplace-based assessments, logbooks, reflective exercises, and clinical performance evaluations are utilized. Assessment practices are governed by Bahria University regulations and PMDC requirements to ensure validity, reliability, fairness, transparency, and alignment with program learning outcomes.

E. Continuous Improvement

The curriculum is regularly reviewed through a structured quality assurance process involving feedback from students, faculty, graduates, external examiners, healthcare stakeholders, and regulatory bodies. Curriculum evaluation findings are utilized to refine educational strategies, assessment

methods, learning resources, and curricular content to ensure continued relevance, effectiveness, and alignment with national and international standards of medical education.

MBBS CURRICULUM:

Graduate Profile
The MBBS program at FMDC is designed to produce competent, ethical, compassionate, and socially accountable physicians who are capable of providing evidence-based, patient-centered healthcare. Graduates are expected to integrate scientific knowledge, clinical competence, professionalism, communication skills, leadership, and research capabilities to address the healthcare needs of individuals, families, and communities. They will be prepared to function effectively as healthcare providers, communicators, leaders, scholars, researchers, and lifelong learners within diverse healthcare settings.

Program Objectives:
The MBBS program at FMDC is designed to develop competent, ethical, compassionate, and socially accountable physicians who are capable of addressing the healthcare needs of individuals, families, and communities. The program seeks to achieve the following objectives:

1. Knowledge
Graduates will be able to:

- Demonstrate a sound understanding of biomedical, clinical, behavioral, and community health sciences and apply this knowledge to the prevention, diagnosis, and management of disease.
- Integrate basic medical sciences with clinical practice to support evidence-based patient care and informed clinical decision-making.
- Apply principles of public health, preventive medicine, patient safety, and healthcare systems in professional practice.
- Utilize current scientific evidence, emerging technologies, digital health tools, and advances in medical science to improve healthcare delivery.

2. Skills
Graduates will be able to:

- Perform comprehensive patient assessment through effective history taking, physical examination, clinical reasoning, and diagnostic interpretation.
- Develop and implement appropriate management plans using evidence-based and patient-centered approaches.
- Demonstrate essential procedural, communication, teamwork, and leadership skills required for safe and effective healthcare practice.
- Apply critical thinking, problem-solving, and decision-making skills in diverse clinical and community healthcare settings.
- Conduct, interpret, and apply research and scholarly inquiry to support clinical practice and healthcare improvement.

3. Professional Attitudes and Values
Graduates will be able to:

- Demonstrate professionalism, integrity, ethical conduct, accountability, and respect for patient autonomy, dignity, confidentiality, and cultural diversity.

- Provide compassionate, empathetic, and patient-centered care while maintaining sensitivity to individual, social, cultural, and community contexts.
- Advocate for health promotion, disease prevention, social accountability, and equitable access to healthcare services.
- Engage in reflective practice, self-assessment, and lifelong learning to support continuous professional development and adaptation to evolving healthcare needs.
- Exhibit the values embodied within the FMDC PLACE Framework, including Professionalism, Leadership, Applied Research, Communication Skills, and Ethics.

Program Outcomes

Upon successful completion of the MBBS program, graduates of FMDC will be able to:

1. PO1 Clinically Proficient Practitioner – Demonstrate proficiency in history taking, clinical examination, and performing essential diagnostic and procedural skills safely and effectively in patient care.
2. PO2 Scientifically Knowledgeable – Integrate comprehensive knowledge of basic, clinical, and applied biomedical sciences to explain disease mechanisms and guide clinical decision-making.
3. PO3 Critical Thinker & Evidence-Based Problem Solver – Apply critical reasoning, scientific evidence, and clinical guidelines to formulate accurate diagnoses and effective, individualized management plans.
4. PO4 Effective Communicator – Communicate empathetically and clearly with patients, families, colleagues, and the healthcare team, ensuring patient-centered care and informed decision-making.
5. PO5 Community Health Advocate & Leader – Address community health challenges, promote preventive care, and demonstrate leadership in improving public health outcomes and reducing disease burden.
6. PO6 Ethical & Professional Role Model – Uphold the highest standards of integrity, empathy, social accountability, and respect for patient autonomy and dignity, fulfilling the societal contract of the medical profession.
7. PO7 Researcher & Scholar – Engage in scientific inquiry, critically appraise medical literature, and participate in research activities aimed at improving healthcare quality.
8. PO8 Lifelong Learner – Commit to continuous self-directed learning, adapt to evolving medical knowledge and technologies, and maintain professional competence throughout their career.

CURRICULAR OUTCOMES AND THEIR ALIGNMENT WITH PROGRAM OUTCOMES

Curricular Outcome	Primary Program Outcomes Supported
CO1 – Skillful	PO1, PO3, PO4
CO2 – Knowledgeable	PO2, PO3
CO3 – Community Health Promoter	PO5, PO6
CO4 – Critical Thinker	PO3, PO7
CO5 – Professional	PO4, PO6
CO6 – Scholar	PO7, PO8
CO7 – Leader and Role Model	PO5, PO6, PO8

3.4 RELATIONSHIP BETWEEN PROGRAM OUTCOMES (POs) AND CURRICULAR OUTCOMES (COs)

The Curricular Outcomes (COs) serve as the foundational competencies through which the Program Outcomes (POs) are achieved.

Curricular Outcomes (COs)	Description	Program Outcomes (POs) Supported								Primary PMDC Seven-Star Roles Supported
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	
CO1 – Skillful	Demonstrates competence in clinical skills, procedural skills, and use of technology to provide safe, effective and patient-centered care.	✓		✓	✓					Care Provider, Manager
CO2 – Knowledgeable	Applies relevant biomedical, clinical, and social sciences knowledge for understanding health and disease.		✓	✓						Care Provider, Decision Maker
CO3 – Community Health Promoter	Promotes health of individuals and communities through prevention, health education, and advocacy for social accountability.					✓	✓			Community Leader
CO4 – Critical Thinker	Analyzes problems, applies evidence-based reasoning and clinical judgement for effective decision making.			✓				✓		Decision Maker, Researcher
CO5 – Professional	Demonstrates ethical conduct, professionalism, compassion and respect in all professional interactions.				✓		✓			Professional, Communicator
CO6 – Scholar	Engages in inquiry, research, and lifelong learning to advance knowledge and improve practice.							✓	✓	Researcher, Professional
CO7 – Leader and Role Model	Exhibits leadership, teamwork and role modeling to inspire and guide others for better health outcomes.					✓	✓		✓	Community Leader, Manager, Professional

PO1: Clinically Competent **PO2:** Knowledgeable **PO3:** Critical Thinker **PO4:** Professional and Ethical **PO5:** Communicator **PO6:** Community Advocate **PO7:** Scholar **PO8:** Leader and Collaborator

3.5 ALIGNMENT WITH PMDC SEVEN-STAR DOCTOR COMPETENCIES

The FMDC MBBS curriculum is aligned with the PMDC Seven-Star Doctor model. Each Program Outcome and Curricular Outcome contributes to the development of competencies expected from the Seven Roles of the PMDC Graduate Doctor.

PMDC Seven-Star Doctor Roles	Role Description	Program Outcomes (POs) Contributing to This Role								Curricular Outcomes (COs) Contributing to This Role	Key Learning Experiences in Curriculum
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8		
Care Provider	Provides patient-centered care that is safe, effective and ethical.	✓	✓	✓	✓					CO1, CO2, CO5	Clinical skills training, patient care, clinical rotations, simulations
Decision Maker	Applies knowledge and clinical reasoning to make appropriate decisions.	✓	✓	✓				✓		CO2, CO4, CO6	PBL, case discussions, evidence-based practice, clinical decision exercises
Communicator	Communicates effectively with patients, families and healthcare teams.			✓		✓			✓	CO1, CO3, CO5	Communication skills sessions, history taking, counseling, teamwork activities
Community Leader	Works with communities to promote health and address social needs.					✓	✓			CO3, CO7	Community postings, health promotion, outreach programs, advocacy projects
Manager	Manages resources to deliver quality healthcare effectively.	✓			✓	✓	✓			CO1, CO5, CO7	Healthcare systems learning, quality improvement, leadership training
Researcher	Engages in inquiry and generates knowledge to improve healthcare.			✓				✓	✓	CO4, CO6	Research methodology, projects, critical appraisal, EBM
Professional	Demonstrates ethical conduct, responsibility and commitment to professional standards.				✓		✓		✓	CO5, CO6, CO7	Professionalism sessions, ethics, reflection, mentorship, role modeling

✓ indicates direct contribution of the Program Outcome (PO) to the PMDC role.

CURRICULUM FRAMEWORK

Curriculum Framework

The MBBS curriculum at FMDC follows a hybrid curriculum model designed to facilitate the progressive acquisition of medical knowledge, clinical skills, and professional attributes. The curriculum is organized into fifteen modules distributed across five academic years. During the first three years, teaching is delivered through a system-based integrated modular approach, while the fourth and fifth years are delivered through subject-based clinical teaching and clerkship rotations.

System-Based Integrated Modular Curriculum

The pre-clinical and para-clinical phases of the curriculum are organized into integrated modules based on organ systems and major health themes. Each module brings together relevant disciplines including Anatomy, Physiology, Biochemistry, Pathology, Pharmacology, Community Medicine, and Behavioral Sciences to provide a comprehensive understanding of health and disease. Horizontal integration within modules promotes meaningful connections between related disciplines and reduces fragmentation of learning. Integrated medical curricula commonly organize learning around organ systems rather than isolated subjects.

Subject-Based Clinical Curriculum

During the clinical years, students undertake discipline-based learning in Medicine, Surgery, Pediatrics, Obstetrics & Gynecology, Community Medicine, Ophthalmology, Otorhinolaryngology, and other clinical specialties. Clinical teaching is supported through hospital-based training, clerkships, bedside learning, and supervised patient care experiences.

Early Clinical Exposure and Community-Based Learning

Clinical exposure is introduced early in the curriculum and progressively expands throughout the program. Students participate in clinical skills training, community visits, and healthcare activities that promote understanding of patient care within both hospital and community settings.

Student-Centered Learning

The curriculum utilizes a variety of student-centered teaching and learning strategies, including interactive lectures, practical sessions, tutorials, PBL, PSIL, SDL, case-based discussions, and clinical skills training. These approaches encourage active participation, critical thinking, teamwork, and independent learning.

PLACE Longitudinal Framework

Professionalism, Leadership, Applied Research, Communication Skills, and Ethics (PLACE) are integrated throughout the MBBS program. These longitudinal themes support the development of professional identity, ethical practice, effective communication, research awareness, and leadership skills required for responsible medical practice.

Longitudinal Themes

In addition to the modular and clinical curriculum, several longitudinal themes are integrated across the program to support professional and personal development. These include Professionalism, Leadership, Applied Research, Communication Skills, Ethics, Lifelong Learning, Community Engagement, and Artificial Intelligence in Healthcare. General education components such as Pakistan Studies, Islamic Studies/Ethics, Expository Writing, Medical Humanities, Digital Literacy, Entrepreneurship, and Research Methodology are incorporated at appropriate stages of the curriculum in accordance with Bahria University and Higher Education Commission requirements.

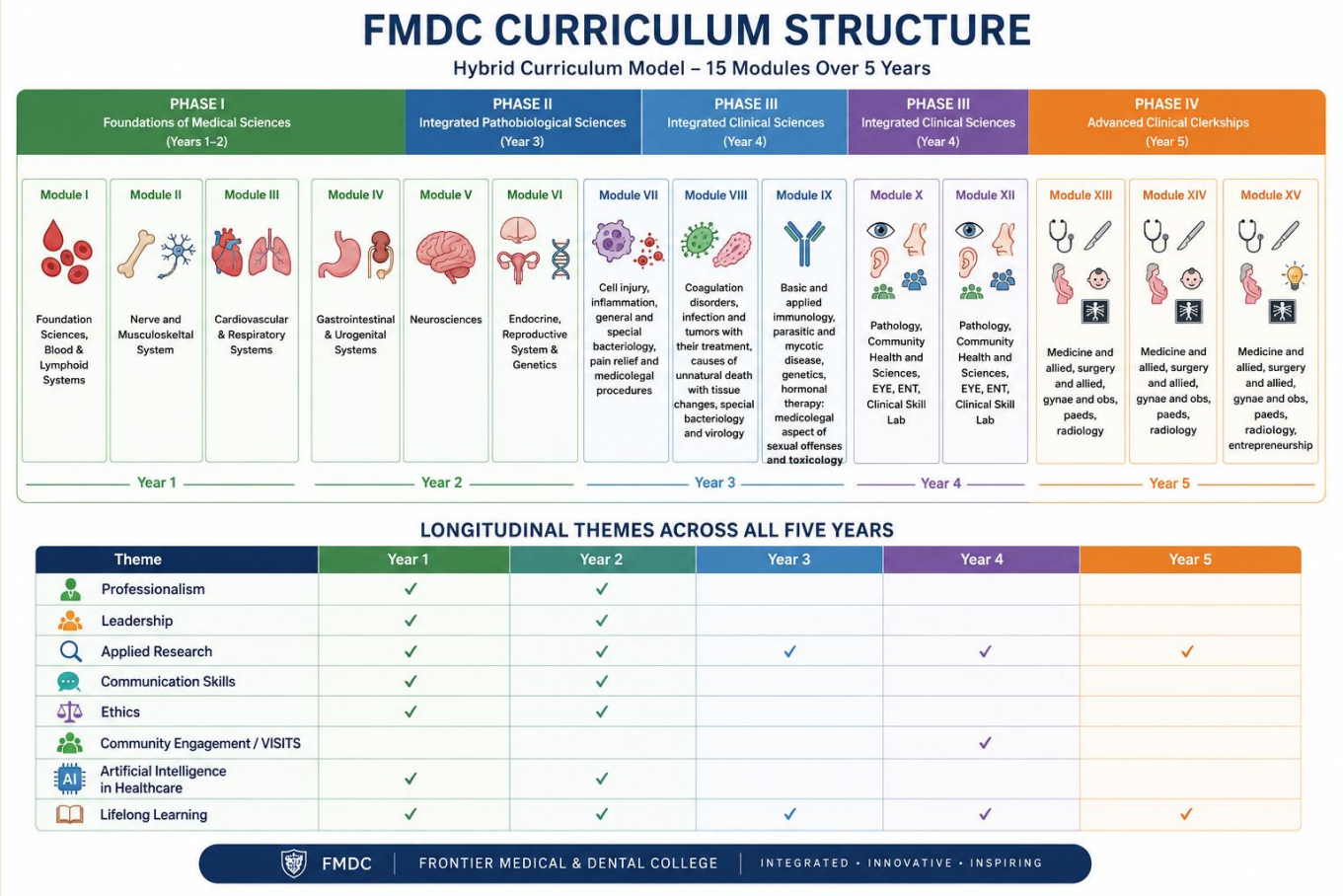
The integration of modular learning, clinical training, longitudinal themes, and general education components provides students with a balanced medical education that supports academic excellence, professional development, and social responsibility.

YEAR-WISE BREAKDOWN OF CURRICULUM

The MBBS curriculum at FMDC is organized into four progressive phases comprising fifteen modules distributed across five academic years. The curriculum follows a hybrid model, utilizing a system-based integrated modular approach during the first three years and a subject-based clinical curriculum during the fourth and fifth years. This structure enables students to develop a strong foundation in biomedical sciences, progress to the study of disease mechanisms, and subsequently apply their knowledge in clinical and community settings through supervised training and clerkships.

In addition to the formal curriculum, longitudinal themes including Professionalism, Leadership, Applied Research, Communication Skills, Ethics, Artificial Intelligence in Healthcare, Community Engagement, and Lifelong Learning are integrated across the program. These themes complement academic and clinical training and contribute to the development of competent, ethical, research-oriented, and socially accountable medical graduates.

The structure of the MBBS curriculum is a deliberate and pedagogical sequence designed around the principle of spiral integration and scaffolded learning. It ensures that students build knowledge from foundational concepts to complex clinical applications, with each year serving as a crucial stepping stone to the next. The integration of horizontal, non-medical subjects is strategically timed to support the students' personal and professional development at each stage**.**



Year 1 (Modules I–III)

Foundation of Medical Sciences and Organ Systems

The first year establishes the scientific foundation of medical education through the study of normal human structure and function. Students are introduced to the basic concepts of Anatomy, Physiology, and Biochemistry through integrated modules focusing on Foundation Sciences, Blood and Lymphoid Systems, Musculoskeletal System, and the Cardiovascular and Respiratory Systems. The emphasis is on understanding normal body organization and physiological processes while developing basic clinical, communication, and professional skills.

Year 2 (Modules IV–VI)

Integration of Organ Systems and Regulatory Mechanisms

The second year builds upon the foundational sciences by focusing on the Gastrointestinal, Urogenital, Neurosciences, Endocrine, Reproductive, and Genetic systems. These modules enable students to understand the complex interactions that regulate body functions and maintain health. The integrated modular approach continues to strengthen scientific understanding while introducing greater clinical relevance and application.

Year 3 (Modules VII–IX)

Transition to Pathobiological Sciences

The third year marks the transition from normal structure and function to the study of disease processes. Students explore mechanisms of cell injury, inflammation, infection, immunological disorders, neoplasia, genetics, toxicology, pharmacological interventions, and forensic aspects of medicine. This phase provides the scientific basis for understanding disease causation, diagnosis, prevention, and treatment and serves as a bridge between foundational sciences and clinical medicine.

Year 4 (Modules X–XII)

Integrated Clinical Sciences

The fourth year emphasizes the application of scientific knowledge in clinical and community settings. Through the integration of Community Health Sciences, Pathology, Ophthalmology, Otorhinolaryngology, and Clinical Skills training, students develop clinical reasoning, diagnostic abilities, communication skills, and patient management competencies. Increased exposure to patients and healthcare environments prepares students for advanced clinical training.

Year 5 (Modules XIII–XV)

Advanced Clinical Clerkships and Professional Preparation

The final year focuses on immersive clinical training through clerkships in Medicine and Allied Specialties, Surgery and Allied Specialties, Obstetrics and Gynecology, Pediatrics, Radiology, and related disciplines. Students actively participate in patient care under supervision and apply knowledge acquired throughout the program to real clinical situations. This phase consolidates clinical competence, professional responsibility, leadership, and decision-making skills while preparing graduates for internship and independent professional practice.

Longitudinal Themes

Alongside the formal curriculum, longitudinal themes including Professionalism, Leadership, Applied Research, Communication Skills, Ethics, Artificial Intelligence in Healthcare, Community Engagement, and Lifelong Learning are integrated at appropriate stages throughout the program. These themes support the development of ethical, reflective, research-oriented, and socially accountable physicians capable of responding to the evolving healthcare needs of society.

THE DETAILS OF CONTENTS OF EACH MODULE, ALONG WITH ASSESSMENT BLUEPRINTS, ARE GIVEN IN THEIR RESPECTIVE STUDY GUIDES ATTACHED AS ANNEXURE

SUBJECT-WISE COURSE CONTENT

The MBBS curriculum at FMDC follows the curriculum framework, syllabus, and academic regulations prescribed by the PMDC and Bahria University. The curriculum encompasses pre-clinical, para-clinical, and clinical disciplines distributed across the five academic years of the MBBS program. Subject content, learning outcomes, instructional strategies, assessment methods, and recommended learning resources are aligned with the study guides and assessment blueprints developed and approved by Bahria University to ensure standardization and compliance with national academic standards.

Detailed course specifications for each subject include course rationale descriptions, learning objectives, learning outcomes, module contents, teaching and learning methods, assessment strategies, recommended references, and credit/hour allocations. These course documents collectively cover all disciplines taught during the five years of the MBBS program, including basic medical sciences, pathobiological sciences, clinical sciences, community health sciences, and longitudinal themes. As these course specifications constitute an extensive set of academic documents, the complete subject-wise study guides and course outlines are provided separately as appendices/supporting documents accompanying this curriculum manual.

Course Title: Anatomy
Rational
Anatomy provides the structural foundation for understanding the human body and serves as the basis for clinical examination, diagnosis, imaging interpretation, and surgical practice. Knowledge of normal human structure and development enables students to understand anatomical variations, congenital anomalies, and the structural basis of disease.

Course Description:
This course aims to provide a comprehensive understanding of human anatomy by exploring the morphology and functional aspects of the human body. It covers the normal structure and function of the body and examines the implications of deviations from these norms. Students will engage with online multimedia resources, lectures, and practical sessions, including dissection, specimen examination, and model studies. The course equips students with the essential anatomical knowledge and skills needed for a career in healthcare.

Objectives

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

1. Develop an understanding of organ structure, position, orientation, and their interrelationships.
2. Recognize variations in organ structure based on individual differences, sex, and age.
3. Establish connections between gross and microscopic structures and their clinical implications.
4. Acquire detailed knowledge of cell, tissue, and organ structures.
5. Identify components of various systems, including their innervations, blood supply, and lymphatics, and understand their clinical relevance.
6. Describe basic embryological processes involved in the development of body systems.
7. Classify and explain structural variations and anomalies in relation to embryonic development.
8. Identify the osteology of the human skeleton using gross specimens and medical imaging, and list the clinical applications of imaging techniques such as X-ray, CT, MRI, and ultrasound.

Outcomes

Upon completion of this course, students will be able to:

1. Utilize essential anatomical terminology to describe body structures and their relationships.
2. Outline the origins, courses, and distributions of blood vessels, nerves, and lymphatics, along with their clinical implications.
3. Apply knowledge of gross anatomy to understand related pathologies.
4. Explain the topographic anatomy of bones, muscles, and joints, and address common musculoskeletal conditions such as fractures and dislocations.
5. Use dissection and specimen study skills to learn surgical procedures.
6. Map organ topography onto the body surface and interpret relevant clinical presentations.
7. Describe the nervous system's basic structure and functions, and identify gross lesions based on clinical deficits.
8. Analyze light microscopic structures of bodily systems and predict functional outcomes of structural alterations.
9. Correlate embryological principles with congenital anomalies and their clinical manifestations.
10. Apply anatomical knowledge to physical diagnosis, radiologic findings, and invasive procedures.
11. Demonstrate effective communication skills and professional behavior, adhering to ethical standards.

Textbooks & References:

1. *Gross Anatomy* by K.L. Moore
2. *Clinically Oriented Anatomy* by Richard Snell
3. *Last's Anatomy: Regional and Applied*
4. *Gray's Anatomy*
5. *Neuroanatomy* by Richard Snell
6. *Health Wheather's Functional Histology* by Young J.W.
7. *The Developing Human* by Keith L. Moore
8. *Langman's Medical Embryology*
9. *Netter Atlas*
10. *Basic Histology* by Laiq Hassan
11. *Atlas of Histology* by Difore

Course Title: Physiology

Rational

Physiology develops an understanding of normal body functions and the mechanisms that maintain homeostasis. It provides the scientific basis for understanding disease processes, clinical manifestations, and therapeutic interventions encountered in medical practice.

Course Description:

Physiology is a fundamental scientific discipline crucial for understanding normal body functions and their deviations in disease states. Taught in the 1st and 2nd years of MBBS and BDS programs, the course combines lectures and practical work to provide insights into how the body functions. Practical sessions are conducted in batches under the supervision of faculty members assigned by the chairperson of physiology.

Objectives

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

1. Evaluate, analyze, and apply physiological knowledge.
2. Interpret concepts of homeostasis and control mechanisms.
3. Describe cell functions at the ionic and molecular levels.
4. Explain organ system functions and their clinical relevance.
5. Discuss integrated body responses to various challenges.

Outcomes

Upon completion, students should:

1. Have a deep understanding of human physiology.
2. Comprehend the functions of major physiological systems, including cardiovascular, respiratory, renal, reproductive, and metabolic systems.
3. Understand how these systems interact to produce integrated physiological responses and their potential failures.
4. Perform, analyze, and report on physiological experiments and observations.
5. Recognize and identify the principles of tissue structures.

Textbooks & References:

1. *Medical Physiology* by Guyton and Hall
2. *Review of Medical Physiology* by W. Ganong
3. *Essentials of Physiology* by Laurle Sherwood
4. *Physiological Anatomy* by Elaine N. Marieb

Course Title: Biochemistry

Rational

Biochemistry explains the molecular and cellular processes that sustain life and underlie health and disease. The subject provides essential knowledge for understanding metabolism, genetics, molecular medicine, and the biochemical basis of clinical disorders.

Course Description:

Biochemistry examines the chemical processes and substances that occur within living organisms. It encompasses metabolism, which involves the breakdown of substances to release energy and the synthesis of complex molecules necessary for life. This course explores enzymatic actions, genetic

influences on biochemical processes, and the relevance of biochemistry in medicine, nutrition, and genetics.

Objectives

By the end of the course, students will:

1. Understand the molecular mechanisms within living cells.
2. Comprehend the principles governing macromolecule structures.
3. Grasp the principles and mechanisms of metabolic control and molecular signaling.
4. Study the metabolism of carbohydrates, proteins, and lipids.
5. Explore the role of DNA in genetic information.
6. Understand cell proliferation control.
7. Learn the principles of bioenergetics and enzyme catalysis.
8. Apply basic laboratory skills to obtain reproducible biochemical data.

Outcomes

Students who complete this course will:

1. Demonstrate a broad understanding of introductory biochemistry concepts.
2. Analyze the structural-functional relationships of genes and proteins.
3. Explain the synthesis of proteins, lipids, nucleic acids, and carbohydrates, and their roles in metabolic pathways.
4. Identify potential laboratory hazards and use appropriate safety techniques.
5. Apply modern instrumentation theory and practice to biochemical problems.
6. Observe safe laboratory practices and adhere to proper procedures for chemical use and disposal.
7. Communicate biochemical concepts and experimental findings effectively, both in writing and orally.

Textbooks & References:

1. *Harper's Illustrated Biochemistry*
2. *Lippincott's Biochemistry* by Denise Ferrier
3. *Textbook of Biochemistry* by M.N. Chatterjee
4. *Essentials of Biochemistry* by Pankaj Naik

Course title: Pathology

Rationale

Pathology serves as the bridge between basic and clinical sciences by explaining the causes, mechanisms, and consequences of disease. It enables students to understand pathological changes and correlate them with clinical manifestations and diagnostic investigations.

Course Description:

Pathology is integral to understanding medicine and surgery, covering the fundamentals of disease processes. This course delves into the basis of diseases, including their causes, signs, symptoms, investigations, and prognosis. The curriculum includes four sections: microbiology, hematology, histopathology, and chemical pathology. Students will enhance their diagnostic skills and communication through class presentations and receive guidance on research interests.

Objectives:

By the end of the course, students will:

- Understand disease mechanisms, clinical features, and pathophysiology.

- Interpret investigations based on clinical history.
- Grasp genetic and molecular disease bases and neoplastic disorders.
- Learn about microorganisms and related diseases.

Outcomes:

Students who complete this course will:

- Comprehend inflammatory disorders, microbiology, hemodynamics, immunology, and neoplasia.
- Understand disease pathophysiology, including genetics and clinical features.
- Classify leukemias, lymphomas, and tumors.
- Perform, analyze, and report tests.
- Identify microscopic disease features.

Textbooks & References:

1. Kumar V, Abbas AK, Aster JC. *Robbins Basic Pathology*. 9th ed. Elsevier; 2013.
2. Levinson W. *Review of Medical Microbiology & Immunology*. 14th ed. McGraw-Hill; 2016.
3. Hoffbrand AV, Moss PAH. *Essential Hematology*.

Course title: Pharmacology

Rationale

Pharmacology prepares students for the safe, effective, and rational use of medicines in clinical practice. Knowledge of pharmacological principles is essential for evidence-based prescribing and optimizing patient outcomes.

Course Description:

Pharmacology explores medication mechanisms, classifications, therapeutic uses, and side effects. Students learn drug administration principles, dosage calculations, and precautions. The course enhances clinical practice through tests, assignments, and group work, and introduces research on drug effects.

Objectives:

By the end of the course, students will:

- Describe drug mechanisms at various levels.
- Understand drug receptor interactions.
- Explain cellular signaling and drug metabolism.
- Implement practical pharmacology exercises.
- Introduce research basics in pharmacology.

Outcomes:

Students who complete this course will:

- Explain drug mechanisms, clinical implications, and side effects.
- Clarify pharmacokinetics and pharmacodynamics.
- Apply pharmacological principles clinically.
- Evaluate herbal medications' benefits and risks.
- Discuss toxicology principles and patient poisoning management.

Textbooks & References:

1. Katzung BG. *Basic and Clinical Pharmacology*. 14th ed.
2. Lippincott Illustrated Reviews of Pharmacology. 7th ed.
3. Goodman & Gilman's *The Pharmacological Basis of Therapeutics*. 13th ed.

4. Shahnawaz M. *Essentials of Pharmacology*. 9th ed.
5. Rang HP, Dale MM. *Rang & Dale's Pharmacology*. 1st ed.

Course title: Forensic Medicine & Toxicology

Rationale
Forensic Medicine and Toxicology equip future physicians with an understanding of medico-legal responsibilities, injury documentation, poisoning, and causes of death. The subject ensures that graduates can fulfill their legal and ethical obligations in medical practice.

Course Description:
This course addresses medico-legal issues, including documentation and court testimony related to injuries and death. It connects law and medicine, preparing students for roles in legal investigations and forensic analysis.

Objectives:
By the end of the course, students will:

- Define and classify Pakistan's legal system, including medico-legal roles.
- Discuss personal identity, death, injuries, and forensic sexology.
- Differentiate death causes and manage toxicology cases.
- Prepare medico-legal certificates and court attendance.

Outcomes:
Students who complete this course will:

- Maintain medical professionalism and provide court testimony.
- Identify and report causes of death and injuries.
- Perform scientific autopsies and manage sexual crimes.
- Differentiate true and feigned insanity and manage forensic analyses.

Textbooks & References:

1. Knight B. *Simpson's Forensic Medicine*. 11th ed. Edward Arnold.
2. Parikh CK. *Textbook of Medical Jurisprudence, Forensic Medicine & Toxicology*. 6th ed. CBS Publisher.
3. Awan NR. *Principles and Practice of Forensic Medicine*.
4. Vij K. *Textbook of Forensic Medicine & Toxicology*. 4th ed.
5. Dikshit PC. *Textbook of Forensic Medicine & Toxicology*.
6. Rao GK. *Textbook of Forensic Medicine*.

Course title: Community Medicine

Rationale
Community Medicine emphasizes disease prevention, health promotion, epidemiology, and healthcare delivery at the population level. The subject prepares students to address community health needs and contribute to improving public health outcomes.

Course Description:
Community Medicine introduces public health principles, including health protection, improvement, and systems. Students gain experience through lectures, discussions, field visits, and a group research project, contributing to publishable papers and engaging in health system evaluations.

Objectives:

By the end of the course, students will:

- Understand community health problems and solutions.
- Apply social and preventive medicine concepts.
- Learn biostatistics principles and apply them.
- Conduct independent research and practice evidence-based medicine.
- Address ethical issues in medical practice.

Outcomes:

Students who complete this course will:

- Explain health terms and disease history.
- Describe disease epidemiology and healthcare systems.
- Apply biostatistics and solve related problems.
- Design and execute research and apply ethical principles.

Textbooks & References:

1. Park K. *Park's Textbook of Preventive and Social Medicine*. 24th ed.
2. Ansari IS. *Public Health and Community Medicine*. 8th ed.
3. Maxcy-Rosenau-Last. *Public Health and Preventive Medicine*.
4. Gordis L. *Epidemiology*.
5. Kuzma JW. *Basic Statistics for Health Sciences*.

Course title: Medicine

Rationale

Medicine is a core clinical discipline that develops students' ability to diagnose, manage, and prevent adult medical conditions. It integrates scientific knowledge with clinical reasoning and evidence-based patient care.

Course Description:

Medicine focuses on adult patient care, from health to complex illness. The course spans from basic to advanced levels, involving bedside teaching, patient interactions, history-taking, and physical examinations. Emphasis is placed on compassionate, evidence-based care.

Objectives:

By the end of the course, students will:

- Understand and apply medical knowledge to clinically ill.
- Analyze and identify learning gaps.
- Provide compassionate, evidence-based care.
- Uphold professional standards and ethical principles.
- Communicate effectively.

Outcomes:

Students who complete this course will:

- Demonstrate medical knowledge and apply it clinically.
- Integrate medicine knowledge into patient care.
- Identify learning gaps and pursue professional development.
- Engage in scholarly activities and provide patient-centered care.
- Perform diagnostic procedures and establish management plans.

Textbooks & References:

1. Davidson’s *Principles and Practice of Medicine*.

2. Kumar & Clark. *Medicine*.
3. *Oxford Textbook of Medicine*.
4. Talley NJ. *Clinical Examination*.
5. Macleod J. *Macleod's Clinical Examination*.

Course Title: Pediatrics

Rationale

Pediatrics addresses the healthcare needs of infants, children, and adolescents, recognizing their unique developmental and physiological characteristics. The subject promotes child health, disease prevention, and effective management of pediatric illnesses.

Course Description: Pediatrics involves medical care for individuals under 18 years, including neonates, infants, children, and adolescents. Teaching pediatrics is crucial due to the vulnerability of this population. The subject covers a range from acute disorders to chronic diseases, preventive pediatrics, and nutrition. Effective teaching aims to improve health outcomes in children by reducing morbidity, mortality, and preventing communicable diseases.

Objectives:

By the end of the course, students will:

1. Explain core concepts of growth and development and pediatric disorders using evidence-based guidelines.
2. Utilize knowledge in various clinical settings, including emergencies.
3. Develop history-taking and communication skills for dealing with this age group.
4. Demonstrate clinical examination skills.
5. Perform clinical procedures safely.
6. Describe health maintenance and preventive care for children, including nutrition and vaccination.
7. Cultivate rational thinking and engage students in research activities.
8. Instill values of medical ethics and morality.

Outcomes:

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

1. Demonstrate an in-depth understanding of important pediatric diseases.
2. Differentiate between normal and diseased states in this age group.
3. Develop management plans for common pediatric ailments.
4. Practice evidence-based medicine for pediatric conditions.
5. Analyze data and formulate differential diagnoses.
6. Identify pediatric emergencies and provide basic care.
7. Demonstrate skills in history-taking and clinical examination.
8. Counsel families and provide psychosocial support.
9. Perform clinical procedures.
10. Conduct research activities.
11. Apply principles of medical ethics.

Textbooks & References:

1. Nelson Textbook of Pediatrics
2. Basis of Pediatrics by Pervaiz Akbar
3. Clinical Methods by Wayne Harris

4. Neonatology by Tricia Lacy Gomella

Course Title: Psychiatry

Rationale
Psychiatry highlights the importance of mental health in overall wellbeing and healthcare delivery. The subject enables students to recognize common psychiatric disorders and appreciate the psychosocial dimensions of patient care.

Course Description: Psychiatry is a vital specialty dealing with mental health, crucial for overall well-being. With about 14% of the global disease burden attributed to neuropsychiatric disorders, this course provides insights into effectively managing psychiatric patients.

Textbooks & References:

1. Oxford Textbook of Medicine
2. Kumar and Clark's Medicine
3. Davidson's Principles and Practice of Medicine
4. Behavioral Science by Prof. Mowadat H Rana
5. Oxford Textbook of Psychiatry
6. Macleod's Clinical Examination
7. Nicholas Talley's Clinical Examination

Course Title: Surgery
Rationale
Surgery provides knowledge and skills required for the assessment and management of surgical conditions and trauma. It prepares students to recognize surgical emergencies, understand operative principles, and participate in perioperative care.

Course Description: This course covers principles and practices in treating injuries, diseases, and deformities through physical removal, repair, or adjustment of organs and tissues.

Objectives:

1. Learn commonly performed operations such as appendicectomy, cholecystectomy (open & lap), hernioplasty, hydrocele, and hemorrhoidectomy through lectures and practical demonstrations.
2. Understand wound infection, antibiotics in surgery, and postoperative complications through lectures and practical bedside demonstrations.

Textbooks & References:

1. Bailey & Love's Short Practice of Surgery - 27th Edition
2. Kirk General Surgical Operations - 6th Edition
3. Farquharson's Textbook of Operative Surgery - 9th Edition

Course Title: Gynecology & Obstetrics
Rationale
Obstetrics and Gynecology focus on women's health, reproductive health, pregnancy, and childbirth. The subject contributes to improving maternal and neonatal health through the development of clinical competence in preventive, emergency, and routine care.

Course Description: This comprehensive course spans three years and covers lectures and clinical teaching in ward rounds, bedside teaching, problem-based learning, and case presentations. Students

gain firsthand experience in pre-op, intra-op, and post-op care, with a focus on saving maternal and neonatal lives through evidence-based care.

Objectives:

By the end of the course, students will:

1. Gain comprehensive knowledge of the reproductive system and common diseases.
2. Provide safe antenatal, intrapartum, and postnatal care, including pre-conceptional counseling.
3. Triage and refer high-risk pregnancies.
4. Diagnose and manage obstetrical emergencies.
5. Develop effective communication and managerial skills.
6. Incorporate medical ethics into practice.
7. Participate in and conduct research.
8. Work as an efficient team leader and member.

Outcomes:

Students who complete this course will:

1. Provide safe antenatal and postnatal care.
2. Offer gynecological and reproductive health care.
3. Deliver competent emergency care.
4. Demonstrate effective management and administration.
5. Perform minor obstetrical/gynecological procedures.
6. Exhibit strong counseling and communication skills.
7. Provide patient-centered care in obstetrics and gynecology.
8. Be a good leader and team member.
9. Understand common instruments used in basic obstetric and gynecological procedures.
10.

Textbooks & References:

1. Ten Teachers Gynae/Obstetrics
2. Textbook of Gynaecology by Rashid Latif
3. Dewhurst's Textbook of Gynaecology/Obstetrics
4. Oxford Handbook of Gynae/Obs
5. Macleod's Clinical Examination

Course Title: Orthopedics & Trauma

Rationale

Orthopedics and Trauma focus on musculoskeletal disorders, injuries, and rehabilitation. The subject prepares students to assess fractures, trauma-related conditions, and common orthopedic problems encountered in clinical practice.

Course Description: Orthopedic surgery addresses the management of musculoskeletal system injuries and illnesses. The curriculum emphasizes integrating clinical, laboratory, and radiological methods to diagnose common conditions.

Objectives:

By the end of the course, students will:

1. Develop comprehensive knowledge of the musculoskeletal system.
2. Achieve competence in addressing musculoskeletal issues.
3. Promote pattern recognition and problem-solving in fracture treatment.

4. Adopt evidence-based approaches.
5. Use simulation for skill assessment.

Outcomes:

Students who complete this course will:

1. Bridge the knowledge gap between general physicians and orthopedic surgeons.
2. Standardize attitudes and coping mechanisms in trauma scenarios.
3. Develop safer training strategies for trauma scenarios.
4. Enhance communication and collaboration skills.
5. Obtain and report basic orthopedic patient history.
6. Perform and report basic orthopedic physical examinations.
7. Understand basic science and pathology of orthopedic conditions.
8. Develop differential diagnoses and use diagnostic testing.
9. Know treatment alternatives and their potential complications.
10. Recognize preventative measures for orthopedic conditions.

Textbooks & References:

1. Bailey & Love's Short Practice of Surgery
2. Apley's System of Orthopedics & Fractures - 8th Edition
3. Atlas in Orthopedics
4. Current Surgical Diagnosis & Treatment
5. Clinical Skills for Undergraduates by Abdul Majeed Ch. & Aamer Zaman Khan

Course Title: Neurosurgery

Rationale

Neurosurgery introduces students to disorders affecting the brain, spinal cord, and peripheral nervous system. The subject develops awareness of common neurosurgical emergencies and the principles of their diagnosis and management.

Course Description: This course aims to teach core principles and practices in neurosurgery that are essential for all practicing physicians, regardless of their specialty.

Objectives:

By the end of the course, students will:

1. Diagnose common neurosurgical conditions based on history and examination.
2. Develop an investigation plan for neurosurgical conditions.
3. Manage common neurosurgical conditions.
4. Describe criteria for managing head and spine injuries.
5. Prepare patients for elective neurosurgical procedures.
6. Identify common neurosurgical instruments.

Outcomes:

Students who complete this course will:

1. Take a thorough neurosurgical history and perform relevant physical examinations.
2. Interpret common radiological and laboratory investigations.
3. Outline management plans for common neurosurgical conditions.
4. Identify patients requiring immediate intervention in brain and spinal trauma.
5. Enlist preoperative orders for common neurosurgical procedures.

6. Recognize common neurosurgical instruments.

Textbooks & References:

1. Principles of Neurosurgery by Setti Rengachary
2. Handbook of Neurosurgery by Mark S. Greenburg

Course Title: Ophthalmology

Rationale

Ophthalmology provides knowledge and skills required to recognize, evaluate, and manage common eye disorders and emergencies. Early recognition and appropriate referral of ophthalmic conditions are essential for preventing avoidable visual impairment.

Course Description: Ophthalmology involves studying disorders and diseases of the human eye, covering both medical and surgical aspects. Students will learn to manage minor eye ailments and recognize when to refer patients to specialists.

Objectives:

By the end of the course, students will:

1. Teach sufficient ophthalmology to recognize common eye complaints and emergencies.
2. Enable appropriate action to safeguard patient's vision and overall function.

Outcomes:

Given a presenting eye sign or symptom, students should be able to:

1. Take an accurate history.
2. Perform physical examinations using slit lamp and ophthalmoscope.
3. Differentiate normal from abnormal eye findings.
4. Outline a logical program of investigation and possible management.

Textbooks & References:

1. Parsons Diseases of the Eye
2. Clinical Ophthalmology by Kanski
3. Ophthalmology by Shafi Jatoi

Course Title: Otorhinolaryngology (ENT)

Rationale

Otorhinolaryngology focuses on diseases of the ear, nose, throat, and related head and neck structures. The subject equips students with the skills needed to diagnose and manage common ENT conditions encountered in primary and secondary healthcare settings.

Course Description: This minor subject covers ENT diseases and is taught through lectures and clinical rotations in the 3rd and 4th years. Students engage in ward bedside, OT, and OPD activities to apply theoretical knowledge.

Objectives:

By the end of the course, students will:

1. Provide safe and effective care.
2. Gather information through history taking, physical examination, and workup.
3. Practice essential medical procedures with up-to-date knowledge.
4. Develop and implement patient management plans.

5. Counsel and educate patients and families.
6. Demonstrate ethical behavior and professional skills.

Outcomes:

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

1. Identify symptoms and signs of ENT diseases.
2. List investigations, differential diagnoses, and treatment plans.
3. Provide counseling, prognosis, and follow-up.

Textbooks & References:

1. Logan Turner's Diseases of the Nose, Throat and Ear - 10th Edition
2. Diseases of Ear, Nose and Throat & Head and Neck Surgery by Dhingra - 7th Ed
3. Oxford Handbook of ENT and Head and Neck Surgery - 3rd Edition
4. Hutchison's Clinical Methods - 24th Edition

Course Title: Radiology

Rationale

Radiology develops an understanding of diagnostic imaging and its role in clinical decision-making. The subject enables students to appropriately utilize and interpret common imaging investigations as part of patient management.

Course Description: This course focuses on interpreting radiographs, particularly chest X-rays, and understanding common abnormalities and their implications.

Objectives:

1. Identify normal chest radiographs and anatomical structures.
2. Recognize common abnormalities such as cardiomegaly, pericardial effusion, and lung masses.
3. Diagnose conditions through chest X-rays and correlate findings with clinical data.

Textbooks & References:

1. T. S. R. and E. R. Radiology by G. Anderson
2. Radiology for the MRCP - By Syed - 4th Edition

Course Title: Anesthesia

Rationale

Anesthesia introduces the principles of perioperative care, airway management, pain control, resuscitation, and patient safety. The subject prepares students to recognize and respond to critical clinical situations and medical emergencies.

Course Description:

This course provides a comprehensive introduction to the principles and practice of anesthesia, critical care, and pain medicine. It covers the fundamentals of preoperative assessment, pharmacology of anesthetic agents, techniques for general and regional anesthesia, intraoperative patient monitoring, and management of postoperative pain and complications. Students will gain exposure to the anesthesiologist's role as a perioperative physician, emphasizing patient safety, physiological stability, and the management of the unconscious patient.

Objectives:

By the end of the course, students will:

1. Understand the pharmacology of intravenous and inhalational anesthetic agents, muscle relaxants, and analgesics.
2. Perform a preoperative anesthetic risk assessment and formulate a basic anesthetic plan.
3. Describe the principles and techniques of airway management, including endotracheal intubation.
4. Explain the monitoring modalities used during anesthesia and their significance.
5. Recognize and outline the initial management of common perioperative emergencies.

Outcomes:
Students who complete this course will:
1. Demonstrate the ability to conduct a structured preoperative evaluation.
2. Identify the equipment used in anesthesia and understand its function.
3. Outline the sequence of induction, maintenance, and emergence from general anesthesia.
4. Discuss the role of regional anesthesia and pain management strategies.
5. Apply knowledge of resuscitation protocols in a simulated clinical setting.

Textbooks & References:
1. Morgan, G. E., Mikhail, M. S., & Murray, M. J. Clinical Anesthesiology. 6th ed. McGraw-Hill.
2. Butterworth, J. F., Mackey, D. C., & Wasnick, J. D. Morgan & Mikhail's Clinical Anesthesiology Cases. 1st ed. McGraw-Hill.
3. Oxford Handbook of Anaesthesia. 5th ed. Oxford University Press.

Course Title: Family Medicine

Rationale
Family Medicine promotes comprehensive, continuous, and patient-centered care within the context of the family and community. It emphasizes preventive care, health promotion, continuity of care, and management of common health problems.

Course Description:
Family Medicine is the cornerstone of primary healthcare, focusing on comprehensive, continuous, and patient-centered care for individuals and families across all ages, genders, and diseases. This course emphasizes the principles of holistic care, health promotion, disease prevention, and the management of common acute and chronic illnesses in an ambulatory setting. Through clinical rotations, students will develop skills in communication, clinical reasoning, and the coordination of care within the community context.

Objectives:
By the end of the course, students will:
1. Develop competence in managing common outpatient medical conditions.
2. Understand the principles of continuity of care, patient advocacy, and the bio-psycho-social model of health.
3. Demonstrate effective communication skills for patient education, counseling, and shared decision-making.
4. Learn to utilize evidence-based guidelines for preventive care and chronic disease management.
5. Recognize the role of the family physician within the broader healthcare system.

Outcomes:
Students who complete this course will:

1. Perform a comprehensive patient-centered consultation in a primary care setting.
2. Formulate differential diagnoses and evidence-based management plans for common presenting complaints.
3. Provide counseling on lifestyle modifications, immunization, and health screening.
4. Demonstrate an understanding of practice management and ethical issues in primary care.
5. Refer patients appropriately to specialist care while maintaining continuity.

Textbooks & References:

1. Rakel, R. E., & Rakel, D. P. Textbook of Family Medicine. 9th ed. Elsevier.
2. Oxford Handbook of General Practice. 5th ed. Oxford University Press.
3. Bickley, L. S. Bates' Guide to Physical Examination and History Taking. 13th ed. Wolters Kluwer.

Course Title: Behavioral Sciences

Rationale
Behavioral Sciences provide an understanding of the psychological, social, and cultural determinants of health and illness. The subject strengthens communication skills, empathy, professionalism, and patient-centered care.

Course Description:
This course explores the intersection of psychology, sociology, and cultural studies with medical practice. It provides a foundational understanding of human behavior, mental health, and the psychological factors influencing health and illness. Key topics include doctor-patient relationships, patient adherence, stress and coping, substance abuse, psychosomatic disorders, and the principles of psychotherapy and counseling. The course aims to equip future physicians with the skills to understand and respond to the emotional and behavioral needs of their patients.

Objectives:
By the end of the course, students will:

1. Understand major psychological theories of development, personality, and behavior.
2. Identify common psychiatric disorders, their presentation, and basic management principles.
3. Develop effective communication skills for breaking bad news, managing difficult interviews, and motivating behavioral change.
4. Analyze the impact of cultural, social, and economic factors on health and healthcare access.
5. Apply ethical principles in situations involving patient autonomy, confidentiality, and consent.

Outcomes:
Students who complete this course will:

1. Elicit a comprehensive psychosocial history from a patient.
2. Demonstrate empathy and use basic counseling techniques in a clinical interaction.
3. Recognize the signs and symptoms of common mental health conditions like depression, anxiety, and substance use disorders.
4. Incorporate an understanding of socio-cultural determinants of health into patient care plans.

5. Uphold the highest standards of professional and ethical conduct in patient interactions.

Textbooks & References:

1. Rana, M. H. Behavioral Sciences - A Guide for Medical Students & Professionals.
2. Kaplan & Sadock's Synopsis of Psychiatry. 12th ed. Wolters Kluwer.
3. The Doctor's Communication Handbook. 9th ed. CRC Press.

Course Title: The PLACE Module

Rationale

Contemporary medical practice requires physicians to possess competencies that extend beyond scientific knowledge and clinical skills. The PLACE Framework is incorporated as a longitudinal component of the MBBS curriculum to facilitate the development of professional identity, ethical practice, leadership capacity, effective communication, and research literacy. Through continuous exposure and reinforcement across all years of the program, the framework prepares students to function as competent, compassionate, accountable, and reflective healthcare professionals capable of responding to the evolving needs of patients, communities, and healthcare systems.

Course Description:

The PRIME Module is a holistic, capstone program designed to cultivate the core attributes of a physician-scholar and leader. It integrates five critical pillars that are essential for excellence in modern medicine but extend beyond traditional clinical knowledge. This module ensures graduates are not only skilled clinicians but also ethical, self-aware, and innovative professionals ready to lead and improve healthcare systems.

Learning Objectives:

By the end of the PRIME module, students will be able to:

1. Model unwavering accountability, integrity, and commitment to lifelong learning in all professional endeavors.
2. Design, conduct, and disseminate a scholarly project that contributes to medical knowledge.
3. Articulate a mature professional identity, integrating personal values with the duties and virtues of a physician.
4. Apply principles of leadership, quality improvement, and resource management within healthcare teams.
5. Navigate complex clinical ethical dilemmas using a structured framework grounded in universal principles and cultural context.

Outcomes:

Upon completion of the PRIME module, students will be able to:

1. Maintain a reflective portfolio demonstrating professional growth and a sustainable approach to personal well-being.
2. Submit a manuscript from their independent research to a peer-reviewed journal or present findings at a scholarly forum.
3. Confidently articulate their professional narrative and values, demonstrating resilience and a patient-centered approach in complex clinical situations.
4. Develop and lead a Quality Improvement (QI) initiative and function effectively as both a leader and a member of a multidisciplinary team.
5. Analyze a complex clinical case and present a justified ethical decision, respecting both philosophical principles and patient beliefs.

Textbooks & References:

1. The Good Doctor: A Physician's Guide to Transforming Health Care by J. K. Patel.

2. Cruess, R. L., Cruess, S. R., & Steinert, Y. Teaching Medical Professionalism.
3. How to Read a Paper: The Basics of Evidence-Based Medicine and Healthcare by Trisha Greenhalgh.
4. AMA Manual of Style: A Guide for Authors and Editors.
5. The Physician's Odyssey: Reflections on Medical Training and Practice by S. M. K. Chisti.
6. On Becoming a Doctor: The Journey from Student to Specialist by T. Manning.
7. The Improvement Guide: A Practical Approach to Enhancing Organizational Performance by Langley et al.
8. Crucial Conversations: Tools for Talking When Stakes Are High by Patterson et al.
9. Clinical Ethics: A Practical Approach to Ethical Decisions in Clinical Medicine by Jonsen, Siegler, & Winslade.
10. Islamic Medical Ethics: Theory and Practice

Course Title: Quran Kareem

Rationale

The Quran Kareem course promotes spiritual, moral, and ethical development while reinforcing values such as compassion, honesty, accountability, and service to humanity. It supports the holistic development of future healthcare professionals.

Course Description:

This longitudinal course offers a structured study of the Holy Quran, focusing on correct recitation (Tajweed), understanding the meanings (Tafsir) of selected Surahs, and reflecting upon its ethical and spiritual teachings. The course is designed to provide a moral and spiritual compass for students, helping them connect the timeless guidance of the Quran with the ethical challenges and compassionate service inherent to the medical profession.

Objectives:

By the end of the course, students will:

1. Recite selected verses of the Holy Quran with proper pronunciation and Tajweed rules.
2. Comprehend the core messages and themes of the chapters studied.
3. Relate the ethical and moral teachings of the Quran to principles of medical ethics and patient care.
4. Reflect on the concepts of healing, compassion, and justice as presented in the Quran.

Outcomes:

Students who complete this course will:

1. Demonstrate improved fluency and accuracy in the recitation of the Quran.
2. Articulate how Islamic principles inform ethical decision-making in clinical practice.
3. Exhibit enhanced empathy, integrity, and professionalism in their conduct, grounded in spiritual values.
4. Develop a personal framework for maintaining spiritual well-being amidst the demands of a medical career.

Textbooks & References:

1. The Holy Quran (Arabic Text with Urdu/English Translation and Commentary).
2. Maududi, S. A. A. Towards Understanding the Quran.
3. Ali, A. Y. The Meaning of the Holy Qur'an.

Course Title: Pakistan Studies / Islamiat

Rationale

Pakistan Studies and Islamiat develop awareness of national identity, cultural values, civic responsibility, and ethical principles. The course provides students with an understanding of the social and cultural context in which healthcare is delivered.

Course Description:

This combined course provides students with essential knowledge of Pakistan's ideological, historical, and political context (Pakistan Studies) alongside the fundamental beliefs, practices, and history of Islam (Islamiat). It aims to foster a sense of informed national identity and civic responsibility while providing a deeper understanding of the Islamic ethical framework that shapes the society in which they will practice medicine.

Objectives:

By the end of the course, students will:

1. (Pakistan Studies) Trace the history of the Pakistan Movement, understand the constitutional framework, and analyze contemporary challenges.
2. (Islamiat) Explain the fundamental beliefs (Aqeedah), pillars (Arkan), and practices of Islam, and the life of the Prophet Muhammad (PBUH).
3. Discuss the contributions of Muslim scholars to civilization and science.
4. Analyze the role of ethical values derived from Islamic and Pakistani ideology in community leadership and public health.

Outcomes:

Students who complete this course will:

1. Articulate an informed perspective on Pakistani nationhood and its relevance to their role as community physicians.
2. Demonstrate an understanding of core Islamic teachings and their application to personal and professional life.
3. Critically appraise the socio-cultural and ideological factors that influence health and healthcare delivery in Pakistan.
4. Uphold the values of tolerance, social justice, and service to the community.

Textbooks & References:

1. (Pak Studies) Pakistan Studies by M. Ikram Rabbani.
2. (Pak Studies) The Struggle for Pakistan by I.H. Qureshi.
3. (Islamiat) Introduction to Islam by Dr. Hamidullah.
4. (Islamiat) The Sealed Nectar (Ar-Raheeq Al-Makhtum) by Safi-ur-Rahman al-Mubarkpuri.

Course Title: English Expository Writing

Rationale

English Expository Writing strengthens academic, professional, and scientific writing skills required in medical education and practice. It supports effective documentation, scholarly communication, and dissemination of medical knowledge.

Course Description:

This is a practical, skills-based course designed to equip medical students with the advanced written communication skills required for academic and professional success. It focuses on clarity, precision,

and structure in professional writing, covering essential genres such as patient case notes, referral letters, literature summaries, and research abstracts. The course emphasizes the importance of accurate and effective written communication in ensuring patient safety and professional collaboration.

Objectives:
By the end of the course, students will:

1. Employ clear, concise, and professional language in medical writing.
2. Structure and compose coherent and accurate clinical documentation.
3. Summarize and critique medical literature effectively.
4. Apply advanced principles of grammar, punctuation, and style to enhance readability and avoid ambiguity.

Outcomes:
Students who complete this course will:

1. Produce well-structured, precise, and professional patient case histories and referral letters.
2. Write a structured abstract and summary of a medical journal article.
3. Demonstrate competence in avoiding common errors in medical documentation.
4. Communicate complex medical information in writing with clarity and accuracy.

Textbooks & References:

1. Strunk, W., & White, E. B. The Elements of Style. 4th ed. Pearson.
2. AMA Manual of Style: A Guide for Authors and Editors. 11th ed. Oxford University Press.
3. Greenhalgh, T. How to Read a Paper: The Basics of Evidence-Based Medicine and Healthcare. 6th ed. Wiley-Blackwell.

Course Title: Arts & Humanities

Rationale
Arts and Humanities enrich medical education by exploring the human experience of health, illness, suffering, and healing. The subject promotes empathy, reflection, compassion, and a deeper understanding of patient-centered care.

Course Description:
This innovative course integrates perspectives from literature, philosophy, ethics, and the visual and performing arts into the medical curriculum. It uses narratives of illness, works of art, and philosophical texts to explore the human dimensions of sickness, healing, suffering, and compassion. The course aims to cultivate empathy, moral reasoning, and self-reflection in future physicians, counterbalancing the technical focus of clinical training and fostering a more holistic, patient-centered approach to care.

Objectives:
By the end of the course, students will:

1. Analyze how narratives and art represent the experiences of patients and physicians.
2. Discuss complex ethical dilemmas in medicine using frameworks from the humanities.
3. Reflect on their own professional identity, biases, and responses to suffering.
4. Explore the role of creativity, resilience, and self-care in preventing burnout.

Outcomes:

Students who complete this course will:

1. Demonstrate enhanced empathy and narrative competence in understanding patient experiences.
2. Articulate a more nuanced and humanistic perspective on health, illness, and the doctor-patient relationship.
3. Engage in reflective practice to process clinical experiences and promote personal well-being.
4. Apply insights from the arts and humanities to communicate more effectively and compassionately with patients and colleagues.

Textbooks & References:

1. Kleinman, A. The Illness Narratives: Suffering, Healing, and the Human Condition. Basic Books.
2. Sacks, O. The Man Who Mistook His Wife for a Hat and Other Clinical Tales. Touchstone.
3. Charon, R. Narrative Medicine: Honoring the Stories of Illness. Oxford University Press.
4. Selected works of literature, film, and art (e.g., Wit by Margaret Edson).

Course Title: Artificial Intelligence

Rationale

Artificial Intelligence (AI) is transforming healthcare through its applications in clinical decision-making, diagnostics, medical imaging, research, education, and health systems management. Future physicians must possess a foundational understanding of AI concepts, opportunities, limitations, and ethical considerations to effectively utilize AI-enabled technologies in patient care. This course equips MBBS students with essential knowledge and skills to critically evaluate, responsibly use, and adapt to emerging AI innovations in healthcare while maintaining professionalism, patient safety, and ethical standards.

Course Description

This course introduces MBBS students to the fundamental concepts and applications of Artificial Intelligence in healthcare. It explores the principles of machine learning, data analytics, clinical decision support systems, digital health technologies, and AI-assisted diagnostics. The course also addresses ethical, legal, professional, and patient safety considerations related to AI use in medicine. Through interactive learning activities, case discussions, and practical demonstrations, students will develop the ability to critically appraise AI tools and understand their role in modern and future healthcare systems.

Course Objectives

Upon completion of this course, students will be able to:

1. Describe the fundamental concepts, terminology, and principles of Artificial Intelligence in healthcare.
2. Explain the applications of AI in clinical practice, medical education, research, and public health.
3. Discuss the role of machine learning, predictive analytics, and clinical decision support systems in healthcare delivery.
4. Evaluate the benefits, limitations, and challenges associated with AI implementation in healthcare settings.

5. Analyze ethical, legal, professional, and patient safety issues related to the use of AI in medicine.
6. Demonstrate responsible and effective use of AI-assisted tools for learning, research, and clinical problem-solving.
7. Critically appraise emerging AI technologies and their potential impact on healthcare systems and patient outcomes.

Course Outcomes

At the end of the course, students will be able to:

1. Explain core concepts and applications of Artificial Intelligence relevant to medical practice.
2. Utilize AI-enabled technologies appropriately to support learning, research, and clinical decision-making.
3. Critically evaluate AI-generated information for accuracy, reliability, safety, and ethical compliance.
4. Demonstrate awareness of ethical, legal, and professional responsibilities associated with AI use in healthcare.
5. Apply principles of responsible AI use to enhance patient-centered and evidence-based healthcare.

Recommended References

1. Topol EJ. Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again. Basic Books; 2019.
2. Coiera E. The Guide to Health Informatics. 4th Edition. CRC Press; 2024.
3. Bohr A, Memarzadeh K (Eds.). Artificial Intelligence in Healthcare. Academic Press; 2020.
4. Masters K (Ed.). Artificial Intelligence in Medical Education. Springer Nature; 2025.

CURRICULUM HOUR DISTRIBUTION

The MBBS curriculum at FMDC is implemented in accordance with the curriculum framework, study guides, academic regulations, and assessment policies prescribed by Bahria University and approved by the Pakistan Medical and Dental Council (PMDC). The distribution of teaching hours across pre-clinical, para-clinical, clinical, and longitudinal components has been meticulously planned and standardized by Bahria University to ensure appropriate coverage of all required disciplines, learning outcomes, and clinical competencies throughout the five-year program.

FMDC follows the approved Bahria University curriculum in its entirety, including the prescribed instructional hours, clinical training requirements, assessment framework, and subject distribution. The curriculum incorporates basic medical sciences, clinical sciences, community-oriented learning, clinical clerkships, and longitudinal themes, while also fulfilling the requirements of general education and professional development components.

A comprehensive review of the Bahria University MBBS curriculum conducted during the previous academic cycle confirmed that the cumulative instructional hours, clinical exposure, and subject allocations meet the minimum requirements prescribed by PMDC for undergraduate medical education. Accordingly, FMDC adopts and implements the approved curriculum structure and

continuously monitors its delivery through the Department of Medical Education, Curriculum Committee, and institutional quality assurance mechanisms to ensure ongoing compliance with university and regulatory standards.

Detailed subject-wise teaching hours, study guides, course specifications, assessment blueprints, and curriculum documents approved by Bahria University are maintained by the College and are available as supporting documents for academic and accreditation purposes.

Table: Subject-Wise Distribution of Teaching Hours Across the MBBS Program

Sr. No.	Subject	Year I	Year II	Year III	Year IV	Year V	Total
1	Anatomy	250	250	0	0	0	500
2	Physiology	225	225	0	0	0	450
3	Medical Biochemistry	125	125	0	0	0	250
4	Pharmacology & Therapeutics	5	5	290	0	0	300
5	Pathology	18	9	240	233	0	500
6	Forensic Medicine & Toxicology	0	0	100	0	0	100
7	Otorhinolaryngology (ENT)	0	4	6	140	0	150
8	Ophthalmology	0	4	6	140	0	150
9	Obstetrics & Gynecology	4	2	2	96	200	304
10	Community Medicine & Public Health	10	10	15	165	2	202
11	Research & Evidence-Based Medicine	20	20	20	20	20	100
12	Quran Kareem (Tajweed, Tafseer & Seerat)	8	21	9	8	4	50
13	Pakistan Studies	10	15	0	0	0	25
14	Islamic Studies / Ethics	10	15	0	0	0	25
15	PLACE Framework	25	25	15	30	5	100
16	English Expository Writing	22	0	3	0	0	25
17	Introduction to Computer Applications / AI in Healthcare	9	9	5	2	35	60
18	Medical Humanities / Anthropology	9	8	8	0	0	25
19	Co-curricular Activities	40	40	40	40	40	200
20	Entrepreneurship	0	0	0	0	35	35
21	General Surgery	2	4	72	156	366	600
22	Anaesthesia	1	2	7	20	20	50
23	Emergency Medicine / Critical Care	0	0	0	0	25	25
24	Orthopaedics & Trauma	4	0	10	36	50	100
25	Urology	0	4	10	26	35	75
26	Vascular Surgery	2	0	8	25	40	75
27	Paediatric Surgery	0	0	10	25	40	75
28	General Medicine	6	8	88	144	354	600
29	Neurology	0	5	10	30	30	75
30	Endocrinology	0	6	15	20	34	75
31	Infectious Diseases	0	0	5	30	40	75

32	**Psychiatry**	0	0	0	25	50	75
33	**Behavioural Sciences**	20	17	5	8	25	75
34	**Dermatology**	0	0	2	48	0	50
35	**Cardiology**	4	0	5	16	25	50
36	**Pulmonology**	4	0	0	16	30	50
37	**Nephrology**	0	4	10	16	20	50
38	**Gastroenterology**	0	4	5	16	25	50
39	**Paediatrics & Neonatology**	4	0	0	100	200	304
40	**Family Medicine**	0	0	25	25	25	75
41	**Infection Control**	0	0	8	8	9	25
42	**Patient Safety**	0	0	6	6	13	25
43	**Medical Oncology**	0	0	1	4	20	25
44	**Basics of Radiology**	1	5	5	2	12	25
45	**Self-Directed Learning (SDL)**	100	100	100	100	100	500
	TOTAL HOURS	**938**	**945**	**1140**	**1688**	**2023**	**6755**

Extracurricular Activities:
A total of 200 hours are dedicated to mandatory extracurricular activities, which include a structured program of:

- Annual Sports Gala (one week)
- Cultural Shows (three days)
- Camping (two days)
- Hiking (one day)
- Student Conferences

To ensure continuous alignment and evidence-based curriculum management, the Department of Medical Education, through the Curriculum Committee, will conduct a formal review upon the graduation of the first MBBS cohort. This review will involve a precise calculation of actually delivered instructional hours, derived from the official timetables of each module and subject across all five years.

This vital exercise for ongoing quality assurance is governed by the officially approved "Curricular Evaluation Plan," which is attached as ***APPENDIX 36.*** This process ensures that the curriculum remains a dynamic and accurately documented entity, responsive to the actual educational delivery.

CLINICAL ROTATIONS & CLERKSHIPS

Introduction

Clinical education forms an essential component of the MBBS program at FMDC. It provides students with structured opportunities to apply theoretical knowledge in real healthcare settings and progressively develop clinical skills, professional attitudes, communication abilities, and clinical reasoning. Clinical training is delivered through hospital-based learning, community-based experiences, clinical skills laboratory sessions, and supervised clerkships across affiliated teaching hospitals and healthcare facilities.

Rationale

The clinical rotation and clerkship program is designed in accordance with the academic regulations of Bahria University and the standards prescribed by the PMDC. The program facilitates the gradual transition from classroom learning to direct patient care by exposing students to a wide spectrum of clinical conditions and healthcare environments. Through supervised clinical encounters, students develop competencies in history taking, physical examination, clinical reasoning, patient management, communication, professionalism, and teamwork.

Clinical training emphasizes experiential learning and reflective practice, enabling students to integrate biomedical knowledge with patient care while understanding the ethical, social, and professional dimensions of medical practice. The structured progression of clinical exposure ensures that students are adequately prepared for internship and future professional responsibilities.

Clinical Training Framework

Clinical learning is delivered through a combination of:

- Bedside teaching
- Ward-based learning
- Outpatient department (OPD) teaching
- Clinical case discussions
- Clinical skills laboratory sessions
- Clinical clerkships
- Seminars, CPC Conferences and case presentations
- Self-directed and reflective learning activities

Students participate actively in patient care under faculty supervision while adhering to professional and ethical standards.

Year-Wise Clinical Training

Year 3 – Early Clinical Exposure

Students are introduced to clinical medicine through structured clinical skills training, patient interactions, hospital visits, and case-based discussions. Emphasis is placed on communication skills, history-taking, physical examination techniques, professionalism, infection control, and patient safety. The rotation is structured around a batch distribution across clinical subjects. The proposed rota is as:

FRONTIER MEDICAL & DENTAL COLLEGE, ABBOTTABAD

Clinical Batches of 3rd Year MBBS – 2025

SJTH/KATH TEACHING HOSPITAL, MANSEHRA

Rotation Period	Surgical A	Surgical B	ENT	Eye	Gynae & Obs	Paediatrics	Cardiology / CCU	Pulmonology	Forensic Medicine	Pathology	Rheumatology	Dermatology
17 Feb – 17 Mar 2026	A	B	C	D	E	F	A	B	C	D	E	F
18 Mar – 18 Apr 2026	B	C	D	E	F	A	B	C	D	E	F	A
19 Apr – 19 May 2026	C	D	E	F	A	B	C	D	E	F	A	B
20 May – 20 Jun 2026	D	E	F	A	B	C	D	E	F	A	B	C
21 Jun – 21 Jul 2026	E	F	A	B	C	D	E	F	A	B	C	D
22 Jul – 22 Aug 2026	F	A	B	C	D	E	F	A	B	C	D	E
23 Aug – 23 Sep 2026	A	B	C	D	E	F	A	B	C	D	E	F
24 Sep – 24 Oct 2026	B	C	D	E	F	A	B	C	D	E	F	A

Notes

- Six clinical batches (**A–F**) rotate sequentially through all designated postings.
- Surgical postings have been divided into **Surgical A** and **Surgical B** to improve student distribution and clinical exposure.
- Cardiology/CCU and Pulmonology are included to strengthen Medicine & Allied exposure during the transition to clinical sciences.
- Forensic Medicine and Pathology rotations support integration with Module VII–IX pathobiological sciences.
- Rheumatology and Dermatology provide early exposure to specialty-based clinical assessment and patient management.

(Based on the same 8 rotation periods used in the 2025 clinical timetable, with six batches A–F rotating through 12 clinical postings. Each posting receives one batch during each rotation period.)

Year 4 – Integrated Clinical Sciences

Clinical exposure expands through rotations in Community Health Sciences, Ophthalmology, Otorhinolaryngology (ENT), Pathology, and Clinical Skills Laboratory activities. Students develop clinical examination skills, diagnostic reasoning, and an understanding of common health conditions encountered in hospital and community settings. The proposed rota is as:

FRONTIER MEDICAL & DENTAL COLLEGE, ABBOTTABAD
Clinical Batches of 4th Year MBBS – 2025
SJTH/KATH TEACHING HOSPITAL, MANSEHRA

Rotation Period	Medical A	Medical B	Surgical A	Surgical B	ENT	Eye	Gynae	C/Med	Paeds	Urology / Plastic Surgery	ER Medicine	Neurosurgery	Gastro / Nephro	Psychiatry
17 Feb – 17 Mar 2026	A	B	C	D	E	F	A	B	C	D	E	F	A	B
18 Mar – 18 Apr 2026	B	C	D	E	F	A	B	C	D	E	F	A	B	C
19 Apr – 19 May 2026	C	D	E	F	A	B	C	D	E	F	A	B	C	D
20 May – 20 Jun 2026	D	E	F	A	B	C	D	E	F	A	B	C	D	E
21 Jun – 21 Jul 2026	E	F	A	B	C	D	E	F	A	B	C	D	E	F
22 Jul – 22 Aug 2026	F	A	B	C	D	E	F	A	B	C	D	E	F	A
23 Aug – 23 Sep 2026	A	B	C	D	E	F	A	B	C	D	E	F	A	B
24 Sep – 24 Oct 2026	B	C	D	E	F	A	B	C	D	E	F	A	B	C

Specialty Distribution

- **Medical A & Medical B:** General/Internal Medicine and ward-based patient management.
- **Surgical A & Surgical B:** General Surgery, perioperative care, and operative exposure.
- **ENT & Ophthalmology:** Specialty outpatient and procedural training.
- **Gynecology & Obstetrics:** Women's health, antenatal and labour room exposure.
- **Community Medicine (C/Med):** Community health, preventive medicine, field activities, and public health practice.
- **Paediatrics:** Pediatric OPD, ward, neonatal and emergency exposure.
- **Urology / Plastic Surgery:** Allied surgical specialty exposure.
- **Emergency Medicine:** Acute care, triage, resuscitation, and emergency procedures.
- **Neurosurgery:** Neurological and neurosurgical patient management.
- **Gastroenterology / Nephrology:** Medicine-allied specialty rotations.
- **Psychiatry:** Mental health assessment, communication skills, and patient counseling.

(Six batches: A–F distributed across fourteen clinical specialties. The pattern ensures balanced exposure to major and allied specialties during Integrated Clinical Sciences.)

Year 5 – Advanced Clinical Clerkships

The final year consists of supervised clerkships in Medicine and Allied Specialties, Surgery and Allied Specialties, Obstetrics and Gynecology, Pediatrics, Radiology, and related disciplines. Students actively participate in patient assessment, case presentations, clinical procedures, ward rounds, outpatient services, and multidisciplinary healthcare activities, preparing them for internship and professional practice.

FRONTIER MEDICAL & DENTAL COLLEGE, ABBOTTABAD
Clinical Batches of Final Year MBBS – 2025
SJTH/KATH TEACHING HOSPITAL, MANSEHRA

Rotation Period	General Medicine & Allied	General Surgery & Allied	Paediatrics	Gynaecology & Obstetrics	Radiology	Anesthesia
17 Feb – 17 Mar 2026	A	B	C	D	E	F
18 Mar – 18 Apr 2026	B	C	D	E	F	A
19 Apr – 19 May 2026	C	D	E	F	A	B
20 May – 20 Jun 2026	D	E	F	A	B	C
21 Jun – 21 Jul 2026	E	F	A	B	C	D
22 Jul – 22 Aug 2026	F	A	B	C	D	E
23 Aug – 23 Sep 2026	A	B	C	D	E	F
24 Sep – 24 Oct 2026	B	C	D	E	F	A

Clerkship Components

Rotation	Allied Specialties Included	Suggested PSIL Integration
General Medicine & Allied	Cardiology, Pulmonology, Gastroenterology, Nephrology, Endocrinology, Infectious Diseases, Dermatology, Psychiatry, Family Medicine	Medication Safety, Diagnostic Errors, Handover & Communication, Sepsis Recognition, Chronic Disease Management
General Surgery & Allied	Orthopedics & Trauma, Urology, Plastic Surgery, Vascular Surgery, Pediatric Surgery, Neurosurgery	Surgical Safety Checklist, Informed Consent, Prevention of Surgical Site Infections, Trauma Team Communication
Paediatrics	Neonatology, Pediatric Emergency Care	Vaccination Safety, Neonatal Care, Pediatric Medication Safety, Growth Monitoring
Gynaecology & Obstetrics	Labour Room, Antenatal Care, High-Risk Obstetrics	Maternal Safety, Safe Childbirth Practices, Obstetric Emergencies, Blood Transfusion Safety
Eye & ENT	Ophthalmology, Otorhinolaryngology	Patient Identification, Procedural Safety, Infection Prevention in OPD and Minor Procedures
Radiology & Anesthesia	Diagnostic Radiology, Interventional Radiology Exposure, Anesthesia & Critical Care	Radiation Safety, Airway Safety, Safe Sedation, Perioperative Patient Safety

(Six Batches: A–F)
The final year focuses on immersive clerkships in major clinical disciplines and allied specialties. Students participate in supervised patient care, workplace-based assessments, Mini-CEX, case presentations, ward rounds, clinical audits, and PSIL activities integrated within the relevant rotations.

Clinical Logbooks and Reflective Learning

Clinical logbooks are maintained throughout the clinical years to document students' learning experiences, clinical encounters, procedural skills, case presentations, community activities, and professional development. Logbooks serve as evidence of participation and facilitate monitoring of clinical exposure and student progress.

Students are encouraged to engage in reflective practice by documenting significant learning experiences, clinical observations, and professional challenges encountered during rotations. Reflection promotes self-assessment, professional growth, and lifelong learning.

1 Workplace-Based Assessment

Clinical learning is supported through workplace-based assessment methods that provide direct observation and timely feedback. These assessments promote continuous learning and improvement within authentic clinical environments.

Common workplace-based assessment methods include:

- Mini Clinical Evaluation Exercise (Mini-CEX)
- Direct Observation of Procedural Skills (DOPS)
- Case-Based Discussion (CBD)
- Clinical Encounter Assessment
- Faculty Observation and Feedback

These tools enable assessment of clinical skills, communication, professionalism, clinical reasoning, and patient management in real clinical settings.

2 Clinical Supervision and Feedback

Students receive continuous supervision and feedback from faculty members, clinical supervisors, and consultants during rotations. Feedback is provided through bedside teaching sessions, case discussions, Mini-CEX encounters, logbook reviews, and clinical performance evaluations. This process supports the development of safe clinical practice, professional behavior, and reflective learning.

3 Monitoring and Quality Assurance

The Department of Medical Education, Module Coordinators, and Clinical Departments jointly monitor the implementation of clinical rotations and clerkships. Student feedback, logbook reviews, workplace-based assessments, clinical performance records, and departmental reports are utilized to ensure the quality, effectiveness, and continuous improvement of clinical training experiences.

TEACHING STRATEGIES

Teaching and Learning Strategies

The MBBS curriculum at FMDC utilizes a variety of teaching and learning strategies to facilitate the achievement of curricular outcomes and promote active student engagement. The educational approaches are aligned with the hybrid curriculum structure and support the development of knowledge, clinical skills, professional attitudes, critical thinking, communication skills, and lifelong learning habits.

A. Large Group Learning Formats

i. Interactive Lectures

Interactive lectures are used to introduce core concepts and provide foundational knowledge. Faculty employ questioning techniques, case scenarios, multimedia resources, and discussion-based approaches to encourage student participation and enhance understanding.
DSL

Directed Self-Learning activities are guided by clearly defined learning objectives and recommended resources. Faculty members facilitate learning through structured guidance, supervision, and feedback.

ii. Self-Directed Learning (SDL)

SDL enables students to assume responsibility for their own learning by identifying learning needs, utilizing available resources, and engaging in independent study. Dedicated SDL sessions support the development of lifelong learning skills and reflective practice.

B. Small Group Learning Formats
i. Tutorials and Small Group Discussions

Tutorials and small group discussions provide opportunities for clarification of concepts, application of knowledge, collaborative learning, and development of problem-solving skills in a supportive learning environment.

ii. Problem-Based Learning (PBL)

Problem-Based Learning is utilized to promote active learning, critical thinking, and integration of knowledge through discussion of clinically relevant problems. Students work collaboratively to identify learning issues and develop solutions under faculty facilitation.

iii. Problem-Solving Interactive Learning (PSIL)

PSIL sessions encourage analytical thinking and application of knowledge through unstructured exercises, clinical scenarios, and guided discussion of healthcare problems.

iv. Case-Based Learning (CBL)

Case-Based Learning utilizes authentic clinical scenarios to facilitate clinical reasoning, decision-making, and application of theoretical knowledge to patient care situations.

v. Journal Club

Journal Club activities promote research literacy, critical appraisal of scientific literature, evidence-based practice, and scholarly discussion among students and faculty.

C. Practical and Laboratory Learning

Practical sessions in Anatomy, Physiology, Biochemistry, Pathology, and other disciplines provide hands-on learning experiences that reinforce theoretical concepts and facilitate the acquisition of laboratory and technical skills.

D. Clinical and Community-Based Learning

Clinical learning is delivered through early clinical exposure, clinical skills laboratory training, bedside teaching, ward-based learning, outpatient department teaching, case presentations, clinical rotations, and clerkships. Community-based learning activities provide exposure to public health issues, community health needs, and healthcare delivery beyond hospital settings.

E. Technology-Enhanced Learning

The curriculum incorporates digital learning resources, learning management systems, online educational materials, simulation activities, and emerging technologies to support student learning and academic development.

The combination of these educational strategies provides a learner-centered environment that promotes active participation, integration of knowledge, development of clinical skills, and professional growth throughout the MBBS program.

These teaching strategies are designed to foster a stimulating and dynamic learning environment at the FMDC. By integrating modern pedagogical approaches, the college ensures that its students are well-equipped with the knowledge, skills, and attitudes necessary for the challenges of the medical profession.

ASSESSMENT POLICY

Purpose

The assessment system of the MBBS program at FMDC is designed to evaluate students' achievement of the curricular outcomes and program outcomes while promoting continuous learning, professional development, and academic excellence. Assessment practices are conducted in accordance with the academic regulations of Bahria University and the standards prescribed by the Pakistan Medical and Dental Council (PMDC). The assessment framework ensures that students acquire the knowledge, clinical skills, professional attitudes, and ethical values required for safe and effective medical practice.

Principles of Assessment

The assessment system is guided by the principles of validity, reliability, transparency, fairness, alignment with learning outcomes, and continuous feedback. Assessment activities are designed to support learning, monitor student progress, identify learning gaps, and prepare students for professional examinations and future clinical practice.

Assessment Structure

The MBBS assessment system consists of:

- **20% Internal Assessment**
- **80% Professional Examination**

The internal assessment component is conducted by FMDC throughout the academic year and contributes 20% of the overall marks. The remaining 80% is derived from the Professional Examination conducted in accordance with Bahria University regulations.

Internal Assessment (20%)

The internal assessment system is designed to promote continuous learning and monitor student performance throughout the academic year. It includes a combination of academic, clinical, professional, and behavioral components.

Internal assessment may include:

- End-of-Module (EOM) Examinations
- Quizzes
- Assignments
- Student Presentations
- Problem-Based Learning (PBL)
- Case-Based Learning (CBL)
- Clinicopathological Conferences (CPC)
- Mini Clinical Evaluation Exercise (Mini-CEX)
- Practical and Clinical Skills Assessments
- Logbook Activities
- Attendance
- Professional Behavior and Professionalism Assessment
- Participation in Academic Activities

End-of-Module (EOM) Examinations

The End-of-Module (EOM) Examination constitutes a major component of the internal assessment system. EOM examinations are conducted at the completion of each module and are structured according to the assessment blueprint and examination format used by Bahria University professional examinations.

The purpose of the EOM examination is to:

- Assess students' achievement of module learning outcomes.
- Identify strengths and learning gaps.
- Provide timely feedback for academic improvement.
- Familiarize students with the format, standards, and expectations of professional examinations.
- Promote examination preparedness through regular assessment and self-evaluation.

EOM examinations may include written, practical, and clinical assessment components depending on the nature of the module and disciplines involved.

Professional Examination (80%)

Professional examinations are conducted in accordance with Bahria University regulations and PMDC requirements. These examinations assess the comprehensive achievement of curricular outcomes and determine student progression to the next academic level.

Assessment Tools

A variety of assessment methods are utilized to evaluate knowledge, clinical skills, and professional development.

Knowledge Assessment

- Multiple Choice Questions (MCQs)
- Short Answer Questions (SAQs)
- Structured Written Assessments
- Assignments
- Presentations
- Research Projects

Practical and Clinical Skills Assessment

- Objective Structured Practical Examination (OSPE)
- Objective Structured Clinical Examination (OSCE)
- Practical Examinations
- Clinical Skills Assessments
- Long and Short Clinical Cases
- Case Presentations

Workplace-Based Assessment

During clinical rotations and clerkships, workplace-based assessment methods are utilized to evaluate performance in authentic clinical settings. These include:

- Mini Clinical Evaluation Exercise (Mini-CEX)
- Direct Observation of Procedural Skills (DOPS)
- Case-Based Discussions (CBD)
- Faculty Observation and Feedback

Logbooks and Reflective Learning

Students are required to maintain logbooks documenting clinical encounters, procedural skills, community-based activities, and other prescribed learning experiences. Logbooks are reviewed periodically by faculty members and contribute to monitoring clinical exposure, participation, and professional development. Reflective learning activities may also be incorporated to encourage self-assessment and lifelong learning.

Assessment Quality Assurance

Assessment activities undergo blueprinting, moderation, item review, and post-examination analysis to ensure validity, reliability, fairness, and alignment with curricular objectives. The Department of Medical Education, Assessment Committee, and academic departments collectively monitor assessment practices to support continuous quality improvement and compliance with institutional and regulatory requirements.

APPEAL POLICY FOR STUDENT ASSESSMENT GRIEVANCES

The FMDC is committed to ensuring fairness, transparency, and justice in all its assessment processes. To this end, a structured appeal policy is in place for students who wish to challenge assessment outcomes. The policy is divided into two distinct pathways for Internal (Formative) and External (Summative) assessments.

Appeal Policy for Student Assessment Grievances

FMDC is committed to ensuring fairness, transparency, and due process in all assessment-related matters. Students have the right to seek review of assessment-related concerns through established institutional and university procedures.

Appeals Related to Internal Assessment

Internal assessments, including End-of-Module (EOM) examinations, quizzes, assignments, presentations, PBL, CBL, CPC activities, Mini-CEX, attendance, professionalism assessments, and other formative evaluations, are administered by FMDC.

Grievance Authority

The FMDC Examination Cell serves as the primary authority for addressing grievances related to internal assessments.

Procedure

- Students submit a written application to the Examination Cell through the proper channel.
- The application clearly states the nature of the grievance and supporting evidence, where applicable.
- Appeals are submitted within seven (07) working days of the declaration of results or occurrence of the grievance.

Review Process

- The Examination Cell reviews the application and relevant assessment records.
- Where necessary, the matter is referred to the Student Grievance Committee or the relevant academic department for further review.
- The decision is communicated to the student in writing and is considered final at the institutional level.

Appeals Related to Professional Examinations

Professional examinations are conducted in accordance with Bahria University regulations and policies. Any grievance related to professional examination results is processed through the prescribed university procedures.

Grievance Authority

The Controller of Examinations, Bahria University, is the final authority for matters related to professional examination results.

Procedure

- Students seeking review of professional examination results submit an application through the Principal/Dean's Office.
- FMDC verifies and forwards the application to Bahria University through the appropriate channel.
- Appeals are submitted within the timelines prescribed by Bahria University examination regulations.

Review Process

- Rechecking, review, or any other examination-related process is conducted by Bahria University in accordance with its policies.

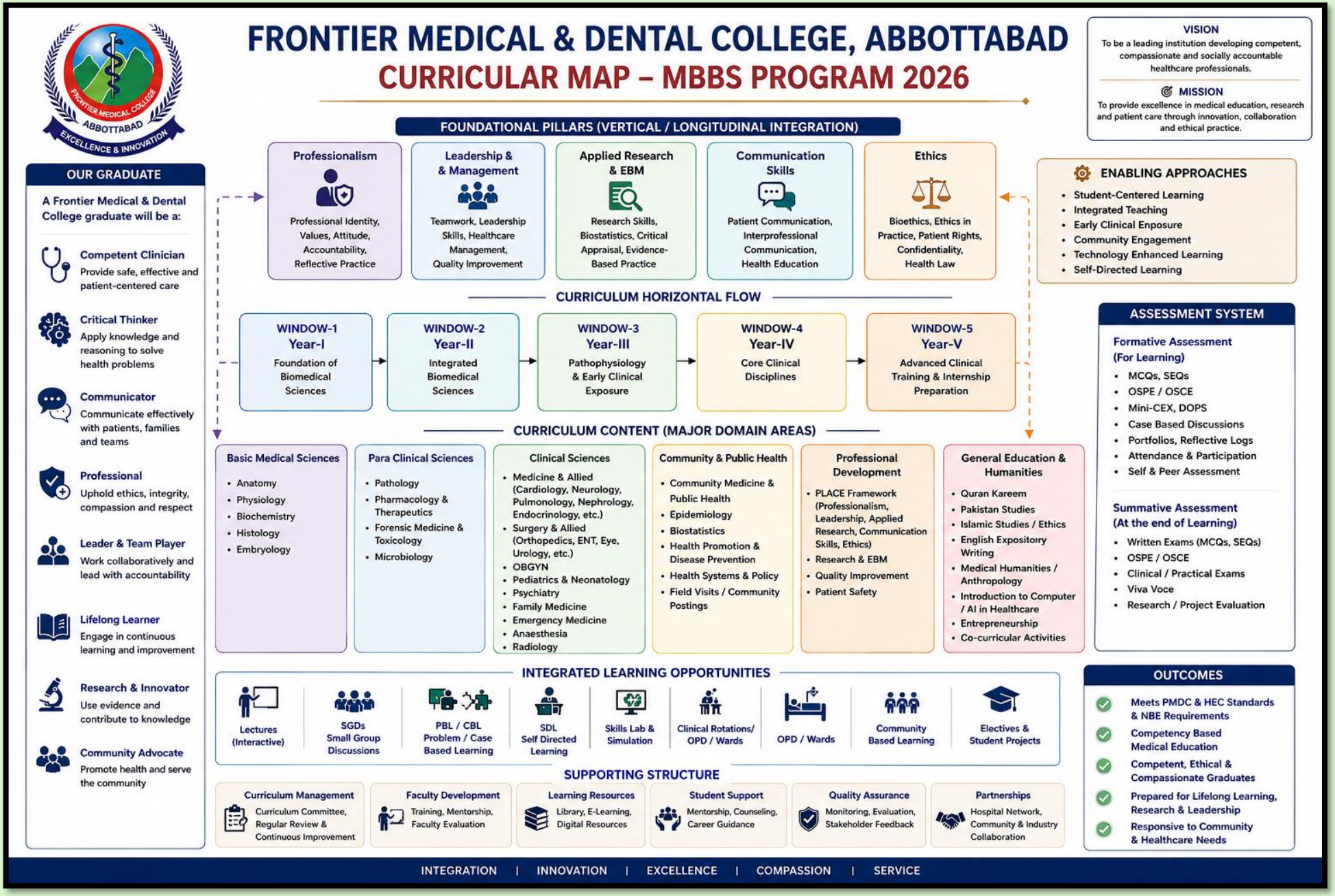
- FMDC facilitates communication between the student and the University but does not influence the outcome of the review process.

Assessment Compilation and Reporting

The FMDC Examination Cell compiles internal assessment records and maintains official academic documentation throughout the academic year. Internal assessment marks are submitted to Bahria University according to university regulations. Bahria University determines and officially declares the final professional examination results and overall academic standing of students.

For detailed information on assessment, please refer to our official website Assessment Policy.

Prepared by:
Dr. M Junaid Khan
Approved by:
Academic Counsil
FMDC Abbottabad


FRONTIER MEDICAL & DENTAL COLLEGE, ABBOTTABAD
CURRICULAR MAP – MBBS PROGRAM 2026
VISION
To be a leading institution developing competent, compassionate and socially accountable healthcare professionals.
MISSION
To provide excellence in medical education, research and patient care through innovation, collaboration and ethical practice.
OUR GRADUATE
A Frontier Medical & Dental College graduate will be a:
Competent Clinician
Provide safe, effective and patient-centered care
Critical Thinker
Apply knowledge and reasoning to solve health problems
Communicator
Communicate effectively with patients, families and teams
Professional
Uphold ethics, integrity, compassion and respect
Leader & Team Player
Work collaboratively and lead with accountability
Lifelong Learner
Engage in continuous learning and improvement
Research & Innovator
Use evidence and contribute to knowledge
Community Advocate
Promote health and serve the community
FOUNDATIONAL PILLARS (VERTICAL / LONGITUDINAL INTEGRATION)
Professionalism
Professional Identity, Values, Attitude, Accountability, Reflective Practice
Leadership & & Management
Teamwork, Leadership Skills, Healthcare Management, Quality Improvement
Applied Research & EBM
Research Skills, Biostatistics, Critical Appraisal, Evidence-Based Practice
Communication Skills
Patient Communication, Interprofessional Communication, Health Education
Ethics
Bioethics, Ethics in Practice, Patient Rights, Confidentiality, Health Law
ENABLING APPROACHES
Student-Centered Learning
Integrated Teaching
Early Clinical Exposure
Community Engagement
Technology Enhanced Learning
Self-Directed Learning
CURRICULUM HORIZONTAL FLOW
WINDOW-1 Year-I
Foundation of Biomedical Sciences
WINDOW-2 Year-II
Integrated Biomedical Sciences
WINDOW-3 Year-III
Pathophysiology & Early Clinical Exposure
WINDOW-4 Year-IV
Core Clinical Disciplines
WINDOW-5 Year-V
Advanced Clinical Training & Internship Preparation
CURRICULUM CONTENT (MAJOR DOMAIN AREAS)
Basic Medical Sciences
Anatomy
Physiology
Biochemistry
Histology
Embryology
Para Clinical Sciences
Pathology
Pharmacology & Therapeutics
Forensic Medicine & Toxicology
Microbiology
Clinical Sciences
Medicine & Allied (Cardiology, Neurology, Pulmonology, Nephrology, Endocrinology, etc.)
Surgery & Allied (Orthopedics, ENT, Eye, Urology, etc.)
OBGYN
Pediatrics & Neonatology
Psychiatry
Family Medicine
Emergency Medicine
Anaesthesia
Radiology
Community & Public Health
Community Medicine & Public Health
Epidemiology
Biostatistics
Health Promotion & Disease Prevention
Health Systems & Policy
Field Visits / Community Postings
Professional Development
PLACE Framework (Professionalism, Leadership, Applied Research, Communication Skills, Ethics)
Research & EBM
Quality Improvement
Patient Safety
General Education & Humanities
Quran Kareem
Pakistan Studies
Islamic Studies / Ethics
English Expository Writing
Medical Humanities / Anthropology
Introduction to Computer / AI in Healthcare
Entrepreneurship
Co-curricular Activities
ASSESSMENT SYSTEM
Formative Assessment (For Learning)
MCQs, SEQs
OSPE / OSCE
Mini-CEX, DOPS
Case Based Discussions
Portfolios, Reflective Logs
Attendance & Participation
Self & Peer Assessment
Summative Assessment (At the end of Learning)
Written Exams (MCQs, SEQs)
OSPE / OSCE
Clinical / Practical Exams
Viva Voce
Research / Project Evaluation
INTEGRATED LEARNING OPPORTUNITIES
Lectures (Interactive)
SGDs Small Group Discussions
PBL / CBL Problem / Case Based Learning
SDL Self Directed Learning
Skills Lab & Simulation
Clinical Rotations/ OPD / Wards
OPD / Wards
Community Based Learning
Electives & Student Projects
SUPPORTING STRUCTURE
Curriculum Management
Curriculum Committee, Regular Review & Continuous Improvement
Faculty Development
Training, Mentorship, Faculty Evaluation
Learning Resources
Library, E-Learning, Digital Resources
Student Support
Mentorship, Counseling, Career Guidance
Quality Assurance
Monitoring, Evaluation, Stakeholder Feedback
Partnerships
Hospital Network, Community & Industry Collaboration
OUTCOMES
Meets PMDC & HEC Standards & NBE Requirements
Competency Based Medical Education
Competent, Ethical & Compassionate Graduates
Prepared for Lifelong Learning, Research & Leadership
Responsive to Community & Healthcare Needs
INTEGRATION | INNOVATION | EXCELLENCE | COMPASSION | SERVICE