



STUDY GUIDE

2024-2025



Program:	Bachelor of Dental Surgery
Year:	2 nd Professional Year
Subject:	Pharmacology
Batch No:	D23
Session:	2024-2025

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Introduction to Study Guide

Welcome to the Avicenna Dental College Study Guide!

This guide serves as your essential resource for navigating the complexities of your dental education at Avicenna Medical & Dental College. It integrates comprehensive details on institutional framework, curriculum, assessment methods, policies, and resources, all meticulously aligned with UHS, PMDC and HEC guidelines.

Each subject-specific study guide is crafted through a collaborative effort between the Department of Dental Education and the respective subject departments, ensuring a harmonized and in-depth learning experience tailored to your academic and professional growth.



OBJECTIVES OF THE STUDY GUIDE

1. Institutional Understanding:

- o Gain insight into the college's organizational structure, vision, mission, and graduation competencies as defined by PMDC, setting the foundation for your educational journey.

2. Effective Utilization:

- o Master the use of this guide to enhance your learning, understanding the collaborative role of the Department of Dental Education and your subject departments, in line with PMDC standards.

3. Subject Insight:

- o Obtain a comprehensive overview of your courses, including detailed subject outlines, objectives, and departmental structures, to streamline your academic planning.

4. Curriculum Framework:

- o Explore the curriculum framework, academic calendar, and schedules for clinical and community rotations, adhering to the structured guidelines of UHS & PMDC.

5. Assessment Preparation:

- o Familiarize yourself with the various assessment tools and methods, including internal exam and external exam criteria, and review sample papers to effectively prepare for professional exams.

6. Policies and Compliance:

- o Understand the institutional code of conduct, attendance and assessment policies, and other regulations to ensure adherence to college standards and accrediting body requirements.

7. Learning Resources:

- o Utilize the learning methodologies, infrastructure resources, and Learning Management System to maximize your educational experience and academic success.

This guide, meticulously developed in collaboration with your subject departments, is designed to support your academic journey and help you achieve excellence in accordance with the highest standards set by PMDC and HEC.



BDS Program Outcome Statements

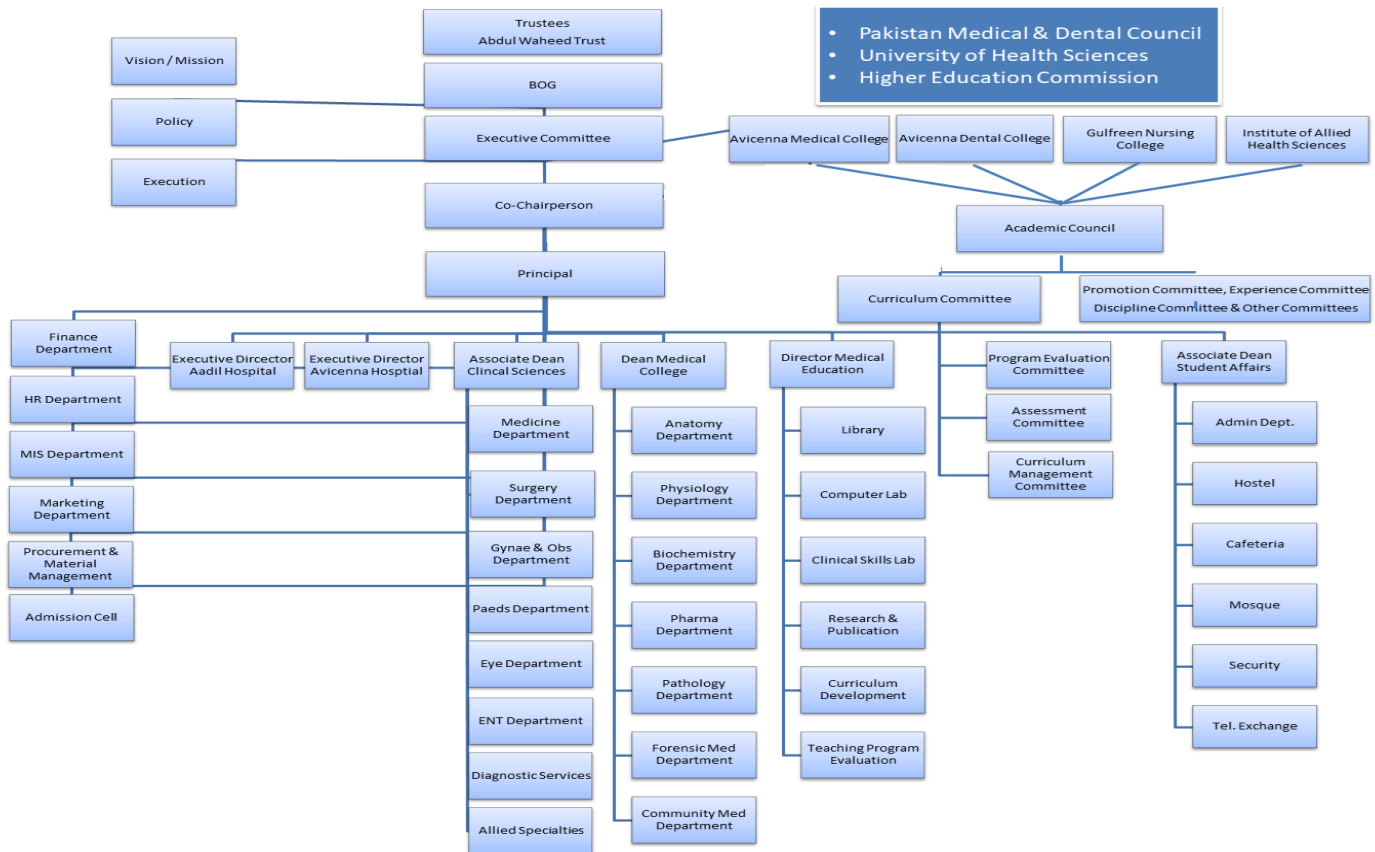
The outcome statements of Avicenna Dental College specify the core competencies and performance standards expected of graduates upon completion of the BDS program.

Upon graduation, students will be able to:

1. Prioritize patient care above all, applying their knowledge and skills in a competent, ethical, and professional manner, and taking responsibility for their actions in complex and uncertain situations.
2. Conduct thorough consultations and assessments of patients.
3. Independently diagnose and manage common, non-critical dental and oral health conditions.
4. Assist in the management of critically ill patients as relevant to dental practice.
5. Demonstrate clear and efficient written and verbal communication skills.
6. Exhibit professional, ethical, and culturally appropriate behavior in all clinical and patient interactions.
7. Promote oral health and advocate for preventive measures against dental diseases.
8. Work effectively as a team member within Pakistan's healthcare system.
9. Apply critical thinking, reflection, research skills, and teamwork capabilities in clinical practice.

Avicenna Medical & Dental College Overview

Institutional Organogram



Vision & Mission



Avicenna Medical & Dental College



Vision

The vision of **Avicenna Medical & Dental College** is to become a college that thrives to achieve improvement in healthcare of masses through creative delivery of educational programs, innovative research, commitment to public service and community engagement in a environment that supports diversity, inclusion, creative thinking, social accountability, life-long learning and respect for all.

Mission

The mission of **Avicenna Medical and Dental College** is to educate and produce competent, research oriented healthcare professionals with professional commitment and passion for life-long learning from a group of motivated students through quality education, research and service delivery for the improvement of health status of the general population.

Message from the Chairman

The Avicenna Medical & Dental College is a project of Abdul Waheed Trust which is a Non-profitable, Non-governmental, Non-political & Social organization, working for the welfare of Humanity and based on Community empowerment. Avicenna Medical College has its own 530 bedded Avicenna teaching Hospital (Not for Profit hospital) within the College Campus & 120 bedded Aadil Hospital, at 15 minutes distance. Separate comfortable hostels for boys & girls are provided on the campus.

Our students benefit from the state of the art College Library with facilities of Internet & online Journals that remain open 15 hours a day, for our students & faculty members. I am particularly pleased with the hard work by the Faculty and Students in the achievement of historic 100% results for all the classes. It is a rare achievement and speaks of dedication of the Faculty and Staff. Our motto is Goodness prevails and we aim at producing Doctors' who are knowledgeable, competent in clinical skills and ethical values.

Avicenna Medical College & Hospital was founded to provide quality health care services to the deserving patients belonging to the rural areas near Avicenna Hospital as well as to provide quality medical education of international standard to our students. The Hospital provides all medical services and Lab diagnostics to the local population at minimal cost. So far by the grace of Allah Almighty the number of patients being treated and operated upon at our Hospital is increasing every day as there is no other public or charity hospital in the circumference of 20km. We have already established two Satellite Clinics in the periphery which are providing outdoor care while admission cases are brought to the Hospital in Hospital transport.

Following the success of our reputable Medical College and Hospital, we were able to successfully establish Avicenna Dental College which is recognized by the Pakistan medical & Dental Council & University of Health Sciences. To date, we have enrolled five batches in our dental college and we aim to achieve the same level of success for our dental students as our medical students.

Chairman

Abdul Waheed Sheikh

Avicenna Medical & Dental College



Message from the Principal

Prof. Dr. Sohail Abbas Khan
Principal Dental College
 MDS, Dip Op (Hons) BDS



It is a matter of immense honor and privilege as the first Principal of Avicenna Dental College to welcome you to one of the finest dental institutes in the private sector of Pakistan. Avicenna Dental College is a private dental college, which aims to provide the finest dental education to dental undergraduate students in accordance with the latest trends in Dental Education, and to develop them to practice dentistry in the 21st century.

While educating dental students to become licensed, empathetic and competent professionals, Avicenna Dental College endeavors to educate students in a supportive environment in which they provide dental care for a diverse populace. In the times to come, we wish to transform our graduates into unfeigned teachers, researchers and consultants by starting post-graduation programs as well.

Avicenna Dental College aims to achieve an enterprising curriculum integrating the basic sciences with clinical experience while utilizing modern technological modalities.

In addition to the production of outstanding oral health professionals, we at Avicenna Dental College recognize our responsibility as a private dental institution to the citizens of the country in making the provision of oral health care available to those who are deprived of ready access.

I feel proud to lead this dental establishment such an inspiring time and hope all of you at Avicenna Dental College will share this pride and play your respective roles in materializing the dream of making this institution the premier dental educator in Pakistan



Message from the Vice Principal

Prof. Dr. Usman Muneer
Vice Principal Dental College
 BDS, FCPS

It is a matter of great privilege to be associated with Avicenna Dental College. Our institution boasts of renowned, well-qualified and devoted faculty members in each and every specialty of dentistry. We are looking forward to diligently equipping our undergraduates with comprehensive artistic and ethical oral health care.

Our goal is to inspire a lifelong passion for learning and innovation in our students, ensuring they are well-prepared to meet the evolving challenges of the dental profession. I look forward to collaborating with our students on this transformative journey, guiding them toward achieving excellence in oral health care.

7-Star Doctor Competencies (PMDC)

According to national regulatory authority PMDC, a Pakistani medical/dental graduate who has attained the status of a 'seven-star doctor' is expected to demonstrate a variety of attributes within each competency. These qualities/ generic competencies are considered essential and must be exhibited by the individual professionally and personally.

1. Skillful / Care Provider.
2. Knowledgeable / Decision Maker.
3. Community Health Promoter / Community Leader.
4. Critical Thinker / Communicator
5. Professional / Lifelong learner.
6. Scholar / Researcher
7. Leader/ Role Model / Manager

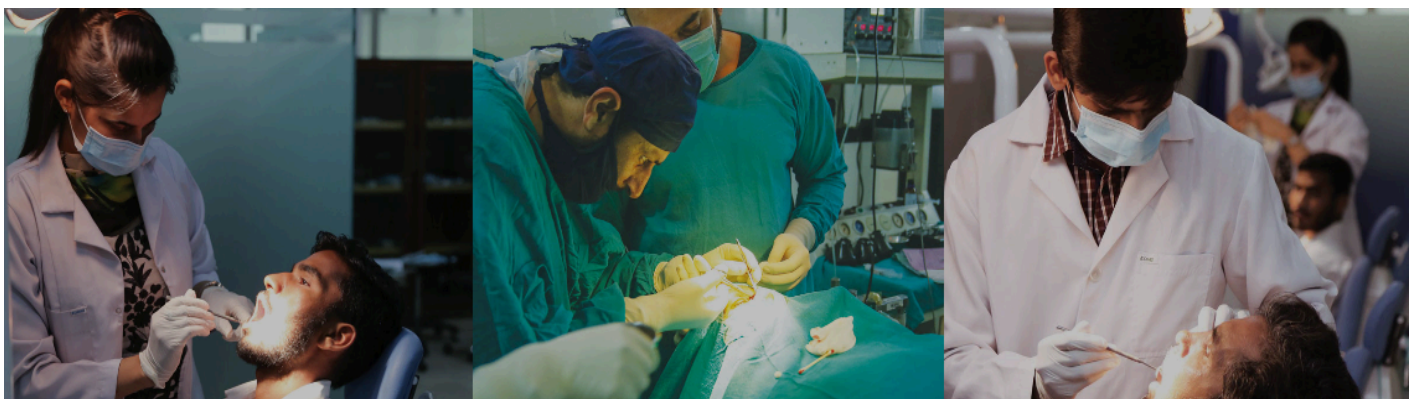


About Avicenna Dental College

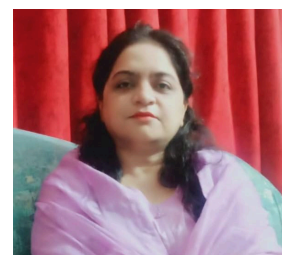
Avicenna Dental College is a purpose-built, fully equipped Dental institution with experienced and excellence-driven faculty to train high-quality dental professionals in Pakistan.

Avicenna Dental College runs under the umbrella of Abdul Waheed Trust. Abdul Waheed Trust is a non-profit social welfare organization and registered under the Societies Act with the Registrar of Societies. The Trust is legalized through a Trust Deed that bears necessary rectifications. The Trust Deed is further supported by its Memorandum and Article of Association that authorizes the establishment and operation of the Medical College, the Dental College, the Nursing College, the Allied Health Sciences College, and other activities in the healthcare sector.

In 2018, Avicenna Dental College was recognized by the Pakistan Medical & Dental Council. With the advent of advanced tools and technology in every field of health science, dentistry today has shot up to the greater end of the gamut with superior choice and promises in dental therapy in the very vicinity of the common man. ADC promises to be one such neighborhood.



Department & Subject Overview



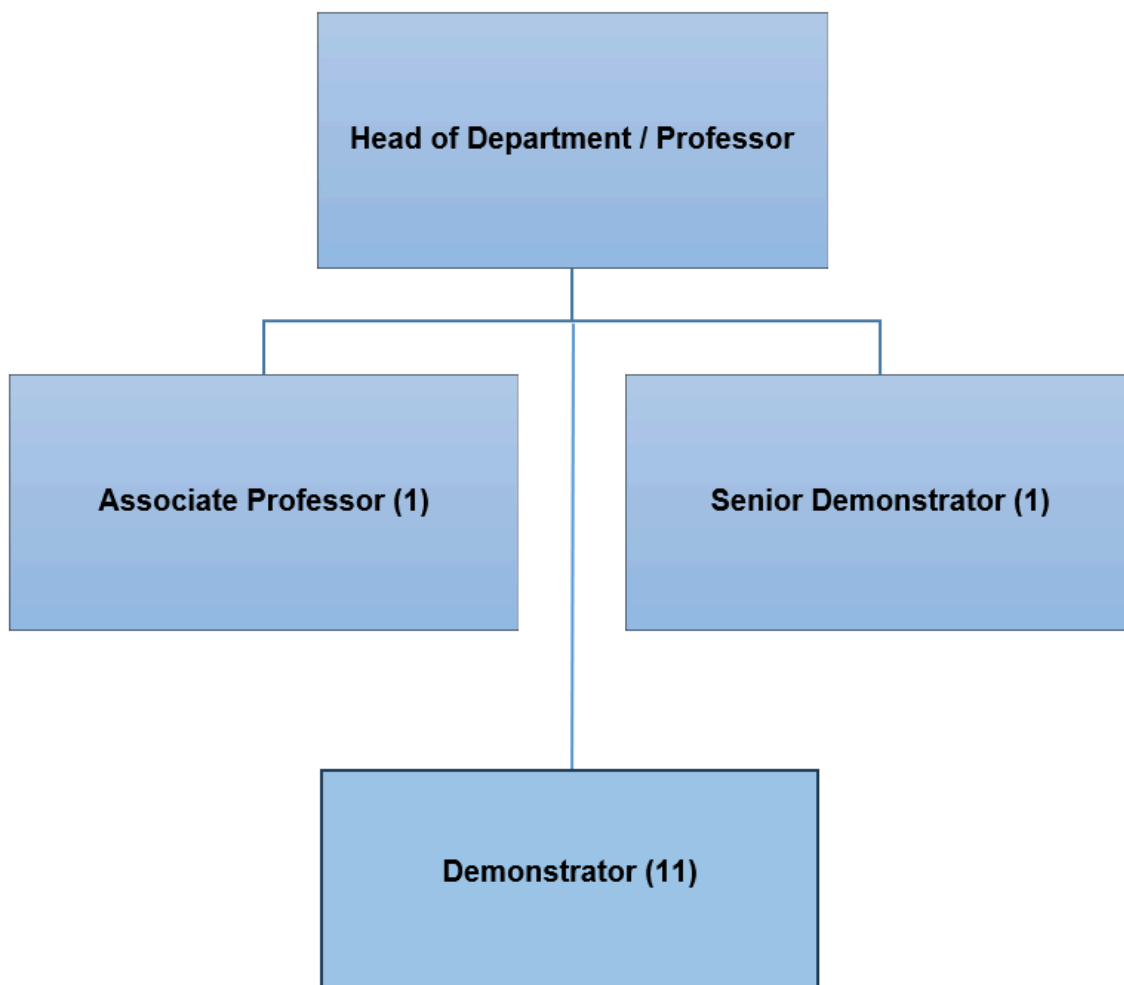
Note from the Head of Department

Pharmacology is a pre-clinical subject, and a thorough knowledge of drugs is essential for understanding medicine. A good physician must also be a skilled pharmacologist. Pharmacology covers almost all aspects of drugs, including the various routes of drug administration, pharmacokinetics, mechanisms of action, clinical uses, adverse drug reactions, drug interactions, and dosage schedules.

Clinical pharmacology encompasses all aspects of the relationship between drugs and humans. For healthcare professionals, clinical pharmacology is crucial as it forms the scientific foundation for the rational prescribing of medicines to alleviate symptoms, treat illnesses, and prevent future diseases.

Our faculty is both qualified and experienced, dedicated to guiding students through their studies. Students can anticipate an engaging learning experience during Pharmacology lectures and lab sessions. They also have access to well-equipped laboratories and a library that provides all necessary resources for learning and practical training in experimental pharmacology, clinical pharmacology, and pharmacy.

Departmental Organogram (as per PMDC guidelines)



Faculty Members

Name	Designation	Qualification
Dr. Asma Saeed	Head of Department / Professor	M.B.B.S., M. PHIL
Dr. Rubina Iqbal	Associate Professor	M.B.B.S., M. PHIL
Dr. Iqra Ejaz	Senior Demonstrator	B.D.S., M. PHIL
Dr. Shabnam Amin	Demonstrator	M.B.B.S.
Dr. Nayyar Tariq	Demonstrator	D.PHARM, M. PHIL (Part 1)
Dr. M. Khuzaima	Demonstrator	M.B.B.S
Dr. Rohama Sajjad	Demonstrator	M.B.B.S
Dr. Syed Ali Murtaza	Demonstrator	M.B.B.S
Dr. Fatima Ali	Demonstrator	M.B.B.S
Dr. M. Sufyan Ashraf	Demonstrator	M.B.B.S
Dr. Ashfaq Hussain	Demonstrator	M.B.B.S
Dr. Shahida Parveen	Demonstrator	M.B.B.S
Dr. Fatima Tehreem	Demonstrator	B.D.S
Dr. Abdullah Nasir	Demonstrator	B.D.S

Goal of the Department

The goal of the Pharmacology Department is to equip students with a comprehensive understanding of pharmacological principles and their practical applications, preparing them to become competent healthcare professionals.

The department focuses on providing a strong foundation in drug mechanisms, pharmacokinetics, pharmacodynamics, and therapeutic uses of medications. By fostering critical thinking, students learn to analyze and apply pharmacological knowledge to real-world clinical scenarios, ensuring safe and effective drug administration.

The department emphasizes the importance of ethical practice, instilling a sense of responsibility in the use of medications and prioritizing patient safety. Through a combination of theoretical instruction and hands-on training, students are also encouraged to develop research skills, contributing to the advancement of medical science.

The department aims to prepare students for successful clinical application of pharmacology while promoting lifelong learning and professional development, ensuring they remain current with advancements in the field throughout their careers.

Course Objectives

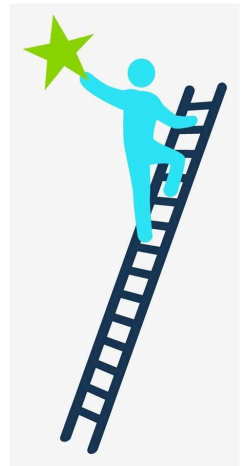
Upon completion of the pharmacology and therapeutic course, students will be able to:

- **Understand Drug Mechanisms:** Explain the mechanisms of action, pharmacokinetics, and pharmacodynamics of various drug classes.
- **Apply Pharmacological Principles:** Apply knowledge of drug actions, interactions, and side effects to make informed decisions in clinical practice.
- **Prescribe Medications Safely:** Demonstrate the ability to prescribe medications safely and effectively, taking into consideration individual patient needs and potential drug interactions.
- **Analyze Clinical Scenarios:** Analyze and interpret clinical case studies to identify appropriate pharmacological treatments and adjust therapy based on patient response.
- **Recognize Adverse Drug Reactions:** Identify and manage adverse drug reactions, understanding their underlying causes and implications for patient care.
- **Utilize Evidence-Based Medicine:** Integrate evidence-based medicine in the selection and use of therapeutic agents, ensuring up-to-date and scientifically sound decision-making.
- **Conduct Pharmacological Research:** Develop basic research skills in pharmacology, including the ability to design experiments, analyze data, and interpret findings relevant to drug efficacy and safety.
- **Understand Regulatory and Ethical Issues:** Understand the regulatory processes and ethical considerations involved in drug development, approval, and clinical use.

- **Educate Patients and Peers:** Communicate pharmacological information effectively to patients, peers, and other healthcare professionals, providing clear guidance on medication use and safety.
- **Commit to Continuous Learning:** Embrace lifelong learning and stay current with emerging trends, new drugs, and advances in pharmacological research and clinical practice.

Attendance Requirement & Internal Assessment Criteria

The institution follows the regulations for examinations of the UHS in letter and spirit. The students require **85% attendance** in all academic sessions and **50% marks** in internal assessments and send-up examinations to be eligible for the UHS Professional Examinations.



Learning Resources & Pedagogy

Book Recommendations



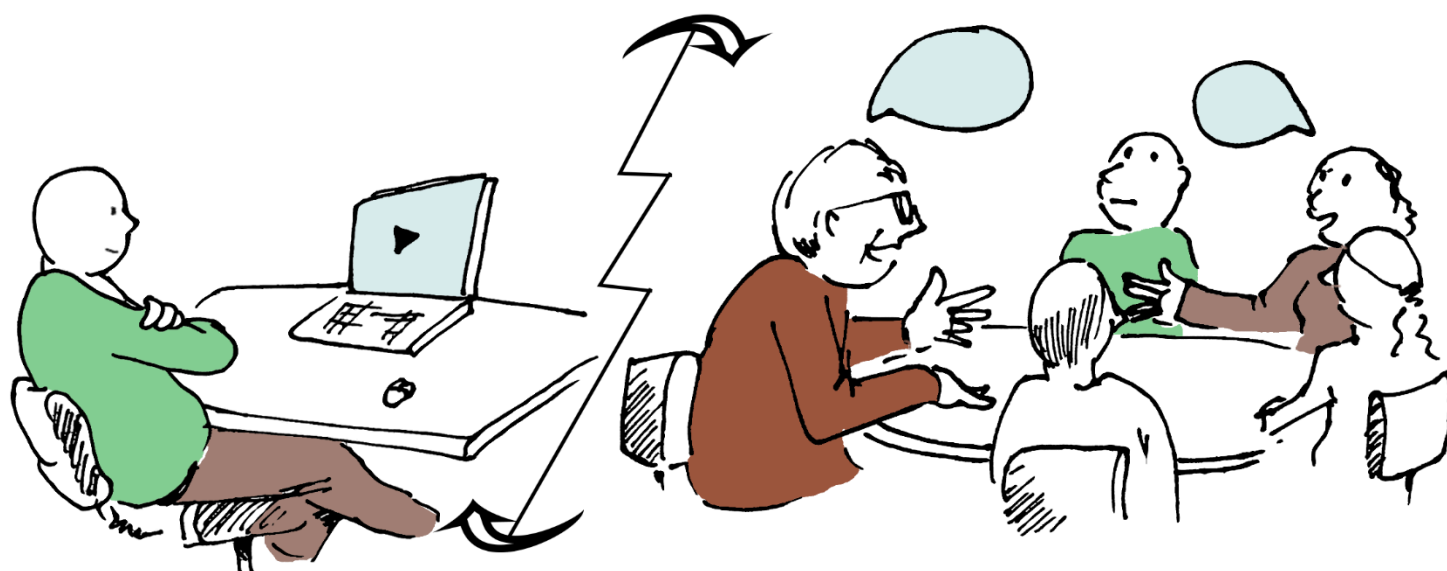
Sr.	Book Name	Author	Edition
1.	Basic and Clinical Pharmacology by Katzung	Bertram G. Katzung	16 th
2.	Lippincott Illustrated Reviews Pharmacology	Karen Whalen	10 th
3.	Pretest pharmacology – self assessment and review. (for MCQs)	Marshall Shlafer	14 th
4.	Pharmacology Examination and Board Review by Katzung and Trevor, Latest Edition, McGraw-Hill. (for MCQs)	Bertram G. Katzung	13 th
5.	Current Medical Diagnosis & Treatment, Latest Edition (for Clinical Pharmacology)	Maxine A. Papadakis	63 rd
6.	Goodman & Gilman's The Pharmacology Basis of Therapeutics, Latest Edition.	Laurence L. Brunton	14 th
7.	Lippincott Illustrated Reviews Pharmacology	Karen Whalen	10 th

Traditional & Innovative Teaching Methodologies



Sr.	Pedagogical Methodologies	Description
1.	Lectures	<p>Traditional method where an instructor presents information to a large group of students (large group teaching).</p> <p>This approach focuses on delivering theoretical knowledge and foundational concepts. It is very effective for introducing new topics.</p>
2.	Tutorial	<p>Tutorials involve small group discussion (SGD) where students receive focused instruction and guidance on specific topics.</p>
	Demonstrations	<p>Demonstrations are practical displays of techniques or procedures, often used to illustrate complex concepts or practices, particularly useful in dental education for showing clinical skills.</p>

3.	Practicals	<p>Hands-on sessions where students apply theoretical knowledge to real-world tasks. This might include lab work, clinical procedures, or simulations.</p> <p>Practicals are crucial for developing technical skills and understanding the application of concepts in practice.</p>
4.	Student Presentations	Students prepare and deliver presentations on assigned topics. This method enhances communication skills, encourages students to explore topic in-depth. It also provides opportunities for peer feedback and discussion.
5.	Assignment	Tasks given to students to complete outside of class. Assignments can include research papers, case studies, or practical reports. They are designed to reinforce learning, assess understanding, and develop critical thinking and problem-solving skills.
7.	Self-directed Learning	Students take initiative and responsibility for their own learning process. Students are encouraged to seek resources, set goals, and evaluate their progress. This is a learner-centered approach where students take the initiative to plan, execute, and assess their own learning activities. This method promotes independence, critical thinking, and lifelong learning skills.
8.	Flipped Classroom	In this model, students first engage with learning materials at home (e.g., through videos, readings) and then use class time for interactive activities, discussions, or problem-solving exercises. This approach aims to maximize in-class engagement and application of knowledge.
9.	Peer-Assisted Learning (PAL)	A collaborative learning approach where students help each other understand course material. PAL involves structured peer tutoring, study groups, or collaborative tasks. It enhances comprehension through teaching, reinforces learning, and builds teamwork skills.
10.	Team-based Learning (TBL)	A structured form of small group learning where students work in teams on application-based tasks and problems. Teams are responsible for achieving learning objectives through collaborative efforts, promoting accountability, and deeper understanding of the material.
11.	Problem-based Learning (PBL)	Students work on complex, real-world problems without predefined solutions. They research, discuss, and apply knowledge to develop solutions. PBL fosters critical thinking, problem-solving skills, and the ability to integrate knowledge from various disciplines.
12.	Academic Portfolios	<p>A collection of student's work that showcases learning achievements, reflections, and progress over time.</p> <p>Portfolios include assignments, projects, and self-assessments. They provide a comprehensive view of student development, highlight strengths and areas for improvement, and support reflective learning (experiential learning)</p>

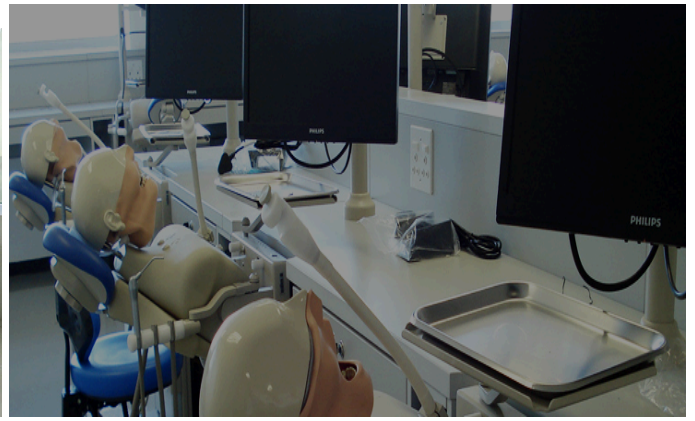


Flipped Classroom

Infrastructure Resources

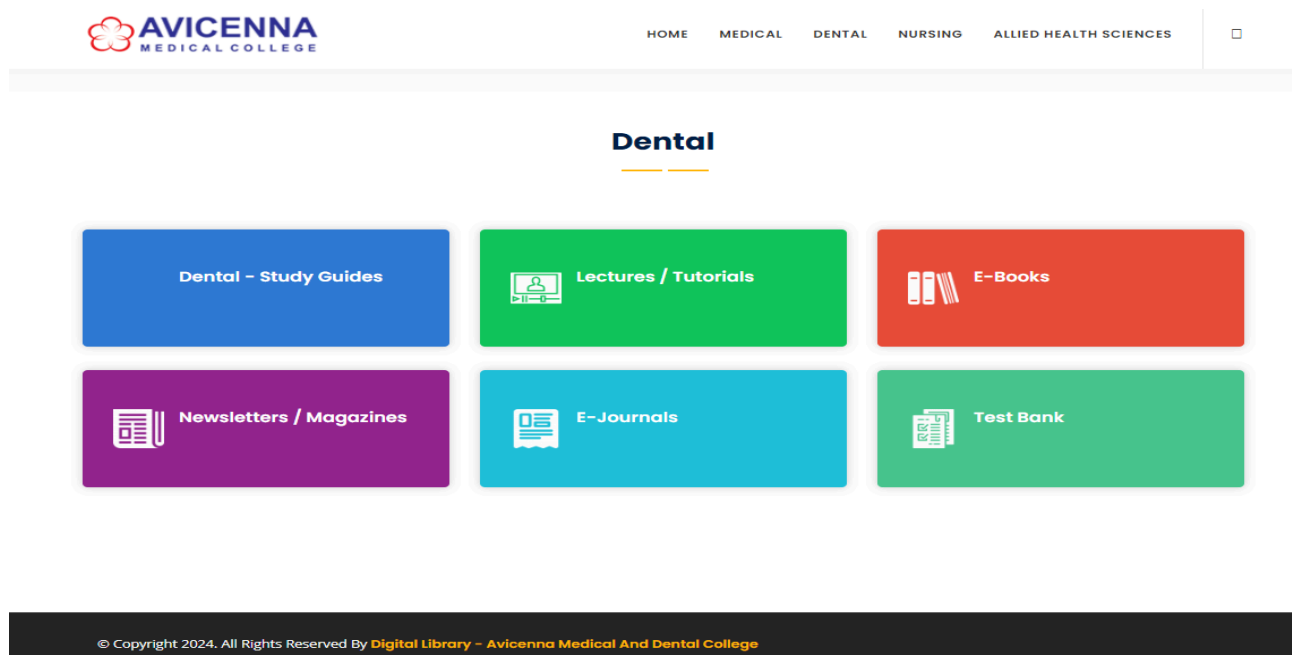
Sr.	Infrastructure Resources	Description
1.	Lecture Hall	Each year has a dedicated lecture hall, totaling four lecture halls for the four professional years. These halls are equipped with modern audiovisual aids to support effective teaching and learning.
2.	Tutorial Room	The college's tutorial rooms, each with a capacity of 30, are specifically designed to support small group discussions and interactive sessions. These rooms facilitate personalized instruction, enabling more engaged and effective learning through direct interaction between students and instructors.
3.	Lab	The college is equipped with state-of-the-art laboratories for practical and clinical work. Each lab is designed to support various disciplines, to facilitate hands-on learning.
4.	Library on campus	A huge library occupies full floor has 260 seats including study carrels and group-discussion tables. Latest reference books, of Basic and Clinical Sciences along with national & international journals are available in the library.
5.	Digital Library	The digital library offers access to a vast collection of e-books, online journals, research databases, and other digital resources. It supports remote access and provides tools for academic research and learning.
6.	Learning Management System (LMS)	The LMS is a comprehensive online platform that supports course management, content delivery, student assessment, and communication. It provides tools for tracking progress, managing assignments, and facilitates ongoing academic activities.
7.	Mess & Cafeteria	The College has its own on-campus Mess which caters to 600 students. All food items including dairy, meat, and vegetables are

		<p>sourced organically and bought in at the time of cooking, in order to ensure that students get freshly cooked meals at all times</p> <p>Students form the Mess committee which decides the mess menu in consultation with other students. The Mess offers fresh food to all residents three times a day. However, day scholars are also welcome to use the Mess facility at a reasonable cost.</p> <p>Two 50- inch LCD screens provide students an opportunity to get entertained during their meal times.</p>
8.	Gymnasium & Sports	<p>We recognize sports as a pivotal key to shape and maintain students' personality and good health. The College has indoor and outdoor sports facilities to help enhance the cognition and capacity to learn. There is a proper sports section for various games like basketball, football, volleyball, and cricket.</p> <p>The gym itself is fully equipped with modern machinery both for students and faculty.</p>
9.	IT Lab	The IT Lab is equipped with modern computers and software available for students who need access for academic purposes.
10.	Auditorium	The college has a spacious auditorium equipped with advanced audio-visual facilities. It is used for large-scale lectures, guest presentations, and academic conferences, providing a venue for students to engage with experts and participate in important educational events.
11.	Examination Halls	The college provides dedicated examination halls that are designed to accommodate a large number of students comfortably. These halls are equipped with necessary facilities to ensure a smooth and secure examination process, including proper seating arrangements, monitoring systems, and accessibility features.



Digital Library & Learning Management System (LMS)

1. The COVID-19 pandemic highlighted the necessity of interactive online teaching for better retention of topics by students. Strategies like online learning management system (LMS), online discussions, online quizzes, assignment design, and flipped learning enhance student engagement in online education when needed.
2. Avicenna Medical & Dental College lays emphasis on the provision of learning material and online video lectures, video tutorials in the e-library and learning resource center, which has a dedicated website of Avicenna Medical College to enable the students to develop concepts and clarify their doubts, if they have not been able to do so in the teaching sessions during college hours. The digital library can be approached on <http://digital.avicennamch.com/>.



3. The institution has also endeavored to link itself with the digital libraries and e-library of the University of Health Science (UHS) and Higher Education Commission (HEC) to enable the students to benefit from the valuable resource material, lectures and knowledge bank at these sites. The links are available with the HEC <http://www.digitallibrary.edu.pk/> and learning management system of UHS <http://lms.uhs.edu.pk> .
4. The Learning Management System (LMS) at Avicenna Medical & Dental College is a comprehensive platform managed by the Department of Student Affairs. It is designed to facilitate effective communication and information exchange between students, parents, faculty, and administrative staff. The LMS portals are specifically tailored to meet the needs of the following stakeholders:
 - a. **Students:** For academic resources and scheduling.
 - b. **Parents:** For monitoring academic progress and other relevant information.
 - c. **Faculty:** For managing course content and academic activities.
 - d. **Department of Student Affairs:** For overseeing administrative functions.
 - e. **Department of Medical/Dental Education:** For overseeing academic functions.

STUDENT PORTAL

Student Roll No.

Password

☐ Remember me [Forgot Password?](#)

Login

[Visit Website](#)

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5. Students can access a comprehensive range of academic resources and information through the student portal. By logging in with their roll number and password, students can:

- Look at their attendance and results.
- Review academic activities and weekly timetables/schedules.
- Access rotation planners and test schedules.
- Check for any notification, assignment or resource material from their teachers.

6. The information to the parent is duplicated by the issuance of the password and login to the Students Learning Management System which is dedicated to the Academic Program of the students. The parents can view the following by logging in to the mobile app of Avicenna Student Management System:

- a) Syllabus
- b) Table of specifications
- c) Annual Planner
- d) Synopsis
- e) Block Time Table
- f) Weekly training program
- g) Allocation of Marks
- h) Assessment calendar
- i) Results of tests / exams*
- j) Students' attendance record
- k) Fees & fines

Assessment Guidelines

Assessment in dental education is a critical component designed to ensure that dental students acquire the necessary knowledge, skills, and competencies required for effective dental practice.

Assessment drives learning! – George E. Millar

You will encounter a variety of assessment methods, each serving a specific purpose.

- Written examinations, including multiple-choice and essay questions, will test your grasp of theoretical concepts and subject matter.
- Practical assessments will require you to demonstrate your clinical skills and ability to apply knowledge in real-world scenarios.
- Oral exams will evaluate your communication skills and reasoning abilities through case discussions and problem-solving exercises.
- Clinical skills and work-place based assessments will observe your hands-on proficiency and patient management capabilities.

At Avicenna Medical & Dental College, internal assessments are systematically conducted throughout each academic year of the BDS program, as per the guidelines established by the University of Health Sciences (UHS). These assessments, overseen by the Assessment Cell, adhere to either the Annual Subject-Based System or the Integrated/Modular System, depending on the curriculum structure.

Notably, beginning with the 2024-25 academic year, the weightage of internal assessments will be increased from 10% to 20%. The UHS administers professional examinations independently, organizing them at designated neutral sites and appointing external examiners to ensure objectivity and fairness.

Internal Assessment Weightage	10%	100 %
External Assessment Weightage	90%	



Internal Assessment Criteria

Internal Assessment	Assessment Methods	Percentage Weightage
Grand Tests	MCQs SEQs Viva OSPE	30%
Early Session Exam	MCQs SEQs Viva OSPE	70%
Mid Session Exam	MCQs SEQs Viva OSPE	
Send-up Exam	MCQ SEQ	100%
Total		200%

Reference attached on next page.

Avicenna Dental College

Examination Marks Scheme 2024-2025

2nd Year BDS

Form No	BDS-2 Form-1		BDS-2 Form-2		BDS-2 Form-3		BDS-2 Form-4		BDS-2 Form-5		BDS-2 Form-6			
Test Type	Grand Test				Revision Test		Session Exam				Send Up			
Mode of Exam	Theory		Practical		Theory		Theory		Practical		Theory		Practical	
Weightage	(1,2)* 30%				0%		(3,4)* 70%				100%			
Pathology 200	MCQ 40, SEQ 30	70	Viva 25, OSPE 25	50	MCQ 20 SEQ 30	50	MCQ 45, SEQ 45	90	Viva 40, OSPE 50	90	MCQ 45, SEQ 45	90	Viva 40, OSPE 50	90
Pharmacology 200	MCQ 40, SEQ 30	70	Viva 25, OSPE 25	50	MCQ 20 SEQ 30	50	MCQ 45, SEQ 45	90	Viva 60, OSPE 30	90	MCQ 45, SEQ 45	90	Viva 60, OSPE 30	90
Beh. Sciences 200	MCQ 40, SEQ 30	70	Viva 25, OSPE 25	50	MCQ 14 SEQ 36	50	MCQ 45, SEQ 45	90	Viva 45, OSPE 45	90	MCQ 45, SEQ 45	90	Viva 45, OSPE 45	90
Dental Materials 200	MCQ 40, SEQ 30	70	Viva 25, OSPE 25	50	MCQ 20 SEQ 30	50	MCQ 45, SEQ 45	90	Viva 50, OSPE 40	90	MCQ 45, SEQ 45	90	Viva 50, OSPE 40	90
Community Dentistry 200	MCQ 40, SEQ 30	70	Viva 25, OSPE 25	50	MCQ 20 SEQ 30	50	MCQ 45, SEQ 45	90	Viva 60, OSPE 30	90	MCQ 45, SEQ 45	90	Viva 60, OSPE 30	90

NOTE 1 : *If Viva/OS+A14:M15PE is held along with Theory test , The Theory test will get 15% weightage & VIVA / OSPE will get 15% Weightage in Grand Test

NOTE 2 : *If Viva/OSPE is not held for any reason Theory test will get full 30% weightage in Grand Test

NOTE 3 : * If Viva/OSPE is held along with Theory test , The Theory test will get 35% weightage & VIVA / OSPE will get 35% Weightage in Session Exam

NOTE 4 : *If Viva/OSPE is not held for any reason Theory test will get full 70% weightage in Session Exam

HOD Community Dentistry	HOD Pathology	HOD Dental Materials	HOD Behavioural Sciences
HOD Assessment Cell	Principal Avicenna Dental College	Chairman Avicenna Medical College	

External Assessment

Paper Details		Assessment Methods	Total Marks	Percentage Weightage
Theory <ul style="list-style-type: none"> 90 marks 3 hrs 	External Assessment	45 MCQs (1 mark each)	45 marks	50 %
		15 SEQs (3 marks each)	45 marks	
	Internal Assessment	See Internal Assessment Criteria	10 marks	
Practical <ul style="list-style-type: none"> 90 marks 3 hrs 	External Assessment	Viva & OSPE	90 marks	50%
	Internal Assessment	See Internal Assessment Criteria	10 marks	
Total			200 Marks	100%

Sample Paper

MCQ

AUTHOR: Dr. Asma Saeed
DATE: 1st September 2024
DISCIPLINE/SUBJECT: Pharmacology and Therapeutics
TOPIC: Drugs Affecting the Cardiovascular System
LEVEL OF STUDENT: 2nd Year BDS
AREA: Treatment

Item Writing Template

Stem: A 52-year-old female with uncontrolled hypertension (blood pressure 154/82 mm Hg) is currently being treated with lisinopril. She recently experienced a myocardial infarction and has a past medical history of diabetes, hypertension, hyperlipidemia, and osteoarthritis. Considering her compelling indications, which additional antihypertensive agent would be most appropriate to add to her therapy?

Lead in: Recent History of myocardial infarction

Option:

a) Clonidine
b) Furosemide
c) Isosorbide dinitrate
d) Metoprolol*
e) Olmesartan

Mark the key with an Asterix*

COGNITIVE LEVEL: **Application**

DIFFICULTY LEVEL: **Hard**

IMPORTANCE: **Must Know**

REFERENCE: **Lippincott Illustrated Reviews Pharmacology 10th Edition**

SEQ/SAQ

Scenario

A 25-year-old woman presented to the clinic with complaints of extreme fatigue, weakness, frequent headaches, dizziness, cold hands and feet, and noticeably pale skin. After a thorough examination, she was diagnosed with iron deficiency anemia and was subsequently treated with parenteral iron dextran. Although her initial symptoms improved, she began to experience new symptoms after some time. Laboratory tests revealed elevated serum iron levels, confirming iron toxicity.

Questions	Marks
a) What are the signs and symptoms of Iron toxicity	1.5
b) How can you manage this toxicity?	1.5

Key	Marks
a) Acute intoxication presents with vomiting, tinnitus, hyperventilation, respiratory alkalosis, and metabolic acidosis.	1.5
b) Treatment includes correction of fluid and electrolyte balance, alkaline diuresis to increase urine pH, repeated doses of activated charcoal, and whole bowel irrigation.	1.5

COGNITIVE LEVEL: Application

DIFFICULTY LEVEL: Moderate

IMPORTANCE: Must Know

REFERENCE: Basic and Clinical Pharmacology by Katzung 12th Edition Chapter 33

OSCE COVER SHEET

Scenario A young child of 30 pounds is highly irritable due to spasmodic Abdomen with flatulence.

1. Which formula will be applicable here to calculate the dose?
2. What will be the dose of hyoscyamine sulphate for him if the adult dose is 250 micrograms four times a day?

Key: (in the form of rubric) You may use rating scale. (binary/global/analytical/holistic)

1. Clarks's formula = adult dose x $\frac{\text{weight (pounds)}}{150}$
2. Clark's Formula = $250 \times \frac{30}{150}$
= 50 µg four times a day

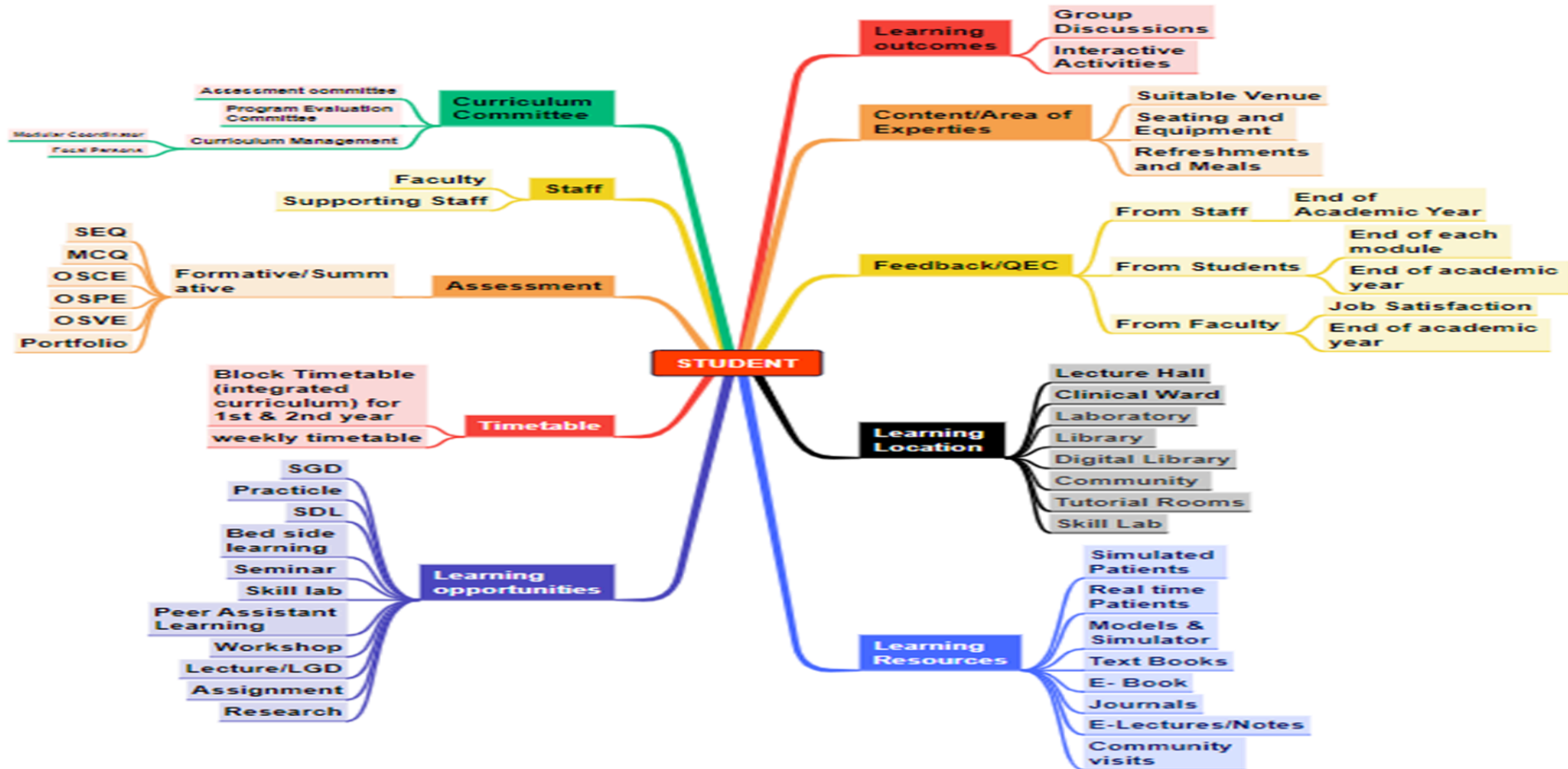
CURRICULUM DETAILS

Curricular Framework including allocation of hours (PMDC)

BDS SCHEME OF STUDIES			
Basic Dental Sciences / Preclinical Year		Clinical Dental Sciences / Clinical Years	
1 st Professional Year	2 nd Professional Year	3 rd Professional Year	4 th Professional Year
Anatomy 300 Hours	General Pathology 220 Hours	General Medicine 180 Hours	Operative Dentistry 250 Hours
Physiology 300 Hours	Pharmacology 220 Hours	General Surgery 170 Hours	Prosthodontics 250 Hours
Biochemistry 180 Hours	Science of Dental Materials 300 Hours	Oral Pathology 180 Hours	Orthodontics 250 Hours
Oral biology & Tooth Morphology 300 Hours	Community Dentistry 200 Hours	Oral Medicine 150 Hours	Oral & Maxillofacial Surgery 250 Hours
General Education 120 Hours (Islamiat, Pakistan Studies, Behavioural Sciences, Research, English, Arts & Humanities)	Pre-clinical Operative Dentistry 80 Hours	Periodontology 180 Hours	Paediatric Dentistry 100 Hours
	Pre-clinical Prosthodontics 80 Hours	Clinical Operative 80 Hours	General Education 100 Hours (Research, English, Arts & Humanities, ICT)
	General Education 100 Hours (Behavioural Sciences, Research, English, Arts & Humanities, ICT)	Clinical Prosthodontics 80 Hours	
		Clinical Oral & Maxillofacial Surgery 80 Hours	
		General Education 100 Hours (Research, English, Arts & Humanities, ICT)	
1200 hours	1200 hours	1200 hours	1200 hours

Curricular Map & Rationale

1. This pictorial, vertical and horizontal presentation of the course content and extent shows the sequence in which various systems are to be covered. Curricular map to cover all the subjects and modules and the time allocated to study of the systems for the undergraduate programs offered at four colleges at campus are as follows:



Rationale 2nd Professional Year

Subjects	Pharmacology
TERM- I	<ul style="list-style-type: none">• General Pharmacology• ANS• GIT
TERM- II	<ul style="list-style-type: none">• CVS• CNS• Respiratory• Blood• NSAIDs
TERM-III	<ul style="list-style-type: none">• Chemotherapy• Endocrinology• Dermatology• Miscellaneous topic• Dental Pharmacology

Learning Outcomes

Unit/ Chapter	Topic/ Content	Student Learning Outcomes	Mode of Information (MOIT)	Learning Domain (KSA-Model)
General Pharmacology	Pharmacokinetics Pharmacodynamics	By the end of this topic, students will be able to: <ul style="list-style-type: none"> • Define pharmacology and its branches, • Explain Pharmacokinetics in relation with absorption, distribution, metabolism and excretion • Define Bioavailability and factors affecting absorption • Explain volume of distribution and half life • Discuss first order and zero order kinetics of elimination • Calculate loading dose, maintenance dose • Discuss pharmacodynamics (receptor, receptor families. • Explain different types of drug interaction & adverse drug reaction • Calculate child dose according to age and weight with the help of different formula • Identify different drug dosage form 	Lecture, Tutorial Practical	Knowledge, Skills Attitudes
Autonomic Nervous System	Adrenergic agonist, adrenergic antagonists, cholinergic agonist, cholinergic antagonists, Neuromuscular blocker, Ganglion blockers	By the end of this topic, students will be able to: <ul style="list-style-type: none"> • Classify adrenergic and cholinergic receptors • Identify their location • Describe organ system effects of stimulation of sympathetic • Describe organ system effects of stimulation of parasympathetic system • List the step in the synthesis of acetylcholine and noradrenaline • Classify cholinergic and adrenergic agonists and antagonists • Discuss, clinical uses, adverse effects, contraindication of cholinergic and adrenergic agonists and antagonists • Classify neuromuscular blockers • Discuss their mechanism of action, clinical uses, adverse effect and drug interactions • Enlist ganglion blockers • Imitate the effects of autonomic drug on intact as well as isolated tissue 	Lecture, Tutorial Practical	Knowledge, Skills

Cardiovascular System	Diuretics, Treatment of Hypertension, Congestive Cardiac failure, Angina pectoris, Arrhythmia	<p>By the end of this topic, students will be able to:</p> <ul style="list-style-type: none"> • Classify Diuretics according to site of action • Describe their mechanism of action, clinical uses and adverse effect • List major groups of antihypertensive drugs • Explain their mechanism of action, clinical uses and adverse effect • Enlist drugs for malignant hyperthermia • Classify drugs for angina pectoris • Explain their mechanism of action, clinical uses and adverse effect • Discuss Monro disease and its causes • Enlist its adverse effects • Enumerate Drugs for cardiac failure • Explain their mechanism of action, clinical uses and adverse effect • Enlist drugs used for Arrhythmia • Observe the effects of agonists and antagonists on frog hearts. 	Lecture, Tutorial Practical	Knowledge, Skills Attitudes
Blood	Anti coagulants, anti-hyperlipidemic drugs, Anti anemic, NSAIDs, Anti gout, DMARDS	<p>By the end of this topic, students will be able to:</p> <ul style="list-style-type: none"> • Enlist drugs used for coagulation disorder • Explain their mechanism of action, clinical uses and adverse effect • Classify drugs used for the treatment of hyperlipidemia • Explain their mechanism of action, clinical uses and adverse effect • Enumerate drugs for anemia • Classify non-steroidal anti inflammatory drugs • Discuss their mechanism of action, clinical uses and adverse effect • Differentiate between aspirin and acetaminophen • Classify drugs used for the treatment of gout • Explain their mechanism of action, clinical uses and adverse effect • Enlist DMARDS 	Lecture, Tutorial Practical	Knowledge, Skills Attitudes
Gastrointestinal System	Drug Treatment of acid peptic disease, vomiting, constipation and diarrhea	<p>y the end of this topic, students will be able to:</p> <ul style="list-style-type: none"> • Classify drugs used for the treatment of acid peptic disease • Explain their mechanism of action, clinical uses and adverse effect • Enumerate triple and quadruple therapy for H. pylori induced peptic ulcer • Enumerate drugs used for vomiting • Describe their mechanism of action, clinical uses and adverse effect • Enlist different groups of drugs used as a laxative and purgative • Discuss their mechanism of action, clinical uses and adverse effect • Enumerate drugs used for diarrhea 	Lecture, Tutorial Practical	Knowledge, Skills

		Explain the composition and uses of oral rehydration therapy(ORS)B		
Respiratory System	Treatment of Asthma, Cough	<p>By the end of this topic, students will be able to:</p> <ul style="list-style-type: none"> • Classify drugs used for the treatment of Asthma • Explain their mechanism of action, clinical uses and adverse effect • Describe the role of corticosteroid in asthma • Enumerate drugs used for cough • Describe their mode of action 	Lecture, Tutorial Practical	Knowledge, Skills
Chemotherapy	Cell wall synthesis inhibitors Protein synthesis inhibitors Fluoroquinolones Sulfonamide Anti-protozoal drugs Anti-Tuberculous drugs Antifungal drugs Ant helminths Anti-cancer drugs	<p>By the end of this topic, students will be able to:</p> <ul style="list-style-type: none"> • Classify antimicrobial drugs according to their mechanism of action • Classify Penicillin into different groups • Discuss their mechanism of action, clinical uses and adverse effect • Enlist its antibacterial spectrum • Describe underlying mechanism of resistance • Explain mechanism of action, antibacterial spectrum, clinical uses and adverse effect of vancomycin, monobactams, carbapenem, daptomycin • Classify Cephalosporin into different generations • Discuss their mechanism of action, clinical uses and adverse effect • Enlist its antibacterial spectrum • Explain mechanism of action of vancomycin • Enlist its antibacterial spectrum • Describe its adverse effect • Classify Protein synthesis on the basis of ribosomal subunit • Enlist Macrolides • Enlist its antibacterial spectrum • Explain mechanism of action, antibacterial spectrum, clinical uses and adverse effect • Discuss chloramphenicol, clindamycin, streptogramins and Linezolid • Enumerate Tetracycline • Discuss mechanism of action, antibacterial spectrum, clinical uses and adverse effect • Enlist aminoglycosides • Explain mechanism of action, antibacterial spectrum, clinical uses and adverse effects • Classify fluoroquinolones 	Lecture, Tutorial Practical	Knowledge, Skills

		<ul style="list-style-type: none"> • Explain mechanism of action, antibacterial spectrum, clinical uses and adverse effects • Enlist sulfonamide • Explain mechanism of action, antibacterial spectrum, clinical uses and adverse effects • Enumerate HIV drug into different groups • Describe their mechanism of action, antibacterial spectrum, clinical uses and adverse effects • Classify anti-mycobacterial drugs • Explain mechanism of action, clinical uses and adverse effects • List 5 special problems associated with these drugs • Identify the drugs used in leprosy • Enumerate antifungal drugs according to mechanism of action. • Discuss mechanism of action, antifungal spectrum, clinical uses and adverse effects • Classify antiviral chemotherapy • Discuss drug treatment of Hepatitis B and C • Explain mechanism of action, clinical uses and adverse effects of interferon and other drugs • Enlist Urinary antiseptics • Explain their pharmacokinetic and pharmacodynamics properties • Classify antiamoebic drugs into luminal and tissue amebicides • Classify drugs used for Malaria • Explain mechanism of action, clinical uses and adverse effects • Enlist anti malarial drugs used for prophylaxis • Enumerate antihelminthic drugs • Discuss mechanism of action, clinical uses and adverse effects • Classify drugs used for the treatment of cancer • Explain mechanism of action, clinical uses and adverse effects 		
Endocrinology	Hypothalamic and pituitary hormones Antithyroid drugs Treatment of Diabetes Corticosteroids Bone Mineral homeostasis	By the end of this topic, students will be able to: <ul style="list-style-type: none"> • Enlist the drugs used as substitutes for the natural pituitary hormones, and list their clinical uses. • List the gonadotropin analogs and GnRH agonists and antagonists • Describe their clinical use in treating male and female infertility, endometriosis, and prostate cancer. • List the principal drugs for the treatment of hyperthyroidism • List the principal drugs for the treatment of hypothyroidism • Describe the major toxicities of thyroxine and the antithyroid drugs. 	Lecture, Tutorial Practical	Knowledge, Skills

		<ul style="list-style-type: none"> • Enlist insulin preparation according to duration of action • Describe mechanism of action, clinical uses and adverse effects • Classify oral hypoglycemic drugs • Discuss mechanism of action, clinical uses and adverse effects • Classify Glucocorticoids • List their clinical uses and adverse effects. • Describe the actions of the naturally occurring mineralocorticoid • Describe the pharmacologic effects, clinical uses, and toxicity of estrogens and progestins • List the benefits and hazards of hormonal contraceptives. • List the benefits and hazards of postmenopausal estrogen therapy. • List the benefits and hazards of hormonal contraceptives. • Describe the use of gonadal hormones and their antagonists in the treatment of cancer in women and men. 		
Dental Pharma	Antiseptic & Disinfectant Oral hygiene Dental caries Root canal therapy Artificial saliva preparation	By the end of this topic, students will be able to: <ul style="list-style-type: none"> • Define antiseptics and disinfectants. • Enlist antiseptics and disinfectants. • Explain the mechanism of action of antiseptics and disinfectants, and discuss their purpose in dentistry. • Enlist the causative factors of dental caries. • Enumerate different treatment modalities for dental caries. • Describe the mechanism of action of chemical agents used to treat dental caries. • Define oral hygiene. • Enlist modalities for the maintenance of oral hygiene. • Enumerate desensitizing agents used to treat sensitivity. • Explain the mechanism of action of desensitizing agents. • Enlist different chemicals used in the steps of root canal treatment. • Discuss the mechanism of action of those chemicals used in root canal treatment. • What are artificial salivary preparations? Describe the mechanism of action of different salivary preparations. • Enumerate different hemostatic agents. Explain the mechanism of action of hemostatic agents. 	Lecture, Tutorial Practical	Knowledge, Skills

Assessment TOS/ Blueprint

Topic/ Content	Assessment Method (No. of Questions)			
	MCQS	SEQs	Viva	OSPE
General Pharmacology: Pharmacokinetics	2	1	1	1
General Pharmacology: Pharmacodynamics	2	1	1	1
ANS: Cholinergic Agonists & Cholinergic Antagonists	2	1	2	1
ANS: Adrenergic Agonists & Adrenergic Blockers	2	1	1	1
Neurology, Psychiatry: Anxiolytics, Typical Sedative, Hypnotics & Newer Drugs; Opioids	3	1	2	0
Neurology, Psychiatry: Antiepileptics, Central & Peripheral Skeletal Muscle Relaxants; General Anesthetics; Anesthesiology	3	1	1	0
Anesthesiology: Local & General Anaesthesia	3	1	2	0
Rheumatology & Gout: NSAIDs; Corticosteroids, Antigout Drugs	4	1	1	1
Cardiology & Hematology: Diuretics, ACE Inhibitors & Receptor Blockers; Calcium Channel Blockers; Vasodilators, Antihypertensives, Antianginals. Drugs used in Cardiac	5	1	2	1

Failure; Classification of Antiarrhythmic; Antiplatelets, Anticoagulants, Thrombolytics, Coagulants, Anticoagulants, 1Antihyperlipidemic.				
Pulmonology & Endocrinology: Drugs used in Bronchial Asthma; Antitussives, Expectorants. Antihistamines, Antidiabetics, Thyroxin, Antithyroid drugs.	4	1	1	0
Gastroenterology: Antiemetics, Prokinetics; Antacids; Drugs used in Acid Peptic Disease; Nitroimidazoles.	4	1	2	1
Chemotherapy: Inhibitors of Cell Wall Synthesis; Inhibitors of Nucleic Acid Synthesis; Antifolates.	3	1	2	0
Chemotherapy: Inhibitors of Protein Synthesis; Anthelmintic, Antimycobacterial.	3	1	1	0
Chemotherapy: Antivirals, Antifungal & Dermatological Drugs; Anticancer.	3	1	1	0
Dental Pharmacology: Antiseptics, Disinfectants, Desensitizing Agents, Oral Hygiene. Drugs Used in Root Canal Therapy & Dental Caries, etc.	2	1	0	0
Total	45	15	20	07



