Avicenna Medical & Dental College

STUDY GUIDE

2023-2024



Program: Bachelor of Dental Surgery
Year: 1st Professional Year
Subject: Oral Biology & Tooth Morphology
Batch No: D23
Session: 2023-2024

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Department of Dental Education

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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:**
    - 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:**
    - 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:**
    - Obtain a comprehensive overview of your courses, including detailed subject outlines, objectives, and departmental structures, to streamline your academic planning.
4. **Curriculum Framework:**
    - Explore the curriculum framework, academic calendar, and schedules for clinical and community rotations, adhering to the structured guidelines of UHS & PMDC.
5. **Assessment Preparation:**
    - 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:**
    - 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:**
    - Utilize the learning methodologies, infrastructure resources, and Learning Management System to maximize your educational experience and academic success.

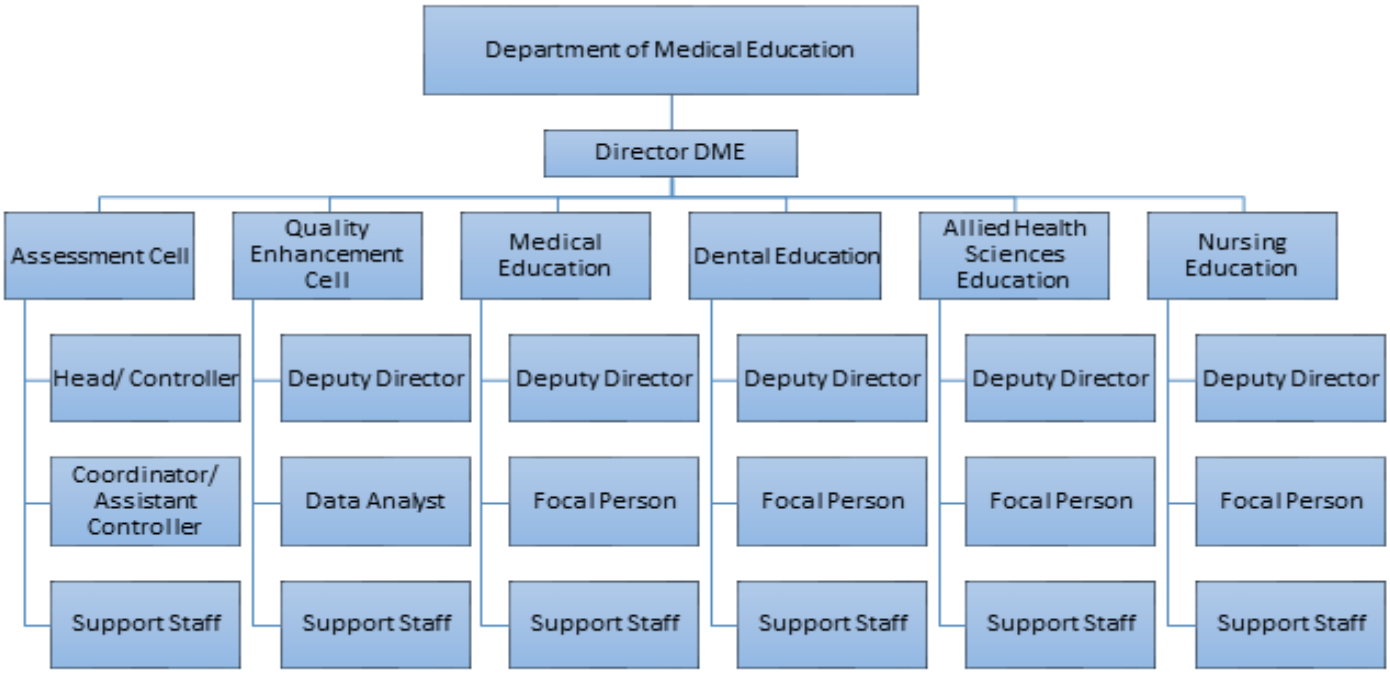
This guide, meticulously developed in collaboration with your subject departments, is designed to support your academic journey and help you achieve excellence in accordance with the highest standards set by PMDC and HEC.

DEPARTMENT OF MEDICAL EDUCATION

The Department of Medical Education (DME) serves as a cornerstone in delivering effective and high-quality education to both undergraduate and postgraduate medical and dental students. The DME is integral to the implementation and adoption of the latest curriculum provided by UHS and is responsible for organizing and managing related academic activities.

The DME will oversee the spirals of PERLs and C-FRC and monitor students' portfolio development and logbook completion. Additionally, the department is developing a mentoring platform and plans to initiate faculty development training which will focus on mentorship, reflective writing, and portfolio development skills. DME has a duty to collaborate with other disciplines to ensure that AVMDC students are not only competent in their respective fields but also well-trained in affective domains such as professionalism, ethics, research, and leadership.

A key responsibility of the DME is to plan and implement an effective training competency acquisition framework in collaboration with the academic council.



General Responsibilities of DME include:

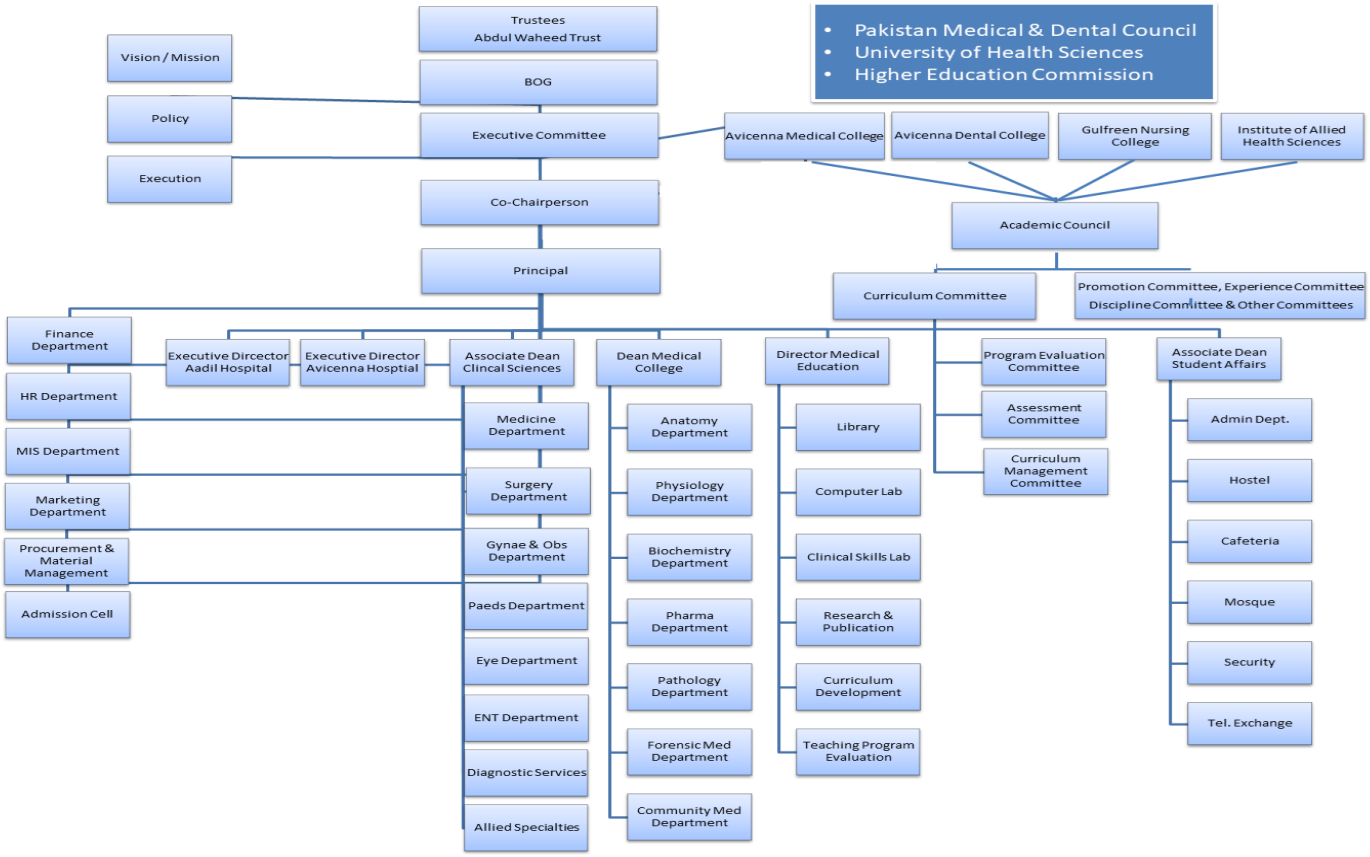
- Contribute and design, train the trainer activities which fulfill the need for undergraduate and postgraduate training.
- Shape and develop medical education research activities of the college.
- Facilitating & organizing workshops, seminars, symposia & conferences.
- Conducting CME activities to leverage culture of awareness, journal club.
- Networking by representing the college, when needed, in national /international meetings or conferences.
- Student counseling.
- Supervising students' academic progress.
- Academic Committees Development and Support.
- Staff Support and Development.
- Curriculum development and reform.
- Collaborate with curriculum committee and faculty members to develop quality instructional material such as modules, lecture, or study guides.
- Standard Operating Procedures for DME development.

- Skill lab management.
- Assessment analysis which includes blue printing, pre-exam review, item analysis and standard setting and provides feedback to concerned faculty and students on the learning outcome achievement.
- Develop and conduct periodical review of process of the program, learning and teaching activities, and assessment process.
- Identify opportunities for use of IT in teaching and learning, assessment and faculty development activities.
- Exam Cell management.
- Quality Assurance Cell management.
- Record keeping of departmental data.
- Leadership and management.
- Participation in overall planning and management of teaching in liaison with the departments.

Faculty	**Department**
Director DME	Dr. Gulfreen Waheed
Assistant Professor Medical Education	Dr. Saman Fatima
Coordinator Medical Education	Dr. Javaid Shabkhaiz Rab
Deputy Director / Demonstrator Dental Education	Dr. Salar Arsalan
Deputy Director / Demonstrator Allied Health Sciences Education	Dr. Talha
Deputy Director / Demonstrator Nursing Education	Dr. Muneeba

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

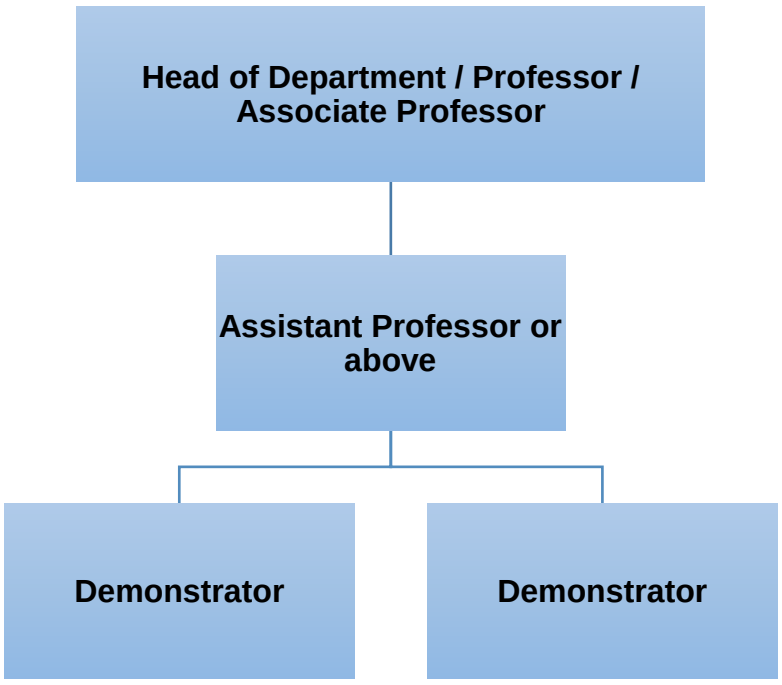
Note from the Head of Department

The aim of this department is to educate students in the modern scientific approach to Oral biology & Oral diseases. The mission of this department is to provide an encouraging environment to develop the intellectual capacity, critical thinking, creativity and problem-solving ability of the students so that they may become knowledgeable, contributing & forward-thinking members of the Medical science & Dentistry community. In doing so, the department aims to foster a conducive environment for scholarly and creative activities so that new knowledge or solutions to problems are discovered or created, and the students are equipped with the most current advancements and techniques in the Medical and Dental field.

Prof. Dr. Raheela Yasmin
Professor & Head of Department
Department of Oral Biology



Departmental Organogram (as per PMDC guidelines)



Faculty Members

Name	Designation	Qualification
Dr. Raheela Yasmin	Head of Department / Professor	**BDS; M-Phil (Oral Biology)**
Dr. Sana Chaudhry	Professor	**BDS; M-Phil (Oral Biology)**
Dr. Talal Ahmed	Demonstrator	**BDS; M-Phil* (Oral Biology Scholar)**
Dr. Asjad Moghees	Demonstrator	**BDS**

Goal of the Department

Oral biology & Tooth Morphology comprises oral histology, embryology, and physiology tooth morphology. The broad goal of teaching the subject is concerned with the study of the nature of the oral & craniofacial tissues along with the application of basic scientific knowledge of oral tissues in health and diseased state.

It includes the study of embryology, growth and development coupled with details of structure, composition and functions of cells, tissues and organs of the oral cavity. By its nature Oral biology overlaps the Basic Medical Sciences and Clinical Dental Sciences.

The rationale for a distinct program in oral biology is to provide:

(1) A focus for the traditional basic health sciences, and

(2) A base of oral biological knowledge upon which clinical subjects of the dental curriculum and dental practice can rest.

The Department of Oral Biology & Tooth Morphology at AMDC has an experienced teaching faculty which is challenged to develop new ways to disseminate knowledge that will encourage students to remain lifelong learners. Our diverse teaching faculty and use of innovative teaching strategies such as lectures on multimedia, interactive sessions and educational videos enables us to maintain a comprehensive learning environment. We also conduct assignments and assessments on a periodic basis to evaluate the academic progress of our students.

The laboratory is fully equipped with microscopes for visualizing histological sections of oral tissues, along with tooth models to further enhance their skills on identification of individual teeth. We encourage laboratory-based education to synergize learning and to motivate students to undertake research projects early on in their professional years to foster passion for excelling in their chosen field of specialty in order to build a successful research career in the future.

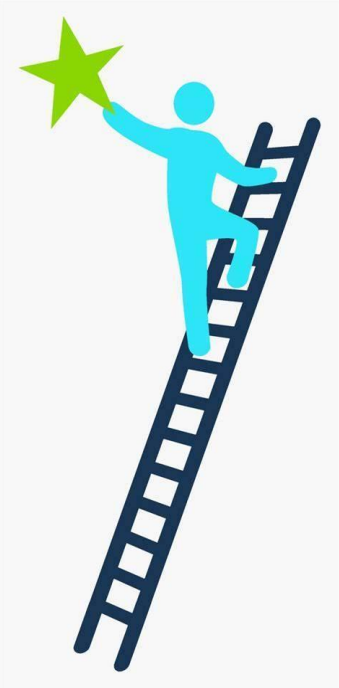


Course Objectives

- Understanding Structure and Function: Comprehend the detailed anatomy, histology, and morphology of oral tissues, including the development, organization, and physiological roles of oral structures.
- Developmental Biology and Embryology: Explore the processes of oral embryology, including the stages of craniofacial development, tooth formation, and the molecular mechanisms underlying these processes.
- Clinical Relevance and Application: Apply knowledge of oral biology and physiology to understand common oral pathologies and their developmental origins, enhancing diagnostic and therapeutic skills in 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.



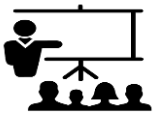
Learning Resources & Pedagogy

Book Recommendations



Sr.	Book Name	Author	Edition
1.	Ten Cate's Oral Histology	Antonio Nanci	9th
2.	Oral Histology & Embryology	Orban	16th
3.	Essentials of Oral Histology & Embryology	Avery	6th
4.	Orofacial Embryology	Kamran Ali.	1st
5.	An Atlas of Oral Anatomy	Berkovitz	6th
6.	Tooth Morphology	Fullers	5th
7.	Dental Anatomy Physiology and Occlusion	Wheeler	5th
8.	Essentials of Oral Physiology	Robert M Bradley	2nd
9.	Oral Physiology	Levalle	2nd

Traditional & Innovative Teaching Methodologies



Sr.	Pedagogical Methodologies	Description
1.	Lectures	Traditional method where an instructor presents information to a large group of students (large group teaching). This approach focuses on delivering theoretical knowledge and foundational concepts. It is very effective for introducing new topics.
2.	Tutorial	Tutorials involve small group discussion (SGD) where students receive focused instruction and guidance on specific topics.
	Demonstrations	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.
3.	Practicals	Hands-on sessions where students apply theoretical knowledge to real-world tasks. This might include lab work, clinical procedures, or simulations. Practicals are crucial for developing technical skills and understanding the application of concepts in practice.
4.	Student Presentations	Students prepare and deliver presentations on assigned topics. This method enhances communication skills, encourages students to explore topics 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	A collection of student's work that showcases learning achievements, reflections, and progress over time. 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)

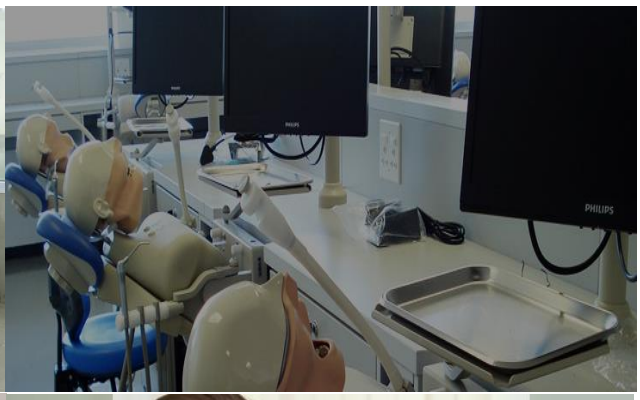


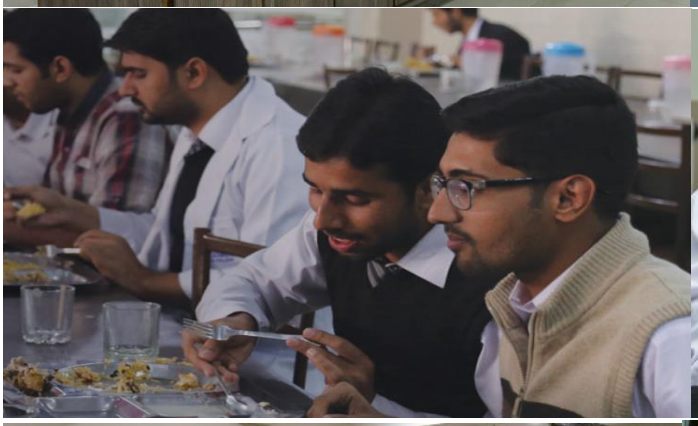
Flipped Classroom

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 a full floor and 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 sourced organically and bought in at the time of cooking, in order to ensure that students get freshly cooked meals at all times 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. Two 50- inch LCD screens provide students an opportunity to get entertained during their meal times.
8.	Gymnasium & Sports	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. The gym itself is fully equipped with modern machinery both for students and faculty.

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.

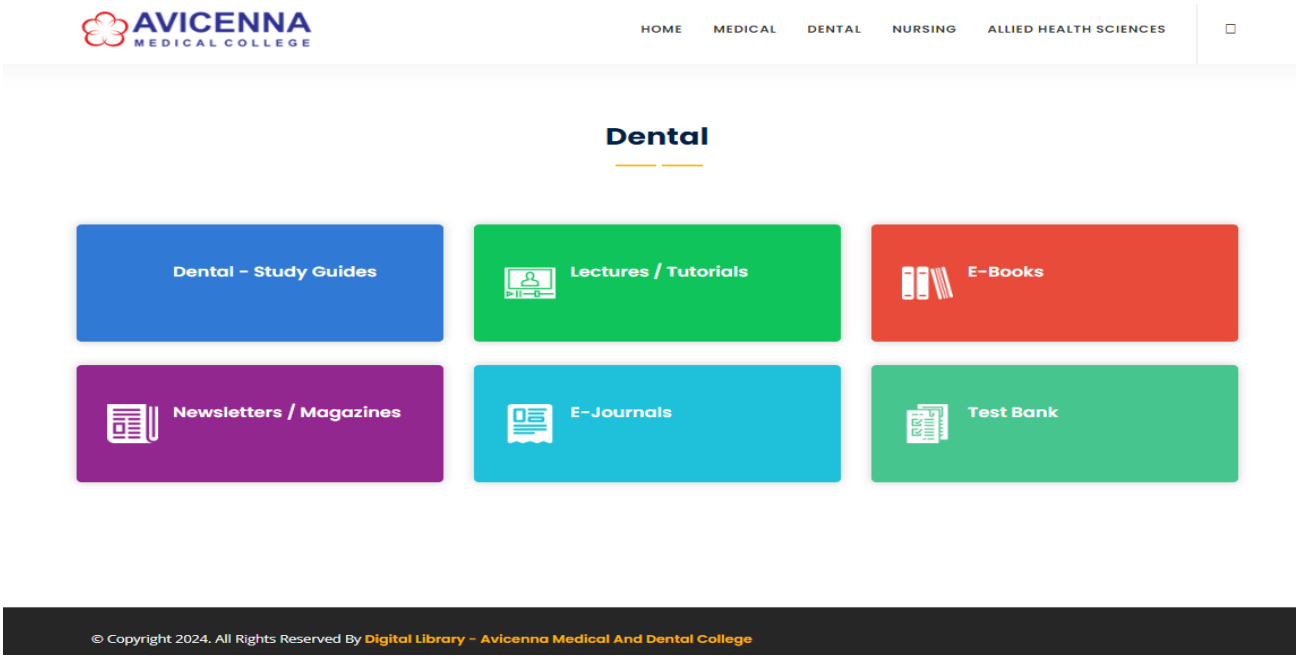





Digital Library & Learning Management System (LMS)

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/.

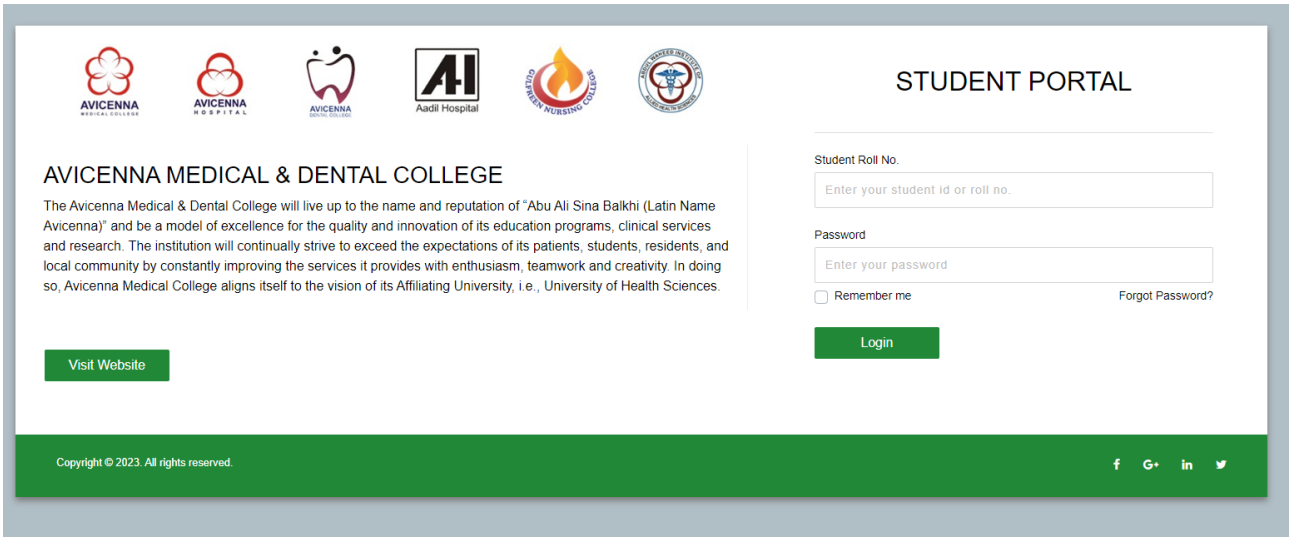


3. The institution has also endeavored to link itself with the digital libraries and e-library of the University of Health Science (UHS) and Higher Education Commission (HEC) to enable the students to benefit from the valuable resource material, lectures and knowledge bank at these sites. The links are 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.



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 2023-2024

1st Year BDS

Form No	BDS-1 Form-1		BDS-1 Form-2		BDS-1 Form-3		BDS-1 Form-4		BDS-1 Form-5		BDS-1 Form-6	
Test Type	Grand Test /Substage /Stage				Revision Test		Session Exam				Send Up	
Mode of Exam	Theory		Practical		Theory		Theory		Practical		Theory	
Weightage	(1,2)* 30%				0%		(3,4)* 70%				100%	
Anatomy 200 /Substage /Stage	MCQ 55, SEQ 45	100	Viva 25, OSPE 25	50	MCQ 20, SEQ 30	50	MCQ 45, SEQ 45, IA 10	100	Viva 45, OSPE 45, IA 10	100	MCQ 45, SEQ 45, IA 10	100
Physiology 200	MCQ 55, SEQ 45	100	Viva 25, OSPE 25	50	MCQ 20, SEQ 30	50	MCQ 45, SEQ 45, IA 10	100	Viva 35, OSPE 55, IA 10	100	MCQ 45, SEQ 45, IA 10	100
Biochemistry 100	MCQ 55, SEQ 45	100	Viva 25, OSPE 25	50	MCQ 20, SEQ 30	50	MCQ 21, SEQ 24, IA 05	50	Viva 25, Ospe 20, IA 05	50	MCQ 21, SEQ 24, IA 05	50
Oral Biology 200	MCQ 55, SEQ 45	100	Viva 25, OSPE 25	50	MCQ 20, SEQ 30	50	MCQ 45, SEQ 45, IA 10	100	Viva 60, OSPE 30, IA 10	100	MCQ 45, SEQ 45, IA 10	100

NOTE 1 : *If Viva/OSPE 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

8/3/24

Department of Anatomy	Department of Biochemistry	Department of Physiology	Department of Oral Biology

Head of Examination Cell : Ijlal Zehra Zaidi

Chairman Avicenna:

Prof. Dr. Ijlal Zehra Zaidi
Head of Examination Department
Avicenna Medical & Dental College

14/3.

External Assessment

<table>
<tr><th colspan="2">Paper Details</th><th>Assessment Methods</th><th>Total Marks</th><th>Percentage Weightage</th></tr>
<tr><td rowspan="3">Theory
● 90 marks
● 3 hrs</td><td rowspan="2">External Assessment</td><td>45 MCQs (1 mark each)</td><td>45 marks</td><td rowspan="3">50 %</td></tr>
<tr><td>15 SEQs (3 marks each)</td><td>45 marks</td></tr>
<tr><td>Internal Assessment</td><td>See Internal Assessment Criteria</td><td>10 marks</td></tr>
<tr><td rowspan="2">Practical
● 90 marks
● 3 hrs</td><td>External Assessment</td><td>Viva & OSPE</td><td>90 marks</td><td rowspan="2">50%</td></tr>
<tr><td>Internal Assessment</td><td>See Internal Assessment Criteria</td><td>10 marks</td></tr>
<tr><td colspan="3">Total</td><td>200 Marks</td><td>100%</td></tr>
</table>

Sample Paper

MCQ

In the dental OPD, a patient of 9 years age presents in OPD with cavity in 1 6, you decide to do the RCT of the patient and your senior advised you to preserve a structure created by the union of the distal cusp ridge of the mesiolingual cusp and the lingual cusp ridge the distobuccal cusp. What is this structure called?

a. Cusp of Carabelli
b. Inclined plane
c. Transverse Ridge
d. Oblique Ridge*
e. Triangular Ridge

Cognitive Level: Application
Difficulty Level:: Moderate
Importance: Must Know
Reference: Ch#11, Wheeler's Dental Anatomy Physiology and Occlusion 10th Edition

SEQ/SAQ

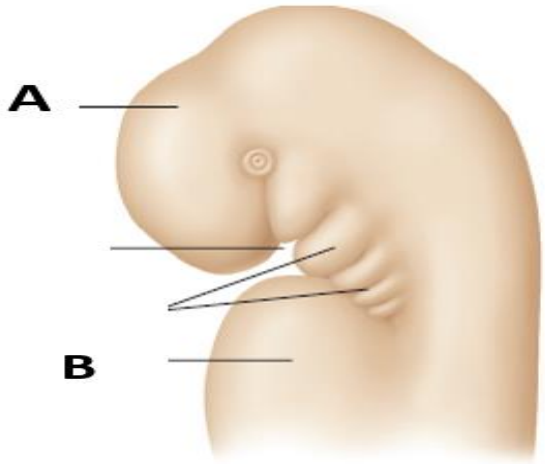
A 12 years old boy has a large carious lesion in his lower 1st molar tooth. He complains of pain whenever he eats ice-cream or drinks cold water.

Questions	Marks
a.Name the three theories that explain this sensitivity.	**1**
b.Explain the mechanism by which cold causes pain, according to most likely of these 3 theories.	**2**

Key	Marks
a.A number of theories have been proposed over a number of years to explain the pain mechanism of dentinal hypersensitivity 1. Direct neural stimulation 2. Odontoblast deformation theory/transducer theory 3. Hydrodynamic theory	**1**
b.HYDRODYNAMIC THEORY: ● Proposed by Brainstorm ● Dentin has over 300,000 tubules/mm2 which is filled with dentinal fluid ● In a vital tooth there is constant slow outward movement of the fluid through the tubules ● Various stimuli as heat, cold, air blast desiccation/ mechanism/ osmotic pressure affect fluid movement in the dentinal tubules ● This fluid movement, either inward (due to cold stimuli) / outward (due to drying of exposed dentinal surface), stimulates the pain mechanism in the tubules by mechanical disturbance of the nerves closely associated with the odontoblast and its process ● Higher velocity fluid flow also occurs in tubules with smaller diameter. Dentin will only be sensitive if the tubules are patent from pulp to the oral environment and this patency will change with production and removal of the smear layer hence resulting in an episodic condition.	**2**

Cognitive Level: Recall
Difficulty Level: Moderate
Importance: Must Know
Reference: Reference book: Ten Cate's Ch: 8 page: 232-233

OSPE



1. Identify the given slide **(01)marks**

2. Label the diagram & Give its Location **(0.5 + 0.5)**

Answer Key:

1. 35th week embryo

2. Label

A) Frontal Prominence

B) Cardiac Bulge

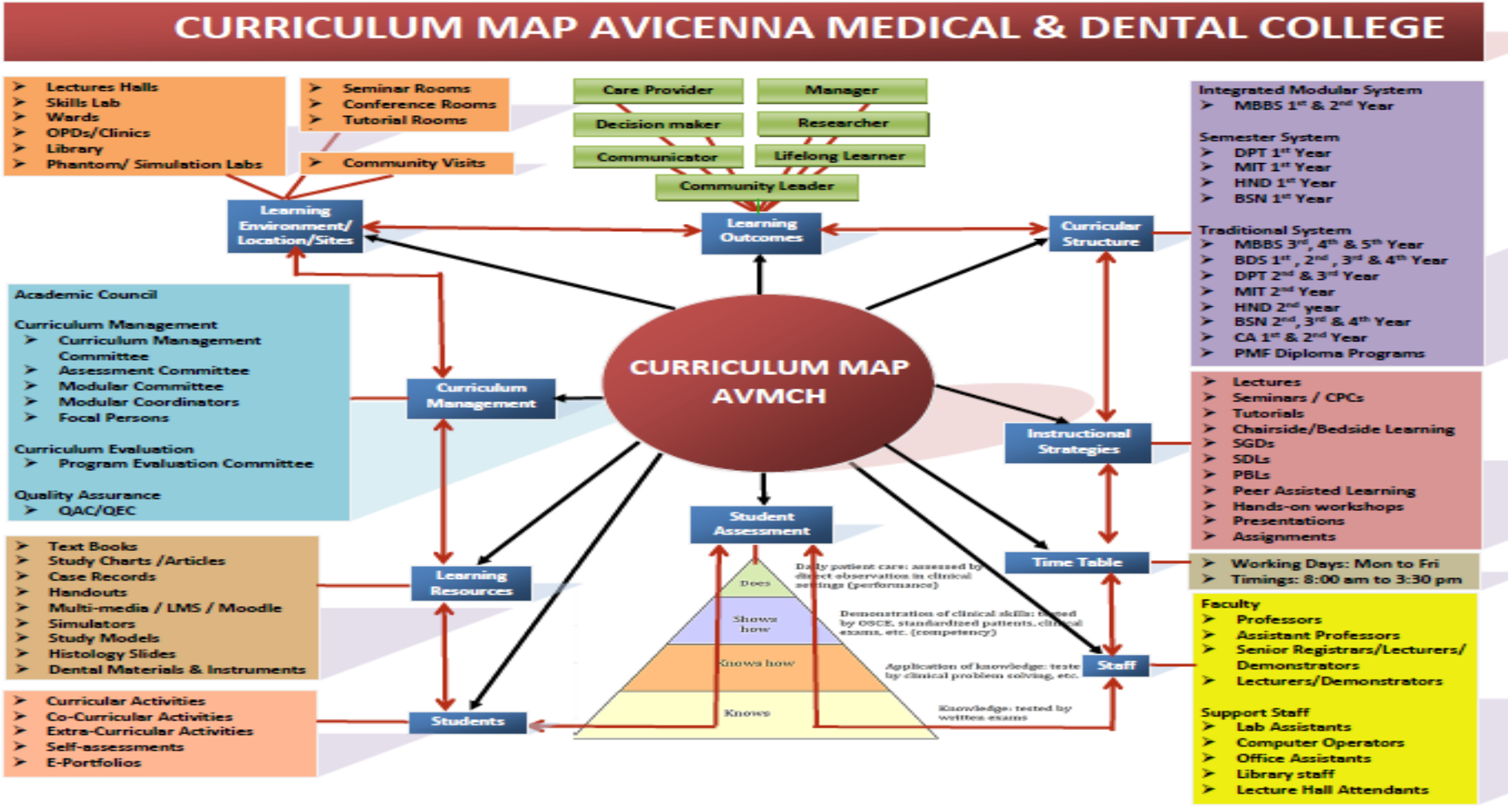
CURRICULUM DETAILS

Curricular Framework including allocation of hours (PMDC)

BDS SCHEME OF STUDIES			
Basic Dental Sciences / Preclinical Year		**Clinical Dental Sciences / Clinical Years**	
1st Professional Year	**2nd Professional Year**	**3rd Professional Year**	**4th 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)	**Preclinical 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 1st Professional Year	
Subjects	**Oral biology**
TERM- I	• Basic Tooth morphology • Oral tissue histology
TERM- II	• Posterior tooth morphology • Oral histology of TMJ and salivary Gland
TERM-III	• Oral Anatomy • Oral Physiology • Oral Histology • General embryology and Oral embryology

Learning Outcomes

Unit/ Chapter	Topic/ Content	Student Learning Outcomes	Mode of Information (MOIT)	Learning Domain (KSA-Model)
I. Oral anatomy	**1. Muscles** **2. Bones** **3. Salivary Glands** **4. TMJ** **5. Nerve and Vascular Supply** **6. Eruption of teeth** **7. Articulation of teeth** **8. Age Changes**	**Muscles of Mastication:** ● By the end of this topic, students will be able to **classify** the muscles of mastication according to their function and location. ● By the end of this topic, students will be able to **differentiate** between the various muscles of mastication and their roles in jaw movement. ● By the end of this topic, students will be able to **correlate** the action of each muscle with specific movements of the mandible. ● By the end of this topic, students will be able to **identify** the key muscles involved in mastication on anatomical diagrams. ● By the end of this topic, students will be able to **describe** the anatomical structure and function of each muscle involved in mastication. **Bones:** ● By the end of this topic, students will be able to **classify** the major bones of the skull and jaw according to their anatomical location and function. ● By the end of this topic, students will be able to **differentiate** between the various bones of the skull, including their role in supporting oral and facial structures. ● By the end of this topic, students will be able to **correlate** bone structure with its function in protecting the brain, supporting teeth, and enabling facial expressions. ● By the end of this topic, students will be able to **identify** the key bones of the skull and jaw in anatomical models and diagrams.	Lecture,Tutorial,Practical,SDL, Skill, Clinical, Bedside Teaching.	Knowledge (Cognitive), Skill (Psychomotor) and Attitude (Effective)

		● By the end of this topic, students will be able to **describe** the key features and functions of the major bones of the skull and jaw. **Salivary Glands:** ● By the end of this topic, students will be able to **classify** the major salivary glands based on their location and type (e.g., parotid, submandibular, sublingual). ● By the end of this topic, students will be able to **differentiate** the functions of the different salivary glands in saliva production and digestion. ● By the end of this topic, students will be able to **correlate** the function of each salivary gland with its role in oral health and digestion. ● By the end of this topic, students will be able to **identify** the major salivary glands in anatomical diagrams and models. ● By the end of this topic, students will be able to **describe** the anatomical features and functions of the major salivary glands. **TMJ (Temporomandibular Joint):** ● By the end of this topic, students will be able to **classify** the components of the temporomandibular joint (TMJ) and their functions. ● By the end of this topic, students will be able to **differentiate** between the normal and pathological conditions affecting the TMJ. ● By the end of this topic, students will be able to **correlate** the structure of the TMJ with its function in jaw movement and its role in oral health. ● By the end of this topic, students will be able to **identify** the anatomical structures of the TMJ in diagrams and models. ● By the end of this topic, students will be able to **describe** the mechanics and common disorders of the TMJ. **Nerve and Vascular Supply:**		

		● By the end of this topic, students will be able to **classify** the major nerves and blood vessels supplying the oral and maxillofacial regions. ● By the end of this topic, students will be able to **differentiate** the roles of different nerves and vessels in oral health and function. ● By the end of this topic, students will be able to **correlate** the nerve and vascular supply with their impact on sensation and blood flow in the oral cavity. ● By the end of this topic, students will be able to **identify** key nerves and blood vessels in anatomical diagrams and models. ● By the end of this topic, students will be able to **describe** the anatomical pathways and functions of the major nerves and blood vessels of the oral and maxillofacial regions. **Eruption of Teeth:** ● By the end of this topic, students will be able to **classify** the stages of tooth eruption in both primary and permanent dentition. ● By the end of this topic, students will be able to **differentiate** between the eruption patterns of primary and permanent teeth. ● By the end of this topic, students will be able to **correlate** the timing of tooth eruption with developmental stages in children and adolescents. ● By the end of this topic, students will be able to **identify** the sequence of tooth eruption in both primary and permanent dentition on diagrams and charts. ● By the end of this topic, students will be able to **describe** the process and phases of tooth eruption. **Articulation of Teeth:** ● By the end of this topic, students will be able to **classify** the different types of dental articulations (e.g., occlusion, malocclusion). ● By the end of this topic, students will be able to **differentiate** between normal and abnormal dental occlusion patterns.		

		● By the end of this topic, students will be able to **correlate** the dental articulation with overall oral health and function. ● By the end of this topic, students will be able to **identify** various types of dental occlusion and articulation in clinical scenarios. ● By the end of this topic, students will be able to **describe** the mechanics of dental articulation and its impact on oral function. **Age Changes:** ● By the end of this topic, students will be able to **classify** the changes in oral structures that occur with aging. ● By the end of this topic, students will be able to **differentiate** the effects of aging on teeth, gums, and jaw structures. ● By the end of this topic, students will be able to **correlate** age-related changes with common oral health issues in older adults. ● By the end of this topic, students will be able to **identify** age-related changes in oral structures in clinical assessments. ● By the end of this topic, students will be able to **describe** the impact of aging on oral health and function.		
II. Oral embryology	**1. Development of embryo** **2. Development of skull, face, tongue, jaws and teeth** **3. Development of dentition** **4. Development of occlusion** **5. Common anomalies**	**Development of the Embryo:** ● By the end of this topic, students will be able to **classify** the stages of embryonic development and their significance in forming oral and facial structures. ● By the end of this topic, students will be able to **differentiate** between the key phases of embryonic development and their impacts on oral and maxillofacial formation. ● By the end of this topic, students will be able to **correlate** embryonic developmental stages with the formation of specific oral and facial structures.	Lecture,Tutorial,Practical,SDL, Skill, Clinical, Bedside Teaching.	Knowledge (Cognitive), Skill (Pscyhomotor) and Attitude (Effective)

		● By the end of this topic, students will be able to **identify** critical embryonic structures and developmental milestones in diagrams and models. ● By the end of this topic, students will be able to **describe** the process and importance of embryonic development in relation to oral and facial anatomy. **Development of Skull, Face, Tongue, Jaws, and Teeth:** ● By the end of this topic, students will be able to **classify** the stages and processes involved in the development of the skull, face, tongue, jaws, and teeth. ● By the end of this topic, students will be able to **differentiate** the developmental processes and timing for each of these structures. ● By the end of this topic, students will be able to **correlate** developmental milestones with the formation and growth of the skull, face, tongue, jaws, and teeth. ● By the end of this topic, students will be able to **identify** key developmental changes and structures in the skull, face, tongue, jaws, and teeth in anatomical models and diagrams. ● By the end of this topic, students will be able to **describe** the development of the skull, face, tongue, jaws, and teeth from embryonic stages to full maturation. **Development of Dentition:** ● By the end of this topic, students will be able to **classify** the stages of dental development, including the formation of primary and permanent dentition. ● By the end of this topic, students will be able to **differentiate** between the development of primary teeth and permanent teeth. ● By the end of this topic, students will be able to **correlate** the stages of dentition development with age-related changes and dental eruption patterns. ● By the end of this topic, students will be able to **identify** the key stages and changes in dental development in clinical scenarios and diagrams.		

		● By the end of this topic, students will be able to **describe** the process of dentition development from tooth formation to eruption. **Development of Occlusion:** ● By the end of this topic, students will be able to **classify** the different types of occlusion and their developmental stages. ● By the end of this topic, students will be able to **differentiate** between normal occlusion and variations in occlusion patterns. ● By the end of this topic, students will be able to **correlate** the development of occlusion with growth and development of the jaws and teeth. ● By the end of this topic, students will be able to **identify** occlusal relationships and changes during various stages of dental development. ● By the end of this topic, students will be able to **describe** the developmental process of occlusion and its impact on oral function. **Common Anomalies:** ● By the end of this topic, students will be able to **classify** common dental and craniofacial anomalies based on their types and characteristics. ● By the end of this topic, students will be able to **differentiate** between various common anomalies and their effects on oral health and development. ● By the end of this topic, students will be able to **correlate** the presence of common anomalies with their underlying developmental causes and clinical manifestations. ● By the end of this topic, students will be able to **identify** common anomalies in diagnostic images and clinical presentations. ● By the end of this topic, students will be able to **describe** the features, causes, and potential implications of common craniofacial and dental anomalies.		

III. Oral Histology	**Histology of:** **1. Enamel** **2. Dentin** **3. Bone** **4. Cementum** **5. Pulp** **6. PDL** **7. Cytoskeleton** **8. Alveolar bone** **9. Mucosa** **10. Salivary Glands** **11. TMJ** **12. Facial Growth & Development** **13. Repair & Regeneration**	**Histology of Enamel:** ● By the end of this topic, students will be able to **classify** the different types of enamel cells and structures involved in enamel formation. ● By the end of this topic, students will be able to **differentiate** between the structural layers and mineralization stages of enamel. ● By the end of this topic, students will be able to **correlate** the histological features of enamel with its function and susceptibility to dental caries. ● By the end of this topic, students will be able to **identify** the key histological features of enamel in microscopic images. ● By the end of this topic, students will be able to **describe** the formation, structure, and function of enamel at the histological level. **Histology of Dentin:** ● By the end of this topic, students will be able to **classify** the types of dentin (e.g., primary, secondary, tertiary) and their respective characteristics. ● By the end of this topic, students will be able to **differentiate** between various forms of dentin and their roles in tooth function and sensitivity. ● By the end of this topic, students will be able to **correlate** the histological structure of dentin with its mechanical properties and relationship with enamel and pulp. ● By the end of this topic, students will be able to **identify** the distinct histological features of dentin in tissue samples. ● By the end of this topic, students will be able to **describe** the histological composition and formation processes of dentin. **Histology of Bone:**	Lecture,Tutorial,Practical,SDL, Skill, Clinical, Bedside Teaching.	Knowledge (Cognitive), Skill (Pscyhomotor) and Attitude (Effective)

		● By the end of this topic, students will be able to **classify** the different types of bone tissue (e.g., compact, spongy) and their structural components. ● By the end of this topic, students will be able to **differentiate** between bone types and their specific functions in the skeletal system. ● By the end of this topic, students will be able to **correlate** the histological features of bone with its mechanical properties and role in support and protection. ● By the end of this topic, students will be able to **identify** bone tissue types and structures in histological sections. ● By the end of this topic, students will be able to **describe** the histological organization and function of bone tissue. **Histology of Cementum:** ● By the end of this topic, students will be able to **classify** the different types of cementum (e.g., acellular, cellular) and their structural features. ● By the end of this topic, students will be able to **differentiate** between the various types of cementum and their roles in tooth attachment and support. ● By the end of this topic, students will be able to **correlate** the histological features of cementum with its function in tooth stability and periodontal health. ● By the end of this topic, students will be able to **identify** the key histological features of cementum in microscopic samples. ● By the end of this topic, students will be able to **describe** the formation, structure, and function of cementum at the histological level. **Histology of Pulp:** ● By the end of this topic, students will be able to **classify** the different components of dental pulp (e.g., connective tissue, nerves, blood vessels).		

		● By the end of this topic, students will be able to **differentiate** between the various cell types and structures within the dental pulp. ● By the end of this topic, students will be able to **correlate** the histological features of pulp with its role in tooth health and response to injury. ● By the end of this topic, students will be able to **identify** the key histological elements of dental pulp in tissue sections. ● By the end of this topic, students will be able to **describe** the structure, function, and cellular composition of dental pulp. **Histology of Periodontal Ligament (PDL):** ● By the end of this topic, students will be able to **classify** the components and types of tissues found in the periodontal ligament. ● By the end of this topic, students will be able to **differentiate** between the various cell types and extracellular matrix components of the PDL. ● By the end of this topic, students will be able to **correlate** the histological structure of the PDL with its function in tooth support and movement. ● By the end of this topic, students will be able to **identify** the histological features of the PDL in microscopic samples. ● By the end of this topic, students will be able to **describe** the organization, function, and histological characteristics of the periodontal ligament. **Histology of Cytoskeleton:** ● By the end of this topic, students will be able to **classify** the components of the cytoskeleton (e.g., microfilaments, intermediate filaments, microtubules). ● By the end of this topic, students will be able to **differentiate** between the various types of cytoskeletal elements and their functions within cells.		

		● By the end of this topic, students will be able to **correlate** the structure of cytoskeletal elements with their roles in cell shape, movement, and division. ● By the end of this topic, students will be able to **identify** the major cytoskeletal components in histological and electron microscopic images. ● By the end of this topic, students will be able to **describe** the organization and functions of the cytoskeleton in maintaining cellular integrity and function. **Histology of Alveolar Bone:** ● By the end of this topic, students will be able to **classify** the structure and types of alveolar bone tissue. ● By the end of this topic, students will be able to **differentiate** between alveolar bone and other types of bone based on histological features. ● By the end of this topic, students will be able to **correlate** the histological characteristics of alveolar bone with its role in supporting teeth and dental implants. ● By the end of this topic, students will be able to **identify** the key histological features of alveolar bone in tissue samples. ● By the end of this topic, students will be able to **describe** the structure, composition, and function of alveolar bone. **Histology of Mucosa:** ● By the end of this topic, students will be able to **classify** the different types of mucosal tissues (e.g., oral mucosa, gastric mucosa) based on their location and function. ● By the end of this topic, students will be able to **differentiate** between the various layers and cell types present in mucosal tissues.		

		● By the end of this topic, students will be able to **correlate** the histological features of mucosal tissues with their role in protection, absorption, and secretion. ● By the end of this topic, students will be able to **identify** the histological features of mucosal tissues in microscopic images. ● By the end of this topic, students will be able to **describe** the structure, function, and histological organization of mucosal tissues. **Histology of Salivary Glands:** ● By the end of this topic, students will be able to **classify** the different types of salivary glands (e.g., parotid, submandibular, sublingual) and their histological features. ● By the end of this topic, students will be able to **differentiate** between the types of secretory cells and duct systems in various salivary glands. ● By the end of this topic, students will be able to **correlate** the histological structure of salivary glands with their function in saliva production and secretion. ● By the end of this topic, students will be able to **identify** the key histological components of salivary glands in tissue sections. ● By the end of this topic, students will be able to **describe** the structure and function of the different types of salivary glands at the histological level. **Histology of Temporomandibular Joint (TMJ):** ● By the end of this topic, students will be able to **classify** the histological components of the TMJ, including cartilage, bone, and synovial tissue. ● By the end of this topic, students will be able to **differentiate** between the various tissues and their roles within the TMJ. ● By the end of this topic, students will be able to **correlate** the histological structure of the TMJ with its function in jaw movement and articulation.		

		● By the end of this topic, students will be able to **identify** the key histological features of the TMJ in microscopic images. ● By the end of this topic, students will be able to **describe** the structure and function of the TMJ at the histological level. **Facial Growth & Development:** ● By the end of this topic, students will be able to **classify** the stages and types of facial growth and developmental changes from infancy to adulthood. ● By the end of this topic, students will be able to **differentiate** between the growth patterns of various facial structures and their impacts on overall facial morphology.		
IV. Oral Physiology	**1) Saliva** **2) Taste** **3) Smell** **4) Mastication** **5) Swallowing**	**Saliva:** ● By the end of this topic, students will be able to **classify** the different types of saliva (e.g., serous, mucous) and their respective functions. ● By the end of this topic, students will be able to **differentiate** between the roles and composition of saliva produced by different salivary glands. ● By the end of this topic, students will be able to **correlate** the composition and quantity of saliva with its functions in digestion, lubrication, and oral health. ● By the end of this topic, students will be able to **identify** the key components of saliva and their functions in oral fluid analyses. ● By the end of this topic, students will be able to **describe** the production, composition, and functions of saliva in the oral cavity. **Taste:**	Lecture,Tutorial,Practical,SDL, Skill, Clinical, Bedside Teaching.	Knowledge (Cognitive), Skill (Pscyhomotor) and Attitude (Effective)

		● By the end of this topic, students will be able to **classify** the different types of taste sensations (e.g., sweet, sour, salty, bitter, umami) and the corresponding taste buds. ● By the end of this topic, students will be able to **differentiate** between the types of taste receptors and their locations on the tongue and oral cavity. ● By the end of this topic, students will be able to **correlate** the sensory pathways involved in taste perception with their physiological and neural mechanisms. ● By the end of this topic, students will be able to **identify** the anatomical structures involved in taste sensation on diagrams and in the oral cavity. ● By the end of this topic, students will be able to **describe** the mechanisms of taste sensation, including receptor types and neural pathways. **Smell:** ● By the end of this topic, students will be able to **classify** the different types of olfactory receptors and their roles in detecting odors. ● By the end of this topic, students will be able to **differentiate** between the pathways and structures involved in the sense of smell. ● By the end of this topic, students will be able to **correlate** the anatomical structures of the olfactory system with their functions in detecting and processing smells. ● By the end of this topic, students will be able to **identify** key structures of the olfactory system, such as the olfactory bulb and receptors, in anatomical diagrams. ● By the end of this topic, students will be able to **describe** the physiological mechanisms of smell, including receptor activation and signal transduction. **Mastication:**		

		● By the end of this topic, students will be able to **classify** the different types of masticatory muscles and their roles in jaw movement. ● By the end of this topic, students will be able to **differentiate** between the various muscle groups involved in mastication and their specific functions. ● By the end of this topic, students will be able to **correlate** the biomechanics of mastication with the anatomy of the jaw, teeth, and muscles. ● By the end of this topic, students will be able to **identify** the key muscles and structures involved in mastication on diagrams and in clinical settings. ● By the end of this topic, students will be able to **describe** the process and mechanics of mastication, including the roles of muscles, teeth, and jaw movements. **Swallowing:** ● By the end of this topic, students will be able to **classify** the stages of swallowing (e.g., oral, pharyngeal, esophageal) and the associated physiological processes. ● By the end of this topic, students will be able to **differentiate** between the neural and muscular mechanisms involved in each stage of swallowing. ● By the end of this topic, students will be able to **correlate** the anatomical structures of the oral cavity, pharynx, and esophagus with their roles in swallowing. ● By the end of this topic, students will be able to **identify** the key structures and muscles involved in swallowing on diagrams and in clinical assessments.		

		● By the end of this topic, students will be able to **describe** the coordinated process of swallowing, including the roles of different anatomical structures and the phases of the swallowing reflex.		
V. Tooth Morphology	**1) Anatomy of primary and permanent dentition** **2) Sequence and timing of eruption** **3) Pulp Cavities and Anomalies**	**Anatomy of Primary and Permanent Dentition:** ● By the end of this topic, students will be able to **classify** the teeth of primary and permanent dentition according to their types (e.g., incisors, canines, molars) and locations in the dental arch. ● By the end of this topic, students will be able to **differentiate** between primary and permanent teeth based on their anatomical features, including size, shape, and eruption patterns. ● By the end of this topic, students will be able to **correlate** the anatomical differences between primary and permanent teeth with their functions and developmental stages. ● By the end of this topic, students will be able to **identify** specific teeth in both primary and permanent dentition on dental charts and in clinical scenarios. ● By the end of this topic, students will be able to **describe** the anatomical features of primary and permanent teeth, including crown and root morphology, and how these features change over time. **Sequence and Timing of Eruption:** ● By the end of this topic, students will be able to **classify** the stages of dental eruption for both primary and permanent teeth according to age and developmental milestones. ● By the end of this topic, students will be able to **differentiate** between the eruption sequences of primary versus permanent teeth and the typical timing associated with each.	Lecture,Tutorial,Practical,SDL, Skill, Clinical, Bedside Teaching.	Knowledge (Cognitive), Skill (Pscyhomotor) and Attitude (Effective)

		● By the end of this topic, students will be able to **correlate** the sequence and timing of tooth eruption with developmental stages in children and adolescents. ● By the end of this topic, students will be able to **identify** the typical sequence of eruption for both primary and permanent dentition on charts and in clinical settings. ● By the end of this topic, students will be able to **describe** the process and stages of tooth eruption, including the changes from primary to permanent teeth. **Pulp Cavities and Anomalies:** ● By the end of this topic, students will be able to **classify** various types of pulp cavities and anomalies, including variations in size, shape, and number of pulp chambers and canals. ● By the end of this topic, students will be able to **differentiate** between normal pulp anatomy and common pulp anomalies, such as pulp stones or abnormal root canal configurations. ● By the end of this topic, students will be able to **correlate** the presence of pulp anomalies with potential clinical implications, such as endodontic issues or treatment challenges. ● By the end of this topic, students will be able to **identify** typical pulp cavity structures and anomalies in radiographic images and clinical assessments. ● By the end of this topic, students will be able to **describe** the anatomy of pulp cavities, including common anomalies and their impact on dental health and treatment.		

VI. Laboratory Assignments	**Histological methods**	● **Classify:** By the end of this topic, students will be able to **classify** various histological methods based on their techniques and applications, such as staining, sectioning, and microscopy methods. ● **Differentiate:** By the end of this topic, students will be able to **differentiate** between different histological methods and their specific uses, such as light microscopy vs. electron microscopy, or histochemical stains vs. immunohistochemistry. ● **Correlate:** By the end of this topic, students will be able to **correlate** the choice of histological method with the type of tissue or structure being studied, as well as the type of information required for analysis. ● **Identify:** By the end of this topic, students will be able to **identify** various histological techniques and their results in practical applications, including understanding how different methods affect the visualization of tissues and cells in microscopic images. ● **Describe:** By the end of this topic, students will be able to **describe** the principles, procedures, and applications of major histological methods, including how they are used to prepare, stain, and visualize tissue samples for microscopic examination.	Lecture,Tutorial,Practical,SDL, Skill, Clinical, Bedside Teaching.	Knowledge (Cognitive), Skill (Pscyhomotor) and Attitude (Effective)

Assessment TOS/Blueprint

Unit/ Chapter	Assessment Method (No. of Q			
	MCQS	SEQs	**Viva**	**OSPE**
I. Oral anatomy	6	2	13%	13%
II. Oral embryology	4	1.5	10%	!0%
III. Oral Histology	20	7	45%	44%
IV. Oral Physiology	5	1.5	10%	11%
V. Tooth Morphology	9	3	20%	20%
VI. Laboratory Assignments	1	-	2%	2%
TOTAL ITEMS	45	15	100%	100%
Marks	45	45		


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