MUHAMMAD DENTAL COLLEGE
MIRPURKHAS

DEPARTMENT OF DENTAL EDUCATION
STUDY GUIDE
FIRST YEAR BDS PROGRAM-2025
MODULAR CURRICULUM
BATCH-VI
2025-2026

ABBREVIATIONS

ASSIG/AS	**Assignment**
BCQS	**Best Choice Questions**
CBL	**Case-Based Learning**
CAT	**Continuous Assessment Test**
CME	**Continuous Medical Education**
CP	**Class Presentation**
CQ	**Class Quiz**
CR	**Clinical Rotation work in OPD**
CS	**Clinical Session**
CW	**Clinical work (OPD)**
HEC	**Higher Education Commission**
HO	**House Officers**
HOD	**Head of the Department**
IL	**Interactive Lecture**
MIT	**Modes of Information Transfer**
MOD	**Modular**
OMFS	**Oral And Maxillofacial Surgery**
OPD	**Outpatient Department**
OSCE	**Objective Structured Clinical Evaluation**
OSPE	**Objective Structured Practical Evaluation**
PBL	**Problem Based Learning**
PMDC	**Pakistan Medical and Dental Council**
PPT	**Power Point Presentation**
PW	**Practical work**
QEC	**Quality Enhancement Cell**
SC	**Short case**
SEQS	**Short Essay Questions**
SGD/S	**Small Group Discussion/Session**
SGIS	**Small Group Interactive Session**
Skill Lab	**Phantom Lab, Skills Lab**
SURVIVE	**Online Weekly assessment**
SS	**Self-Study**
Viva	**Viva**
VD	**Visual Display**

VISION AND MISSION STATEMENT

MISSION STATEMENT OF MOHAMMAD DENTAL COLLEGE

Nurturing students' potential by providing them with the highest quality education, thereby producing individuals with strong values, compassion, **inclusiveness, leadership** and professionalism, emphasizing community engagement, particularly with marginalized segments of the rural population, encouraging students to become empathetic and socially responsible professionals by training them in the best evidence- based practice, capable of contributing to advancements through research and innovation.

VISION OF ISUM

To be an internationally recognized institution, famous for its ethical work, emphasizing the importance of integrity, honesty, and moral principles, highlighting the University 's commitment to serving the community and producing unbiased and empathetic educated people, **who are inclusive and have leadership skills**, encouraging them to engage in research, critical thinking, innovation, and evidence-based best practices.

VISION OF LIAQUAT UNIVERSITY OF MEDICAL AND HEALTH SCIENCES (LUMHS)

Liaquat University of Medical and Health Sciences (LUMHS) seeks to be a top-tier healthcare Institution, producing ingenious academic leaders, medical researchers, and healthcare advocates to serve the global community.

BDS PROGRAM OUTCOMES

By the end of the Four years of BDS program at MUHAMMAD DENTAL COLLEGE (aims to produce dental graduates who are able to:

- Demonstrate appropriate basic knowledge of medical and dental sciences.
- Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision-making by critical thinking.
- Recognize patient with special care and perform dental emergencies, having good communication skills.
- Engage in research activity aimed at improvement of quality of health care including behavior modification of individual and community for quality life
- Elicit professional skills while providing patient centered care by relevant and comprehensive physical and dental examination.
- Commit to lifelong learning to keep up to date with developments in dental practice and trends in disease at population level by strong leadership and management skills.
- To exhibit ethical patient centered care based on integrity, humility, social accountability and high ethical values of this sacred profession

GOALS AND OBJECTIVES: COMPETENCIES REQUIRED IN A DENTIST TO BE ACHIEVED AT THE UNDERGRADUATE LEVEL

STANDARDS OF SEVEN STARS COMPETENCIES

The goal of creating a medical curriculum is to create skilled, compassionate, and effective medical professionals who can offer patients high-quality care. A modular integrated curriculum that synchronizes the BDS program results with the nationally designated seven-star doctor competencies has been developed in order to accomplish this goal.

The following are the anticipated general competencies for a medical/dental graduate:

1. **Skillful**
2. **Knowledgeable**
3. **Community Health Promoter**
4. **Critical Thinker**
5. **Professional**
6. **Scholar**
7. **Leader and Role Model**

"A seven-star physician" A Pakistani medical graduate ought to exhibit the different qualities listed under each competency. These qualities are the absolute necessities.

The program's results are comparable to those that the country's regulatory bodies have processed for BDS graduates up to this point. These seven-star competencies are translated into the session-specific learning objectives by the curriculum outcomes.

A Pakistani medical graduate who has become a "seven-star doctor" is supposed to exhibit a range of qualities within each competency, according to the national regulating authorities. These characteristics are deemed necessary and need to be demonstrated by the person both personally and professionally.

A 'seven-star doctor' Pakistani medical/dental graduate should be able to demonstrate various traits as detailed under each competency. These attributes are minimum and not exhaustive by any means.

I. **Skills:** *Under Graduates must be competent to:*

1.1 Apply appropriate interpersonal and communication skills.
1.2 Apply psycho-social and behavioral principles in patient-centered health care.
1.3 Communicate effectively with individuals from diverse populations.
1.4 Well versed with basic dental morphology and application of dental materials

II. Knowledgeable:

A. Assessment, Diagnosis, and Treatment Planning: *Undergraduates must be competent to:*

2.1 Manage the oral health care of the infant, child, adolescent, and adult, as well as the unique needs of women, geriatric, and special needs patients.

2.2 Identify, prevent, and manage trauma, oral diseases, and other disorders.

2.3 Obtain and interpret patient / medical data, including a thorough intra/extra oral examination, and use these findings to accurately assess and manage patients.

2.4 Select, obtain, and interpret diagnostic images for the individual patient.

2.5 Recognize the manifestations of systemic disease and how the disease and its management may affect the delivery of dental care.

2.6 Formulate a comprehensive diagnosis, treatment, and/or referral plan for the patients.

B. Establishment and Maintenance of Oral Health: *Undergraduates must be competent to:*

2.7 Utilize universal infection control guidelines for all clinical procedures.

2.8 Prevent, diagnose, and manage pain and anxiety in the dental patient.

2.9 Prevent, diagnose temporo-mandibular joint disorders.

2.10 Prevent, diagnose, and manage periodontal diseases.

2.11 Develop and implement strategies for the clinical assessment and management of caries.

2.12 Manage restorative procedures that preserve tooth structure, replace missing or defective tooth structure, maintain function, are esthetic, and promote soft and hard tissue health.

2.13. Diagnose and manage developmental or acquired occlusal abnormalities.

2.14 Manage the replacement of teeth for the partially or completely edentulous patient.

2.15 Diagnose, identify, and manage pulpal and peri-radicular diseases.

2.16 Diagnose and manage oral surgical treatment needs.

2.17 Prevent, recognize, and manage medical and dental emergencies.

2.18 Recognize and manage patient abuse and/or neglect.

2.19 Recognize and manage substance abuse.

2.20 Evaluate outcomes of comprehensive dental care.

2.21 Diagnose, identify, and manage oral mucosal and osseous diseases.

III. **Community Health Promoter:** *Under Graduates must be competent to:*

3.1 Provide prevention, intervention, and educational strategies.

3.2 Participate with dental team members and other health care professionals in the management and health promotion for all patients.

3.3 Recognize and appreciate the need to contribute to the improvement of oral health beyond those served in traditional practice settings.

IV. Critical Thinker: *Under Graduates must be competent to:*

4.1 Evaluate and integrate emerging trends in health care as appropriate.

4.2 Utilize critical thinking and problem-solving skills.

4.3 Evaluate and integrate best research outcomes with clinical expertise and patient values for evidence-based practice.

V. Professional and Role Model: *Under Graduates must be competent to:*

5.1 Apply ethical and legal standards in the provision of dental care.

5.2 Practice within one's scope of competence and consult with or refer to professional colleagues when indicated.

VI. Researcher: *Under Graduates must be competent to:*

6.1 Apply the current research for innovations in treatment, keeping at par with international standards

6.2 Conduct independent research based on the community requirements

VII. Leader: *Under Graduates must be competent to:*

7.1 Manage self, taking responsibility and utilizing the time to the best of his/her ability.

7.2 Effectively work in a group, as a leader or as a team member

7.3 recognize and comply with the working system of any Institute.

INTRODUCTION OF STUDY GUIDES

When a dental student enters dental college, a new era of academic life begins. This study guide has been designed to help students navigate their transitional phase smoothly. The very first week is spent in familiarizing the students with the environment of Muhammad Dental College.

1. Objectives of the Study Guide

The purpose of this study guide is to:

- Inform students what they are expected to learn during their study period.
- Guide students on how the student-learning program has been organized, and how it would be implemented.
- Help students organize and manage their studies throughout the year.
- Inform students about the code of conduct at Muhammad Dental College (MDC).
- Inform on organization and management of the team at MDC. This will help you contact the right individual in case you have any difficulty.
- Describe the course content which will be taught and what the students are expected to learn.
- Impart the information on learning methods that you will experience during the course. The methods include: tutorials, lectures, practical skills, experiments, dissection, field visits and research. These learning methods should help you to achieve the course objectives.
- Guides you about the available learning resources for the terms. These include: books, computer-assisted learning programs, videos and other aids
- Makes you aware about the contribution of internal evaluation and term examinations, on student's overall performance.
- Passes the information on the methods of assessment.
- Inform regarding the examination policy, rules and regulations.

2. Preamble:

Integration has been accepted as an important educational strategy in medical education. PMDC & LUMHS believe in continuous curriculum revision through regular reviews and feedback of stakeholders. This curriculum has been updated with Correlation as a minimum level of integration in BDS. This curriculum is outcome-based, patient-centered, community-relevant, and promotes health while preventing disease. It has been revised by the faculty of basic and clinical Dental sciences in collaboration with LUMHS Academic Directorate and MDC Department of Medical Education

3. Curriculum Perspective

LUMHS curriculum evolved, taking into consideration constructivism and behaviorism with some elements of the cognitivist approach. It allows students to construct their own knowledge based on what they already know and to use that knowledge in purposeful activities requiring decision making, problem solving, and judgment.

4. Level of Integration:

MDC will follow Correlation, i.e. level 7 of Harden's level of Integration in the first three years. The emphasis remains on disciplines or subjects, with subject-based courses taking up most of the curriculum time. Within

this framework, an integrated teaching session or course is introduced in addition to the subject-based teaching. This session brings together areas of interest common to each of the subjects. Though the teaching is discipline-based, topics are correlated and taught with a clinical context for better understanding and application of concepts. However clinical teaching increases gradually with advancing years. BDS Year IV is for clerkships.

5. Curricular Organization and Structure

a. In MDC, BDS curriculum in the first two years shall be delivered in a System Based Modular Format with clinical relevance. However, in year III, students shall get clinical exposure through rotations in the wards and OPDs and in Year IV through clerkships
b. There are three modules/blocks in year I, each will have modules, duration of which depends upon the number and complexity of the objectives to be achieved in that module
c. The curriculum will be delivered by modular teams of multidisciplinary basic science faculty and relevant clinical dental sciences faculty.
d. The planning and delivery will be coordinated by year coordinators who will guide module coordinators of their respective years for efficient implementation
e. Modular Coordinator will be responsible for teaching and assessment during each module. S/he will be appointed by Principal in coordination with Department of Medical Education.
f. Clinical Coordinator will be responsible for placement, teaching and assessment during clinical rotations.
g. MDC will provide study guides of each year to the students.
h. To attain the integration in BDS program, teaching shall be done in three spirals Basis of Medicine **(Spiral I -Years I & II)**: The syllabus will be integrated horizontally around systems of the body in which Anatomy, Physiology and Biochemistry will be taught with clinical relevance. Additional chunks of content will be added in a module that does not exactly fit in the central theme of the module.
i. Longitudinal themes, General Education **(Behavioral Sciences, Islamiat, English, Pakistan Studies, Art & Humanities, Communication Skills, Clinical Care, Professionalism, Research Methodology, Leadership, Management, dental & Dental Ethics, patient Safety, EBM & Infection Control, ICT (Computer Skills, Self Study** are an integral part of year I. However, assessment of these subjects will be the responsibility of institute itself.
j. Islamiyat and Pakistan Studies will be assessed by the University in first professional examination.
k. Apart from attending daily scheduled sessions, students should engage in self-directed learning to achieve the desired objectives.
l. Professional Exams will be module wise. There will be three papers, one paper for each module.

6. Competencies:

The focus of this curriculum is on the roles of a general physician as identified by PMDC. These are skillful, knowledgeable, community health promoters, critical thinkers, professionals and role model, researcher and leader. Competencies focused in year I and II are: -

a. Medical Knowledge
b. Procedural skills
c. Problem-solving
d. Communication skills
e. Professionalism

f. Research

7. Outcomes:

By the end of the Second year of BDS, students should be able to:

a. Correlate the developmental and pathological knowledge of different organ systems of the human body to their physiological and biochemical basis.
b. Understand the science of dental materials and their utility in various treatment options.
c. Communicate clearly and effectively.
d. Apply theory of clinical photography and videography to practice in simulated & clinical settings.
e. Discuss the basic principles of research

8. Contact Hours Distribution First Year BDS:

Teaching & Learning weeks: 36 weeks	
Subjects	**Contact Hours**
Anatomy	**300**
Physiology	**300**
Biochemistry	**180**
Oral Biology & Tooth Morphology	**300**
Science of Dental Materials	**72**
TOTAL HOURS	**1152**
Preclinical Pre-Clinical (Rotation in Operative, Prosthodontics, Clinical Care (Communication, Leadership, Teamwork, Ethics, Research) Dental Anatomy rotation-wise	**36 hours per rotation of 8 weeks in Pre-Clinical Operative, Prosthodontics, Dental Anatomy) =36*3=108)** **36 Hours of Professionalism & Clinical Care**
Research	25
Islamiat, & Pakistan Studies	7+7=14
English	Weekly assignment =32
Arts & Humanities=Bazm, Adab, 14 August, Youme-E-Hussain, Eid Millad un Nabi=	13
TOTAL HOURS	**120**
GRAND TOTAL	**1272**

9. Educational Strategies:

(These are proposed, but institutes can use other evidence-based teaching methodologies that suit their context)

a. Interactive Lectures
b. Small group discussion
c. Lab practical
d. Skills lab/Phantom Lab
e. Problem-based learning/Case-based learning
f. Tutorials

g. Integrated sessions using any of the above strategies
h. Self-directed learning (SDL) and directed self-learning (DSL)
i. Community-based Medical Education

10. Resources:

To be provided by the institute

a. Faculty
b. Facilities
c. Administration for Course
d. Administrative structure
e. Communication with students

11. Internal Assessment:

Formative assessment (low stake) is at the faculty discretion like mid-module test and other class tests. There will be three end of modules and one pre-annual examination in year I, which will be taken by LUMHS and contribute towards the weighting of internal assessment i.e. 20% in the professional BDS Examination.

12. Annual Professional Examination:

The University will take the professional Examination at the end of the academic year. Annual Theory & Practical Examination will be of 200 marks for Pathology, Oral Pathology, Pharmacology, and Science of Dental Materials each. The passing score is 50% in theory and practical separately

13. Evaluation of the Course:

To be filled in by the institute.

a. The major goals of the evaluation are to monitor the quality of and improve the curriculum
b. Student portfolio shall be maintained in the departments in which students will give their feedback either by name or anonymously. Feedback may be taken at the end of the module, online and informal student feedback during the running module.
c. Faculty suggestions if any, for improvement of curriculum and teaching may be incorporated in the next session

15. Implementation of curriculum

a. The university will give the academic calendar, year-wise distribution of modules, learning outcomes, table of specifications, and assessment policy.
b. Implementation of curriculum, including the timetable, distribution of content across the whole year, and the rotation plan, is at the discretion of the medical college/institute.
c. Early clinical exposure may be achieved by allocating hours to skill labs, Phantom Lab, Clinical dental sciences rotations in OPD/Wards, Medicine & Surgery ward visits in each module, or patients may be brought before the students as per the decision of the institute.

STUDENT'S CODE OF CONDUCT

The administration manages the code of conduct, discipline, dress code and educational performance. There is a director designated for dealing with Student Affairs.

The Vice Principal/administrator can be approached for queries on educational matters, any breach of discipline, and referrals for electives, and advice about leave of absence or leave for medical reasons. All faculty members are also responsible for maintaining all aspects of discipline. Breaches of the university's code of conduct are routinely referred to the committee and disciplinary action is taken as it deems appropriate.

1. Dress code:

Male students:

1. Casual Trousers
2. Jeans (Plain blue) without an image, graphics and write ups
3. Casual Shirts (Half/ Full sleeves)
4. T Shirts without any messages, images, graphics and write ups
5. Casual shoes or Joggers with socks
6. Shalwar Qameez with shoes (only on Friday)
7. Suit/ Combination
8. Coat/ Pullovers/ Sweaters/ Jackets in winter

Female students:

1. ShalwarQameez
2. Hijab, Abaya, Chaddar etc
3. Full length Jeans with long shirt/ kurta (knee length)
4. Light jewelry and light makeup
5. Shoes, Sandals and Joggers
6. Duppatta/ Scarf is compulsory with all dresses

NOTE: MDC students are expected to wear a white coat during classes, hospital rotations and otherwise.

2. Personal behavior.

The University expects that all students should sustain professional manner when interacting with colleagues and others. The University recognizes that personalities, characters and management styles may differ but, notwithstanding these differences, as a minimum standard, all staff is expected to:

Work co-operatively with others in order to achieve objectives and establish good working relationships. All should behave and speak professionally, respectfully, and courteously at all times.

- Tidiness and cleanliness must be adhered at all times within the MDC premises, which will help us maintain a safe, clean, and professional learning environment.
- Use the college's property, facilities, supplies, and other resources most effectively and efficiently.
- Unacceptable behavior such as Aggressive or abusive behavior, shouting or personal insults or spreading rumors or gossip, or insulting someone is to be avoided at all costs. All these matters, if experienced, should be reported to the vice principal or administrator or a senior faculty member.

3. Punctuality.

Students are expected to arrive in class well in time. All cell phones, smart phones, and other electronic devices (e.g., pagers, iPods) must be turned off and hidden from view during class time. Talking and other disruptive behaviors are not permitted while classes are in session. If the students miss a class they are themselves responsible for the missed part of the course. It is the student's responsibility to contact a classmate or teacher to determine and cover what was missed.

At MDC classes starts immediately after holidays. There is no lag period after leave. There will be no relaxation for absent students. **Please inform your parents of this and make your travel arrangements accordingly**. Avoid taking leave for personal reasons like weddings during the academic year.

4. Conduct in Hospital:

While working in a hospital and when dealing with patients, treat those whom you serve, with whom you work, and the public with the same degree of respect you would wish them to show you.

Treat patients and colleagues with kindness, gentleness, and dignity. Respect the privacy and modesty of patients. Do not share the medical or personal details of a patient with anyone except those health care professionals integral to the well-being of the patient or within the context of an educational endeavor. Lastly students are required to strictly follow the college dress code during and outside the college hours inside the campus & at hospital.

5. Conduct in the library, cafeteria, and common rooms:

Use of Library is to help support learning and promote academic success. Through the Library, the college provides students with access to computers, books, periodicals, study space, and other academic help, comfortable seating, and formal and informal learning spaces. Students are expected to follow college rules, guidelines, and honor code of conduct in order to maintain their good standing and to continue receiving library privileges.

Use the cafeteria and common rooms with care, courtesy and respect for others. Place garbage and recyclables in the appropriate containers. This behavior will maintain a clean and enjoyable environment for all.

COLLEGE DISCIPLINARY COMMITTEE

The Committee deals with the maintenance of discipline on campus. All cases of breach of discipline will be brought before this committee. The ruling of the committee cannot be challenged. The student will be dealt accordingly.

Students are to avoid the following: -

a. Unauthorized use of the University's name or logo which is property of University
b. Harassment, sexual or otherwise, or intimidation of any member of university
c. Coming late for classes. The student may be considered absent and marked accordingly.
d. Improper/inappropriate dress
e. Loud and aggressive behavior in Cafeteria or Common rooms or within the premises of MDC/Hospital and University.
f. Non clearance of bills/dues. Non-clearance of dues may prevent students from appearing in the professional examination. The student may also be refused permission to attend classes.

Smoking

Smoking is strictly prohibited in campus.

POLICY ON DISCIPLINARY ACTION AGAINST USE OF UNFAIR MEANS

Zero tolerance for cheating/use of unfair means is to be maintained during Examinations.
A committee is to be formulated to consider all the cases pertaining to **plagiarism and use of unfair means** in exams. Two committees are to be formed; one each for MBBS and BDS. These committees are to be headed by the respective Principals.
The Committee shall follow the following procedures in handling such cases:

a. The Invigilator who has caught the student using unfair means will report to the Head Invigilator, who will inform the Head of the Examination Department MMC.
b. The material being used and the answer sheet will be confiscated immediately.
c. The Principal Dental Section will be informed at once.
d. Further action will be taken locally by the Disciplinary Committee against use of Unfair Means and Plagiarism, which has been formed. The punishments which this committee can advise are: withdrawal from that paper, withdrawal from the entire examination but allowed to sit for supplementary or to repeat the year or get expelled from college.
e. Chancellor ISU will be the approving authority for the recommendations of the committee.
f. Director Examinations ISU will be informed in writing of the action taken.
g. The material being used and the concerned answer sheet will be sealed and kept at the MMC examinations department.
h. Instruction explaining the term “unfair means” will be displayed at the venue of examination, as well as given in the study guide.
i. The Following actions are considered as “unfair means”

- Possession of written material/ books/ notes of any sort within the examination venue, whether that material is related or unrelated to the paper.
- Writing on the palm, arm or anywhere on the candidate's body / clothing.
- Any attempt to copy, take or give help during the examination.
- Possession of mobile phones, personal digital appliances (PDAs), and any other electronic device.

EDUCATIONAL ROADMAP
CURRICULUM SEQUENCE OF MODULAR FOUR-YEAR BDS PROGRAM

The BDS Curriculum in MDC is spiral in which students will learn the same topics throughout their education program, with each encounter increasing in complexity and reinforcing previous learning.

Vacations: Students will avail vacations in accordance with the schedule decided by the College Academic Council. Hospital teaching continues during summer vacation. Students performing hospital duty will be divided in batches.

Timetables for various batches will be prepared by the timetable Committee after receiving the timetable grid from LUMHS. If needed, classes may also be continued during the summer vacation. Timetable of lectures, SGDs, practical classes, and hospital training will be notified by the head of the institution before the commencement of the academic session and during the session if a change is required. Classes, teaching, training, syllabus, courses, end-of-module examinations & final professional examinations are carried out according to the rules and regulations of the LUMHS.

- The Liaquat University of Medical & Health Sciences (LUMHS) has designed a four-year modular framework for Integrated Curriculum based on Specific Themes, Clinical Clerkships, Quran and Professionalism, Ethics, research & Leadership.
- The time calculation for completion of the module is based on 35 hours per week.
- Total hours of teaching, learning and formative/summative internal assessment to be completed in a year are 1200.

Year	Module	Modular Configuration	Weeks
First Year BDS	**1**	Block I	**12 Weeks**
	2	Block II	**12 Weeks**
	3	Block III	**12 Weeks**
	General Education	General education (including Islamic studies, Pakistan studies, English, Arts & humanities, behavioral sciences, and research)	**Parallel Subject**
		Pre-Clinical Rotation in (Operative), Science of Dental Materials, Prosthodontics, Clinical Care, Dental Anatomy)	**8*4=36 Weeks**
Second Year BDS		Disease, Infections & Therapeutics I	**17 Weeks**
		Disease, Infections & Therapeutics II	
		Neoplasia, Hemodynamics & Genetics	**10 Weeks**
		Parallel Subject: Science of Dental Materials	**36 Weeks**
		Pre-Clinical Rotation in (Pre-Clinical Dental Sciences (Dental material,	**9*3=36 Weeks**

		Operative & Prosthodontics) & Clinical care & Professionalism)	
	General Education	General education, including behavior science, ICT, and research	**Parallel Subjects**
Third Year BDS	1	Removal Prosthesis+ Research	**9 Weeks**
	2	Oral Medicine, Exodontia, Pain Control & Oral radiology (OMFS+ Oral Medicine & Diagnosis)	**9 Weeks**
	3	Cariology (Operative Dentistry)	**9 Weeks**
	4	Periodontics (Gingiva & Periodontal Disease) + Behavioral Sciences	**9 Weeks**
	5	Community Dentistry & Public Health Services & Oral Radiology	**36 Weeks**
		General Medicine & General Surgery	**36 Weeks**
	General Education	**PERLs 3** (Professionalism, Ethics, Research & Leadership), Behavioral Sciences, Medical Education & ICT.	**Parallel Subjects**
Final Year BDS	1	**Oral Maxillofacial Surgery**	**8 Weeks**
	2	**Operative Dentistry & Endodontic**	**8 Weeks**
	3	**Orthodontics**	**8 Weeks**
	4	**Prosthodontics**	**8 Weeks**
	5	**Paediatric Dentistry**	**8 Weeks**
	General Education	**PERLs 4** (Professionalism, Ethics, Research & Leadership), Behavioral Sciences, Medical Education & ICT.	**Parallel Subjects**

A few salient features that have been incorporated for all three domains of training after deliberations and through an iterative process by subject experts, medical educationists and the university lead as follows.

- **Horizontal Integration- COGNITIVE:**

The Curriculum framework has 15 modules spanning 03 years. Horizontalintegration is evident in the modular configuration, where different basic disciplines approach the themes simultaneously. Modules have been structured where all the basic disciplines are represented based on their respective weightage of content. Assessment framework ensures that the applied/clinical aspect is also inculcated in theconcept development of the learner, keeping the clinical relevance and context at the core.

- **Clinical Relevance & Theme-COGNITIVE:**
  All module objectives are preceded by the recommended themes and clinical relevance. These are grounded in the rationale of the module so that the pattern of learning could be steered for a practical professional approach. However, institutional discretiondoes not prohibit adopting any other thematic approach provided that the program outcomes are adequately achieved.
- **Vertical Integration- COGNITIVE:**

Spiral placement of the modules within the frameworkensures a revisit of the basic sciences. In the first step the applied / clinical learning objectives orient the learner and the repetitive module horizontally rhymes with the clinical rotations with a backdrop of basic sciences. The final year of clerkship is the final revisit, which is primarily workplace based/log books and principally involves the perfect integrated blend of tri-domain learning.

- **C-FRC-PSYCHOMOTOR:**
  Clinical Skills follow a spiral that is entirely dominant skills. This spiral is the core of psychomotor training. The first two years will be of **Clinical Skills- Foundation,** which will represent clinical orientation. The clinical orientation will be conducted in OPD, skills lab, and simulation centers (depending on the available resources). The clinical orientation, along with the applied/clinical component of the knowledge, is important for the practical and professional aspects of learning. In the subsequent two years, the spiral will move on to **Clinical Skills Rotations**. The rotations in different wards will be based on foundational developmental already commenced in pre-clinical years. The year 3 and year 4 which have the rotations will also have the second visitof the modules which would now be more clinically inclined with a stronger base of Pharmacology and Pathology. Community oriented practices will also be broadening the element of systems thinking and diversity of practice for ahealthcare leader of tomorrow.
- **Clinical Clerkship:** Finally, **Clinical Clerkships** are aimed to be entirely facilitated in workplace environments. The clerkship model will involve the delegation of duties thus adding to the acquisition of professional accountability as a competency.The psychomotor training and skills acquisition will be their maximum in the year of clerkship. The entire process of Clinical competencies will be endorsed in a logbook which would be the training base of the learner for future references and exam evaluations during clinical years and internship.
- **PERLs-AFFECTIVE:**
  Affective training has been formally inculcated in the curricular framework. The model of PERLs has been introduced so that the yield of doctors has a strong, resilient, ethically driven character. PERLs stands for Professionalism, Ethics, Research and Leadership skills. PERLs rounds up professional development for the effective application of the knowledge and skills base achieved. For a professional to be social accountable and to be able to play the healthcare leadership role for societal elementslike advocacy, equity or resources and healthcare access, a formal training is a must.
  The spiral of PERLs will be monitored directly by the respective department of Medical Education. However, the teaching sessions, and mentoring process, can and will be assigned to other disciplines. For example, communication skills can have an input from the faculty of Family Medicine and research can be facilitated by the Community Medicine & Public Health faculty. Ethics can be jointly covered by the Behavioral sciences. Leadership is an ambit where the students will be motivated if the institutional leads themselves get involved and can also have the input of the

successful alumni. The Faculty of Medical Education will look after the entireprocess and will also engage in the teaching sessions, when and wherever required.

SRMLG SYSTEM TO EXECUTE AND MONITORING OF THE CURRICULUM

Some people like to fondly remember these pillars by "Syed Razi Muhammad's Learning Group" (SRMLG).
Ibn e Sina University, Mirpurkhas (ISUM) is a newly formed University, which is the first university of Mirpurkhas Division. It follows a vertically integrated modular system. There are 37 modules divided in 5 years of MBBS Curriculum and 16 modules in four years of BDS program. Each year has an average of 36 to 40 weeks of studies. Weekly plan is organized as a "theme".
Regular classes, practicals, clinics, and hospital duties are amply supported by 5 pillars that contribute to the high standards of this first-ever university of Mirpurkhas division. These pillars include:

1. **"Survive"** a three-pronged system of weekly tests, assignments and post-test discussions.
2. **"RLSE"** or "Running Lives by Sharing Experiences", a weekly mentoring program.
3. **"MCS"** or daily "Mobile Clinics by Students".
4. **"LBAS",** or "Learner Based Annual Symposia".
5. **"GSAT"** Annual "Gastroenterology session with Students as Teachers". Conducted by Prof. Dr. Syed Zafar Abbas.

1. SURVIVE:

In ISUM, like weekly "Survive" and other tests, assignments include posttest Discussion (PTD) and attendance.

IBN-E-SINA UNIVERSITY, Mirpurkhas - 2024

Online Moodle Test Schedule for 2024

S. No	Days	Time	Year/Class
1	Monday	01:00pm to 02:00pm	Third Year BDS
2		02:30pm to 03:30pm	Final Year MBBS
3	Tuesday	10:00am to 11:00am	Third Year DPT
4		01:00am to 02:00PM	Fourth Year MBBS
5		02:30pm to 03:30pm	Final Year BDS
6	Wednesday	02:30pm to 03:30pm	Third Year MBBS
7	Thursday	10:00am to 11:00am	Second Year BDS
8		11:00am to 12:00pm	CHPE Morning Program
9		12:00am to 01:00am	Second Year DPT
10		02:30pm to 03:30pm	Second Year MBBS
11	Friday	11:30am to 12:30pm	First Year DPT
12		12:30pm to 01:30pm	First Year BDS
13		02:30pm to 03:30pm	First Year MBBS

IT DEPARTMENT

2. "RLSE" or "Running Lives by Sharing Experiences", a weekly Mentoring Program.

Significance of Mentoring in ISUM:

Mentoring in higher education or medical education plays a vital role. It helps students or young professionals develop skills, gain insights, and build confidence. A good mentor provides guidance, support, and valuable feedback, which can lead to better academic or professional outcomes. In medical education, mentoring is particularly crucial as it helps shape future healthcare professionals. Some benefits include:

- Personalized guidance and support
- Improved critical thinking and problem-solving skills

- Enhanced professional development and networking
- Increased confidence and self-awareness
- Strengthening the teacher and student relationship.
- Better academic or professional performance

One contact hour is reserved for students' character building and development during regular mentoring activities.

Time: Meeting time will be reserved for one hour per week (Wednesday 1-2 pm between mentees & mentors, schedule is mentioned in the timetables of all respective years and programs.

3. MOBILE CLINICS BY THE STUDENTS (MCS)

"MCS" or daily "Mobile Clinics by Students" is a part of the unique 5-pillars system, which supports the vertically integrated modular system of Ibne Sina University, Mirpurkhas (ISUM). This was started in 2018 in collaboration with APPNA, when the President of APPNA supplied 4 mobile health systems to MMC/ ISUM to run this unique system. In the MBBS program from the third year till final year students and in the BDS Program, third year & final year BDS students must have to participate in the MCS, in groups of two from each class as per the schedule provided by the administration.

4. LEARNER BASED ANNUAL SYMPOSIUM (LBAS) 26TH SYMPOSIUM:

LBAS has been conducted every year from previous 26 years along with the exceptional team of academicians, students, and staff for 26 consecutive years. In 2024, Rigorous reverberation on scientific symposium started from October 1 to 11, 2024, encompassing pre-symposium workshops, research papers from faculty, students and invited speakers from Karachi, Hyderabad, Nawabshah, Sukkur, Gambat & other cities of interior Sindh. Muhammad Medical College, Mirpurkhas, Sindh, successfully organized pre-symposium workshops, a symposium, and a conference on the theme as

Role of Universities In Promoting Higher Education in Underprivileged Areas of Pakistan

The events aimed at providing a platform for medical professionals, researchers, and students to share knowledge, exchange ideas, and discuss cutting-edge advancements in the field.

5. "GSAT" ANNUAL "GASTROENTEROLOGY SESSION WITH STUDENTS AS TEACHERS"

Muhammad Medical College (MMC), a constituent college of Ibn-e-Sina University, Mirpurkhas (ISUM), has become an icon in the field of medical education and healthcare services in Pakistan. Not only it provides quality formal medical education, but as part of its innovative activities, it keeps holding several nontraditional activities to stimulate and provoke scientific curiosity among its students and teachers throughout the year. It therefor came as no surprise that under the leadership of its Chancellor Professor Syed Razi Muhammad, ISU received the prestigious National Healthcare Excellence Award 2025 recently at Lahore from Federal Minister of Health early April this year.

MENTORING

- **Chief Mentor**: Prof. Dr. Farzana Majeed
- **Course Coordinator**: Dr. Kiran Fatima
- **Course Manager**: Mr. Mehmood (Responsible to get all the weekly data completed and put online).
- **Meeting Venue & time**: Every Wednesday (from 1:00-2:00 pm) for meeting with the mentees-must be in timetable slot
- **Meeting with chief mentor**: Every Thursday (from 1:00-2:00 pm)

Group	Mentors	Mentee1 (GPL)	Mentee2	Mentee3	Mentee 4
A1	Dr. Nirma	Fizza	Bhawana	Minahil	Aleeza
A2	Dr. Taqdees	Laiba	Kalpana	Mayram Maqsood	Zainab Jatoi
B1	Dr. Fabiha	Sania	Saira	Rija Zehra	
B2	Dr. Sadia Memon	Shamshad	Shahida	Areeba	Sarah
C1	Dr. Rehmatullah	M Waqas	Rehan	Abdullah	Huzaifa
C2	Dr Ali Abbasi	Saad	Salih	Talha	
D1	Dr Rehan	Shan-E-Hyder	M Usman		

LEARNING STRATEGIES

Interactive Lectures:

The traditional lecture system is used to introduce a subject and discuss the broad concepts in that specific field of study. Interactive lectures to smaller groups remain an effective and essential way of teaching. More recent methods of learning and teaching, such as case-based learning and small group-based problem-solving sessions are also employed.

Small Group-Based Learning:

Small group and tutorial sessions are regularly held to enable students to discuss the details of a lecture topic. Students are expected to prepare presentations on applied topics and discuss their implications with their fellow students. The lecturer acts as a facilitator. By participating in these group discussions, students can interact and learn from one another.

Hands-on Training:

Students in final year students will deal daily with patients in OPD, students of the BDS program are exposing to pre-clinical dental subjects from very first year of BDS to gain, enhance, and polish their clinical knowledge and skills. Lectures and tutorials will regularly be held to provide clinical orientation on the subjects.

Clinical/Practical Learning:

Theoretical and practical knowledge is augmented with community services and integration of clinics. Clinical case presentations provide students with essential hands-on experience. Pre-Clinical teaching and exposure to students is provided from very first year of BDS program.

Community-Based Learning:

MDC is committed to provide the environment and training that would enable professionals to successfully contribute to the improvement of the health sector, particularly in less privileged communities under the Community-Oriented Medical Education Program. Community-based Based Learning is provided to students with the collaboration of the Community Dentistry and Community Medicine Department.

The university involves its students in research-developing work in these designated communities. Students are encouraged to participate in the preventive and curative care and management of patients and their families in Primary Health Care field settings from the very first year of the BDS program.

“MCS” or daily “Mobile Clinics by Students” is a part of the unique 5-pillars system, which supports the vertically integrated modular system of Ibne Sina University, Mirpurkhas (ISUM). This was started in 2018 in collaboration with APPNA, when the President of APPNA supplied 4 mobile health systems to MMC/ ISUM to run this unique system. Through this MCS, students of BDS and MBBS will be involved in community-based learning with senior faculty members once a week Tuesday or any other day as decided by the administration ISUM. This is an excellent platform to involve students in Community based research projects.

Ibne Sina University, Mirpurkhas (ISUM) follows a vertically integrated modular system. This is amply supported by 5 pillars that contribute to the high standards of this first-ever university of Mirpurkhas division.

Problem Based Learning (PBL):

Various learning strategies are implemented in all four years of dental education, focusing on small group teaching. In pre-clinical or junior years, the learners are exposed to teaching strategies like problem based learning (PBL), large group discussions, small group discussions, demonstrations, Skills lab, interactive

tutorials, seminars, poster competitions and simulations, while clinical students are exposed to case based learning (CBL), clinical rotations, small group discussions, didactic lectures, Skills lab, interactive sessions and seminars.

The typical features of PBL and CBL are aimed at student-centered learning. PBL has formed the core of many educational programs throughout the world in recent decades, promoting an orientation towards active learning in small collaborative groups. Many models of PBL has evolved to fit into different curriculum structures, meet diverse learning needs and accord with available resources. A tutor facilitates the group learning process. The PBL problem introduces a real patient or a hypothetical case. In this, students identify the key elements of the case, develop and test hypotheses based on the pathophysiological mechanisms, decide on the diagnosis, and discuss principles of management. The development of PBL cases is a challenging process, as each case must reflect a defined set of learning objectives, have face validity, suit the student's stage of maturity and fit with constraints of time and resources. A typical PBL tutorial consists of a group of students (usually 8to 10) and a tutor, who facilitates the session with minimum interference. The PBL tutorials consisted of three sessions of two hours, and the time is allocated in the timetable.

Case-based learning (CBL):

Case-based learning (CBL) is an adaptation of the PBL process and is used more generally in clinical medical education to provide knowledge in context and to offer opportunities for the development of clinical reasoning and judgment. Written case studies, prepared by the tutors present the background data and students are required to work together to identify the clinical problems, prepare differential diagnoses and suggest potential investigations and treatment. Students set their own learning objectives and identify the learning resources required to confirm or refute their diagnostic possibilities. The CBL format is flexible and may involve the incorporation of role play or the acquisition of data by gaining further clinical experience to solve the clinical problems. CBLs are overseen by facilitators who guide the students in case they are not on the right track as unlike PBLs, the CBL session has to be completed in one day.

ATTENDANCE POLICY FOR STUDENTS

PMDC rules for eligibility in annual examinations.

- Minimum attendance requirement is 90% in each subject: attendance is for lectures, demos, practicals, clinics, PBLs, SURVIVE, CPC, presentations, etc, indoor and outdoor.
- The attendance is not simply for lectures.

Attendance is maintained by the Department of Student Affairs at MDC.

All students should try and achieve 100% attendance. Every teaching session is essential. You are expected to have at least 75% attendance in all subjects individually to be allowed to appear in the professional examinations.

a. Lecture Attendance is marked at the start of the class.
b. Students who come more than 10 minutes late will be marked absent.
c. A random head count is done to ensure correct entry of attendance.
d. The attendance sheet is signed by the teacher and sent to Department of Student Affairs.
e. The attendance is entered into the spread sheet as soon as possible on that day.
f. No correction will be made later than 24 hours as the system is then locked.

ATTENDANCE FOR LECTURES, DEMOS, PRACTICALS ETC

a. The teacher will mark the attendance of students and countercheck it by Head count. The attendance sheet should not be rotated among the students.
b. The teacher/ assistant/CR must immediately hand over the attendance sheet to the Scholastics Department daily
c. Attendance submitted later than Friday of the current week will not to be accepted.

The University rules permit a 5% shortfall for genuine reasons of personal illness of a life-threatening nature or unavoidable circumstances such as the death of a blood relative. This 5% relaxation cannot be taken in case of students going away for holidays.

In case of attendance less than 90% even due to health issues, you will be asked to repeat the year.

ATTENDANCE POLICY FOR STUDENTS REPEATING THE YEAR

a. Students who are repeating the year either due to poor attendance or failure in professional or supplementary examination will need to attend all the classes of the particular subject in the next year.
b. Their previous years' attendance will not be taken into consideration.
c. If their attendance is AGAIN less than 90% in current academic year, they will not be allowed to appear in the upcoming annual examination.
d. This includes all practical classes, demonstrations, CBL sessions, lectures and clinical classes.

ATTENDANCE POLICY FOR STUDENTS APPEARING IN SUPPLEMENTARY EXAMS

a. Only those students who have appeared in professional examination can appear in supplementary examination.

b. Students, who were not eligible for the annual exam, will not be allowed to sit in the supplementary exam either.
c. Those who did not avail the chance must repeat the year and cannot appear in the supplementary.
d. Students who fail to pass their first annual exam will be provisionally promoted to the next class while preparing for the supplementary examination.
e. Attendance will be marked in the class to which they have been promoted.
f. The students will prepare for the supplementary exams in their personal time without compromising the attendance of the year they are provisionally promoted to .
g. In case the student fails to pass the supplementary exam he/she will revert to the previous class and the attendance in the new class will be counted in the class to which they revert to.
h. Those students who do not attend classes will be marked absent and may face a shortage of attendance and will be asked to repeat the year.

ELIGIBILITY CRITERIA FOR APPEARING IN ANNUAL PROFESSIONAL EXAMINATIONS

A student will be eligible to appear in the annual professional examination if he/she fulfills the following criteria:

a. At least 75% attendance in every subject.
b. Have cleared all financial dues.
c. Must appear in all three end-of-module examinations.
d. Must have scored passing marks in at least two of end of end-of-module examinations.
e. No breach of discipline should have occurred for which the Disciplinary Committee has advocated a punishment.
f. A student who has failed 2 end-of-module tests will be permitted a “resit” at the end of the academic year.
g. Students who did not appear in end of end-of-module tests will not be allowed in the “resit”.
h. No student can appear in one subject in an annual professional examination but must appear in all the subjects for that year.
i. Subjects may be designated for the supplementary exams or for students repeating a year.
j. There will be no remedial or extra classes in any subject for making good the shortfall in attendance.
k. Departments may offer revision classes but these will not be considered formal classes and will not be entered in the regular attendance.

ASSESSMENT POLICY

There is a policy of ongoing or formative assessment of all students and summative assessment at the end of the module.

Formative or ongoing assessment:

- Marks for CBL sessions, SURVIVE, logbooks, history writing or clerking of patients.
- End of OPD rotation examinations, CATs, quizzes and tests held in a department.

Summative Assessment:

- Annual examination will be conducted by the affiliating university as per PM&DC guidelines.
- **The end-of-module test comprises** 30**%** of the final professional examinations
    - Written Final professional theory examination based on MCQs=70%
- **Final OSPE/OSCE.OSVE:**
    - OSCE or OSPE examination, Viva voce exam=80%
    - Internal evaluation =20%

Generation of internal evaluation marks from each module.

- 20% MARKS will be calculated from each end of the module exam and will be counted in the final examinations. The Internal evaluation is communicated to the University by the administration department.
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SCHEME OF INTERNAL ASSESSMENT/EVALUATION-20%-2025			
Overall attendance		7%	
Modular Test/Ward test/OPD Test		2% (6%)	
SURVIVE		7%	
SURVIVE 7%			
Final Year		**Remaining Years**	
Test	3%	Test	3%
Assignment	2%	Assignment	2%
Post Test Discussion	2%	PTD/Practical Book/Logbook	2%
Total	7%	Total	7%

POLICY FOR ELECTIVES

Electives are not mandatory nor are they a part of the curriculum. Electives are considered add on extra-curricular activities with benefits for selection for jobs or postgraduate training after BDS.

a. The Electives Rotation will be of four weeks' duration.
b. It will be planned at least six months in advance during the 3rd or 4th Year.
c. The Elective will be planned during the **SUMMER HOLIDAYS** preferably.
d. The institution or department will be of the student's choice.
e. During the elective, the student will not get credit for attending lectures at MDC.
f. It is the student's responsibility to ensure that his/her overall attendance record is not affected adversely by the elective.
g. The student will not proceed on an elective without informing the Principal or Concerned chairperson designated for this purpose who will take permission from the Principal.
h. The student will sign a waiver to the effect that any shortfall in attendance is his /her own responsibility and will be dealt with as per rules of Liaquat University of Medical & Health Sciences (LUMHS).
i. The adequacy of education during the elective is the student's own responsibility.
j. Permission to attend an elective is given by the Associate Dean designated for this purpose. This simply implies that the college authorities are aware that the student is away for this period so that admission is not cancelled.
k. The student will ensure that the Elective Supervisor completes an evaluation report at the end of the elective.
l. MDC will not provide any financial assistance for the elective.

DIRECTORATE OF STUDENTS' ACTIVITIES

Directorate of Student Affairs is responsible for providing a constructive learning environment that fosters positive learning, personal development and enhances the quality of life for students. This department encourages students to achieve the objective of building a balanced personality.
The Directorate of Students Affairs establishes a connection between students, faculty and University administration. It is an important component of university that offers a platform for curricular and co-curricular activities to explore, enlighten and polish the hidden capabilities of the students so that they can enjoy pleasant environment and deliver a series of programmes to enrich the campus life. It is committed to enable all students to participate in an engaging, healthy, and active learning environment during their time at MDC-ISU. All these pursuits tend to improve the level of confidence among the students.

The Directorate has following major duties

- To promote extra co-curricular and cultural activities such as organizing Debate competitions, Quiz competitions, workshops, Bake sale, welcome party and farewell.
- Providing sports facilities and regular organization of sports competitions.
- Arranging different lecture sessions for Personal and Professional Development.
- Arranging community visits.
- Conducting various seminars on current national and international issues.
- Arranging blood donation camps and much more.

CURRICULUM FRAMEWORK AND SEQUENCE OF CONTENT OF FIRST YEAR BDS-2025

MUHAMMAD DENTAL COLLEGE
FIRST YEAR BDS-MODULAR/BLOCK CURRICULUM BATCH-VI
ACADEMIC CALENDAR AND SEQUENCE OF CONTENT-YEAR-2025

NAME OF THE MODULE/BLOCK	BLOCK – I	Eid & Summer Holidays 31th March - 6th April & 1st June -7th July-2025	BLOCK - II		Eid ul Adah & Muharram holidays 6th June- 8th June & 5th- 7th July-2025	BLOCK - III	TOTAL WEEKS
	MODULE/BLOCK-I Homeostasis, Cell, Electrophysiology, Blood, Respiration, CVS-I		MODULE/BLOCK- CVS-II Neurosciences/special senses, Nerve & Muscle Physiology			MODULE/BLOCK-3 Gastrointestinal Tract Endocrinology Renal physiology	36 Weeks
DURATION IN WEEKS	3 Months (12 Weeks)		3 Months (12th Weeks)			12 Weeks	
	20th Jan-2025 To - 11th–April 2025		14th April-2025 – 1st- Aug- 2025			4TH August-2025 To 24th- October-2025	
Pre-Clinical Dental Sciences-I ROTATION WISE	20th –Jan to 20th-March-2025 08 Weeks		24-March- to 23rd may-Aug-2025 08-Weeks	26th May -2025 to 26th August 08-Weeks		28th-Aug-2025 to 24th-oct-2025 08-Weeks	32-Weeks
A=Pre-Clinical-DM	A		B	C		D	
B= Clinical care & Prof	B		C	D		A	
C= Dental Anatomy (Phantom Lab)	C		D	A		B	
D=Pre-Clinical Operative	D		A	B		C	
BLOCK EXAMS	Block -I		Block -2			Block -3	
	11-04-2025 BCQS, OSPE & 16-04-2025 viva voice (LUMHS)		1-08-2025 BCQS, OSPE viva voice (LUMHS)			24-10-2025 BCQS, OSPE &viva voice	
Preparatory Holidays	27-Oct-2025 to 27-Nov-2025						04 Weeks
LUMHS Prof Examinations	30-December-2025 to 15-January-2026						04 Weeks

Department of Dental Education
Muhammad Dental College

a. Learning objectives for each module are written down in the study Guide issued at the beginning of each academic year to each student. The curriculum for each module can be provided upon request.
b. A schedule is issued for each module, reinforced by a weekly schedule issued 2 weeks in advance of the teaching dates.
c. This includes lecture, CBL, Practical's, Demonstrations, Ward Clinics, Evening Clinics, Classes in Skills Lab, Self-Study and Library period.
d. The assessment schedules i.e. end of end-of-module tests as well as period of preparation leave and timing of OSCE/ OSPE is given in the Academic Calendar.
e. The assessment result is displayed on departmental notice boards and recorded in the Examinations Department of MMC and Student Affairs of MDC.

INTRODUCTION TO THE CURRICULAR FRAMEWORK OF FIRST YEAR BDS

INTRODUCTION TO FIRST YEAR INTEGRATED CURRICULAR FRAMEWORK		
Block-I (3months)	**Block-II (3months)**	**Block-III (3months)**
Homeostasis, Cell &Electrophysiology (transport), Dentofacial complex Blood, Respiration, CVS I (Heart physiology), Structure of the Oral Tissues, Cytoskeleton &Intercellular Junctions,	CVS II (circulatory system), Neurosciences (CNS sensory & motor), Autonomic nervous system, Special Senses Nerve & Muscle Physiology (Skeletal and smooth muscle) Introduction to Bone, Dento-osseous structures	Gastrointestinal Tract Endocrinology Renal Physiology
12 Weeks	12 Weeks	12 Weeks
Human Anatomy, Human Physiology, Biochemistry, and Oral Biology & Tooth Morphology		

Block-IV
Pre-Clinical Dental Sciences-I
34 Weeks (on a rotation basis, group-wise)
Oral Anatomy & Tooth Morphology, Biomaterials and Pre-clinical Sciences of Operative Dentistry-I, Biomaterials and Pre-clinical Sciences of Removable Prosthodontics-I, Introduction to Dental Care and Professionalism-I (on rotation basis) and Research Methodology-I and Dental Informatics-I

INTRODUCTION TO DEPARTMENTS

Department of Anatomy

Department of Physiology

Department of Biochemistry

Department of Oral Biology & Tooth Morphology

Department of Prosthodontics

Department of Operative Dentistry

DEPARTMENT OF DENTAL EDUCATION

High-quality Medical /Dental education is a vital prerequisite for high-quality patient care. Dental education's ultimate aim is to supply society with a knowledgeable, skilled, and up-to-date cadre of professionals who put patient care above self-interest, along with developing their expertise over the course of a lifelong career.
The department of Dental Education has expanded beyond the classroom all around the world, and quality patient care is learned by bedside teaching and with the practical introduction of clinical cases in preclinical years. The Dental Education department ensures that the educational content synchronizes with the learning strategies, the assessment tools and provides effective feedback to enhance the learning process. The Department of Medical/ Dental Education at Ib-ne-Sina University is interested in raising the standards of teaching by continuously developing a pool of trained faculty members. Faculty training is done in educational content as well as in diverse teaching skills to encourage a flexible and learner-centered approach during teaching. For this purpose, interactive, practical, and hands-on workshops are constantly designed, focusing on current and effective modes of evidence-based teaching and assessment tools. Self-reflection and critique of teaching techniques are also vital in propelling an Institute towards excellence. Our Dental Education department aims to achieve that and more.

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FACULTY IN THE DEPARTMENT OF DENTAL EDUCATION		
Name	**Designation**	**Qualification**
Prof Dr Syed Razi Muhammad	**Chairman/Professor**	**MBBS, FCPS, FRCP, MHPE**
Dr Kiran Fatima	Assistant Professor	BDS, MCPS-HCSM, MHPE
Dr Taqdees Maryam	Lecturer	BDS, CHPE
Dr Nosheen Zafar	Lecturer	BDS, CHPE

DEPARTMENT OF ANATOMY

The Department of Anatomy at Muhammad Dental College comprises of well-trained and experienced post-graduate faculty members. Since Anatomy is one of the basic science subjects, the teaching methodology adopted is unique and integrated with other subjects of basic sciences.

For student learning, the department includes a spacious and well-equipped museum, dissection hall, histology laboratory, and a micro technique section.

FACULTY IN THE DEPARTMENT OF ANATOMY		
Name	**Designation**	**Qualification**
Dr Muhammad Imran	**Chairman/Professor**	**MBBS, M-Phil**
Dr Tooba Usman	Lecturer	BDS
Dr Kailash	Lecturer	BDS

DEPARTMENT OF PHYSIOLOGY

Human Physiology is branch of medicine that deals with the study of functions of human body. It is intimately related to human anatomy, biochemistry, pharmacology, pathology, and behavioral sciences, and is the mother of medicine.

The physiology laboratory is very well equipped with latest and modern gadgets, apparatus and instruments like Biopac, spirometer, Steth graph, ergometer, binocular microscopes, ophthalmoscope, perimeter, PEF meter, centrifuge and ECG machine etc. The lab is also provided with overhead projectors and multimedia facilities, such a provision at our disposal will benefit students maximally in demonstrating CD`s and conducting tutorials and practical's. The lab staff is also highly experienced and well-trained.

FACULTY IN THE DEPARTMENT OF PHYSIOLOGY		
Name	**Designation**	**Qualification**
Dr Farzana Majeed	**Chairman/Professor**	MBBS, M-Phil, Physiology
Dr Shahdab	Senior registrar	BDS, M-Phil physiology
Dr Tooba Naz	Lecturer	BDS

DEPARTMENT OF BIOCHEMISTRY

Biochemistry is the science concerned with the chemical basis of life. The key objective of biochemistry is to learn molecular basis of all biochemical process and correlate it with clinical subjects. Biochemistry encompasses large areas of cell biology, molecular biology, and molecular genetics. The knowledge of biochemistry is essential to all life sciences. Health depends on a harmonious balance of biochemical reactions occurring in the body, and disease reflects abnormalities in biomolecules, biochemical reactions, and biochemical processes. Biochemical approaches are often fundamental in illuminating the causes of disease and in designing appropriate therapies.

Biochemistry department has well experienced, qualified and enthusiastic faculty. It has spacious laboratory and one preparation room. The laboratory is well equipped with modern gadgets and fine glassware. Teaching strategies as per PMDC guidelines based on lectures, problem based learning (PBL), and case based sessions, tutorials seminars and practical.

FACULTY IN THE DEPARTMENT OF BIOCHEMISTRY		
Name	**Designation**	**Qualification**
Dr Jagdesh	**Chairman/Professor**	**MBBS, M-Phil**
Dr Sara	Lecturer	BDS
Dr Abshar	Lecturer	BDS

DEPARTMENT OF ORAL BIOLOGY AND TOOTH MORPHOLOGY

Oral Biology deals with the study of the oral and craniofacial tissues along with the application of basic scientific knowledge to oral tissues in health and disease states.

Our mission is to create a strong foundation of the basic structure of oral tissues on which students can further build up their forthcoming years of dental education. We meet contemporary educational standards and create a positive learning environment by employing innovative integrated curriculum including thematic teaching strategy, lectures on multimedia, and educational videos. Interactive sessions are advocated to improve comprehension of students and to fortify their skills of communication and self-expression. 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

FACULTY IN THE DEPARTMENT OF ORAL BIOLOGY AND TOOTH MORPHOLOGY		
Name	**Designation**	**Qualification**
Prof Dr Muneer Banglani	**Chairman/Professor**	BDS, M-Phil
Dr Madiha Khalid	Assistant Professor	BDS, M-Phil
Dr Raj Kumar	Assistant Professor	BDS, M-Sc (OMFS)
Dr Saif-ur Rehman	Assistant Professor	BDS, M-Sc (OMFS)
Dr Ali Raza	Assistant Professor	BDS, M-Sc (OMFS)
Dr Sadia Memon	Assistant Professor	BDS, M-Sc-(Ortho)

DEPARTMENT OF PROSTHODONTICS

Prosthetic dentistry is the branch of dentistry about the restoration and maintenance of oral functions, comfort, appearance, and health of the patient by restoration of teeth and/or replacement of the missing structures with removable and fixed dental prosthesis.

The department caters to patients through the provision of removable complete and partial denture prosthesis; fixed prosthesis, maxillofacial prosthesis, and temporomandibular disorders management.

FACULTIES OF SCIENCE OF PROSTHODONTICS		
Name	**Designation**	**Qualification**
Prof Dr Atif Jawad	Chairman /Professor	BDS, FCPS
Dr Uzma Bashir	Associate Professor	BDS, M.Sc
Dr Shagufta	Registrar	BDS, M.Sc (FCPS)
Dr Champa Kumari	Registrar	BDS, (FCPS)
Dr Rehan	Registrar	BDS

DEPARTMENT OF OPERATIVE DENTISTRY

It is the branch of dentistry concerned with the development of disease and damage to the dental hard tissues. The etiology, pathogenesis, and diagnostics of injuries are studied, as are disease activity, prognoses, prevention work and reparative treatment.

The objective of this course is to give foundation knowledge of operative instrumentation, dental terminology, principles of cavity preparations, and basics of tooth restorations. The skills with a handpiece are mainly accomplished through the use of patients' simulation approaches. The restorations for teeth are taught in a dental operative phantom head laboratory. The development and practice of these skills using a handpiece (dental drill) begins at orientation and continues throughout the academic year.

FACULTY IN THE DEPARTMENT OF OPERATIVE DENTISTRY		
Name	**Designation**	**Qualification**
Dr Asadullah Khan Tareen	**Chairman/Professor**	**BDS, M.Sc. (Conservative dentistry)**
Dr Shuja Aslam	Assistant Professor	BDS, FCPS
Dr Mohsin Ali Deeraj	Assistant Professor	BDS, FCPS
Dr Saima	Registrar	BDS, FCPS (Trained)
Dr Asma Kauser	Registrar	BDS, FCPS (Trained)
Dr Priyanka	Registrar	BDS
Dr Moon Irum	Registrar	BDS, FCPS (trained)

DEPARTMENT OF SCIENCE OF DENTAL MATERIALS

The Science of Dental Materials is an applied basic science DISCIPLINE dealing with the physical, chemical and biological properties of the materials used in clinical dentistry and their interaction with the oral tissues. An understanding of these properties as well as their handling is critical to the selection and various applications of dental materials in the field of dentistry.
The Department of Dental Materials includes a team of experienced and dedicated teachers. It also has a well-equipped laboratory where students can develop basic practical skills and get acquainted with commonly used dental materials.

To meet the challenges of present-day educational standards and to facilitate scientific knowledge at a professional level, the department acquires various teaching schemes such as interactive lectures, hands-on preclinical procedures, video demonstrations, tutorials, practical, guest speaker sessions & routine assessment tests.

FACULTIES OF SCIENCE OF DENTAL MATERIAL

Name	Designation	Qualification
Dr Hafiz Mahmood Azam	Chairman/Associate Professor	BDS, M-Phil
Dr Nourain Saeed	Assistant Professor	BDS, M.Sc
Dr Paras Talpur	Assistant Professor	BDS, M.Sc
Dr Sehar Ali	Lecturer	BDS
Dr Muhammad Hassan Khoso	Lecturer	BDS (MDS Trainer)

PROGRAM INTENDED LEARNING OUTCOMES OF VARIOUS /SUBJECTS

LEARNING OBJECTIVES OF PHYSIOLOGY 1ST YEAR BLOCK -1 (1A) Homeostasis, Cell & its transport, Electrophysiology (Action Potential)	
Terminal Objective	• Demonstrate appropriate basics knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision making by critical thinking. • Recognize patient with special care and perform dental emergencies having good communication skills.
Rationale	Teaching Physiology in the first year of BDS is crucial because it helps students understand the normal functions of the human body, forming the basis for recognizing disease and planning appropriate dental care. Knowledge of systems such as the cardiovascular, nervous, and endocrine systems enables students to relate general body functions to oral health. It builds scientific reasoning, supports safe clinical decision-making, and prepares students to manage patients with systemic conditions. Physiology also links foundational sciences with future clinical training, ensuring that students develop a comprehensive understanding of how the body responds to stress, medications, and dental procedures.
TOPIC	**Learning objectives**
Phy-01: Introduction to Physiology: branches of physiology	• Define Physiology and explain its significance in understanding biological functions. • Describe the relationship between physiology and other biological sciences. • List and explain the major branches of physiology.
Phy-02: Functional Arrangement-Levels of organization	• Describe the concept of biological organization and its role in maintaining physiological functions. • Explain the hierarchical levels of organization in the human body, including, Chemical Level, the Cellular Level, • Tissue Level, Organ Level, System Level, Organism Level. • Understand the interdependence of body systems in physiological functions.
Phy-03 Sterilization & Hand Washing (Practical)	• Define sterilization and its importance in infection control. • Explain different methods of sterilization, including Physical methods • Chemical methods • Differentiate between sterilization, disinfection, and antisepsis in clinical settings**.**
Phy-04: Body Fluid Compartments (ECF&ICF)	• Define body fluid compartments and their significance in maintaining homeostasis. • Differentiate between the two main fluid compartments: ICF &ECF • Explain the composition of ICF & ECF, including key electrolytes • Explain fluid exchange mechanisms between compartments (osmosis, diffusion, active transport). • Understand the concept of osmolality and tonicity and their effects on cell volume.

	• Discuss clinical significance, including dehydration, edema, and fluid therapy in medical practice.
(1 B) BLOOD	
Phy-05: Homeostasis	• Define homeostasis and explain its significance in maintaining a stable internal environment. • Describe the key components of a homeostatic control system: Receptor (Sensor), Control Center (Integrator) , Effector. • Explain Negative and Positive Feedback Loops – Differentiate between negative and positive feedback mechanisms with relevant physiological examples
Phy-06&07: Study of Microscope (Practical)	• Define a Microscope – Explain what a microscope is and its importance in dental and medical sciences. • Describe the Types of Microscopes – Differentiate between light microscopes and electron microscopes, including their uses in dentistry. • Understand the Parts of a Light Microscope – Identify and describe the optical, mechanical, and illumination components of a microscope.
Phy-08: Cell Organelles-I Nucleus, mitochondria & endoplasmic reticulum	• Define cell organelles and classify them into membrane-bound and non-membrane-bound organelles. • Explain the role of organelles in maintaining cell structure, function, and metabolism • Explain how mitochondrial dysfunction can lead to oral pathologies and muscle fatigue. • Understand the role of the nucleus in oral cancer, genetic mutations, and cell repair. • Discuss the impact of endoplasmic reticulum stress on periodontal diseases and bone metabolism.
Phy-09&10: Intro to Power Lab. (Practical)	Define Power Lab – Understand what Power Lab is and its importance in biomedical and dental education. • Describe the Components of Power Lab – Identify the hardware (amplifiers, transducers, sensors) and software (Lab Chart) used for recording and analyzing data. • Explain the Working Principle – Learn how Power Lab converts physiological signals into digital data for analysis. • Demonstrate Proper Setup and Calibration – Understand the steps to correctly set up Power Lab for accurate recordings. • Record Basic Physiological Signals – Use Power Lab to measure parameters such as ECG (electrocardiogram), EMG (electromyography), respiratory rate, and nerve conduction velocity. • Analyze and Interpret Data – Learn how to use Lab Chart software to visualize and analyze recorded physiological signals. • Apply Power Lab in Dental Research – Understand its applications in measuring bite force, muscle fatigue, pain perception, and nerve function.
Phy-11: Cell organelles-II	• Describe the structure and organization of the Golgi apparatus. • Explain the role of the Golgi apparatus in protein modification, sorting, and packaging.

Golgi apparatus, lysosome & peroxisome	• Understand its function in the formation of lysosomes and secretion of cellular products. • Define lysosomes and describe their structure. Explain their role in intracellular digestion and waste disposal. • Describe the structure and function of peroxisomes. Explain their role in detoxification and metabolism of fatty acids.
Phy-12: Cell membrane structure and functions	• Describe the fluid mosaic model of the cell membrane. • Identify the major components: phospholipids, proteins, carbohydrates, and cholesterol. • Explain the role of the phospholipid bilayer in maintaining membrane integrity. • Differentiate between integral and peripheral proteins and their functions. • Explain the role of the membrane in **selective permeability** and transport. • Explain how the membrane helps maintain homeostasis.
Phy-13: Transport-I (passive transport)	• Define Passive Transport. Explain the concept of passive transport as the movement of molecules across the cell membrane without energy input. Types of Passive Transport: Simple Diffusion, Facilitated Diffusion, Osmosis. • Describe how temperature, concentration gradient, membrane permeability, and molecule size influence passive transport.
Phy-14: Transport -2 (active transport)	• Define Active Transport. • Explain that active transport moves molecules across the cell membrane against the concentration gradient (low to high concentration) using energy (ATP). Types of Active Transport: Primary Active Transport, Secondary Active Transport (Cotransport). Examples of Active Transport Mechanisms. Sodium-Potassium Pump (Na^+/K^+ Pump. Endocytosis and Exocytosis

Phy-15: Resting Membrane /graded potential	• Discuss RMP, graded potential, and Nernst Potential. Regulation of RMP. • Explain how the sodium-potassium pump (Na^+/K^+ ATPase) maintains RMP by actively transporting 3 Na^+ out and 2 K^+ in. • Describe the role of leak channels (K^+ and Na^+) in maintaining the resting potential. • Understand that RMP is typically around -70mV in neurons and why the inside of the cell is more negative than the outside. • Phases of action potential • Explain how stimulus strength affects graded potentials (stronger stimulus = larger potential change). • Understand that graded potentials occur in dendrites and cell bodies and can trigger an action potential if strong enough. • Describe how graded potentials summate (add together) to reach the threshold for action potential initiation. • Define Nernst Potential
Phy-16: Action potential (Saltatory conduction)	• Discuss the action potential, its propagation in myelinated and non-myelinated nerve fibers. • Describe the graph of the action potential.
Phy -17 and 18 Homeostasis and oral health Physiology tutorial	• Relate Homeostasis to Oral Health – • Understand how homeostatic imbalances, such as dehydration or diabetes, affect oral health (e.g., dry mouth, periodontal disease, delayed healing
Phy-19 Composition & Functions of Blood	• Describe blood as a connective tissue with plasma and formed elements. • Explain the components of plasma, including water, proteins (albumin, globulins, fibrinogen), electrolytes, nutrients, hormones, and waste products. • Identify the three main formed elements of blood • •Describe Functions of Blood.
Phy-20: RBC +	• **Describe Red Blood Cells (RBCs) – Structure and Function.** • Explain the functions of RBCs:\ • Transport of oxygen from lungs to tissues and CO_2 • from tissues to lungs. • Role in acid-base balance (acting as a buffer). Contribution to blood viscosity and osmotic balance. • Understand the normal RBC count. • Define erythropoiesis. • Explain the stages of erythropoiesis. • Regulation of Erythropoiesis. • Role of erythropoietin
Phy-21&22: How to collect a blood sample (Practical)	• To understand the proper method of collecting a blood sample for diagnostic purposes while maintaining sterility and patient safety**.**

Phy-23: Hemoglobin-1 Structure & synthesis +Types functions	• Define hemoglobin (Hb) and explain its role in oxygen transport. Describe the structure of hemoglobin: Explain the Types of Hemoglobin. • Explain the **primary functions** of hemoglobin. • Describe the **transport of oxygen (O_2) and carbon dioxide (CO_2)** by hemoglobin. • Understand the **fate of hemoglobin** after RBC destruction.
Phy-24&25: Blood Film (peripheral blood film) (Practical)	• To prepare and examine a **peripheral blood film (PBF)** for the study of red blood cells (RBCs), white blood cells (WBCs), and platelets under a microscope
Phy-26: Hemoglobin-disorders	• To understand different types of hemoglobin dysfunctions, i.e., thalassemia and sickle cell disease
Phy-27&28: Hemoglobin Estimation (Practical)	• To estimate the hemoglobin (Hb) concentration in blood using standard methods and understand its clinical significance
Phy-29: Anemia + polycythemia	• Define anemia and explain its effect on oxygen transport. • Classify anemia based on: Morphology (microcytic, macrocytic, normocytic). • Etiology (nutritional deficiency, blood loss, hemolysis). • Describe the causes of anemia
Phy-30: Monocyte + macrophage system	• Define **monocytes and macrophages** and explain their role in the immune system. • Describe the **origin** of monocytes from hematopoietic stem cells in the bone marrow. • Explain how monocytes **circulate in the blood** and differentiate into **macrophages** in tissues.
Phy-31&32: To perform DLC (Practical)	• To perform and analyze a Differential Leukocyte Count (DLC) **using a** stained peripheral blood smear and understand its clinical significance.
Phy-33: Overview of the immune system and classification, and Innate immunity	• Define the immune system and its role **in** protection against pathogens (bacteria, viruses, fungi, parasites)**.** Explain the basic functions of the immune system • Differentiate between: Innate Immunity (Non-Specific, First Line Defense). Adaptive Immunity (Specific, Long-Term Memory Response).
Phy-34: Acquired immunity (humeral and cell mediated)	• Define acquired (adaptive) immunity and how it differs from innate immunity**.** Explain the key features of acquired immunity • Self vs. Non-Self Recognition. Differentiate humoral immunity from cell-mediated immunity
Phy-35&36: to measure ESR (Practical)	• To measure the Erythrocyte Sedimentation Rate (ESR) and understand its clinical significance in diagnosing inflammatory and infectious diseases

Phy-37: Complement system	• Define the **complement system** and its role in **innate and adaptive immunity**. • Understand the complement system's primary functions: • Opsonization • Cell lysis • Inflammation
Phy-38: Blood group-1 ABO blood group system	• Define blood grouping and its significance in transfusions and organ transplants**.** Explain how blood groups are determined by antigens on RBCs and antibodies in plasma**.** Importance of Agglutination in Blood Typing
Phy-39: Rh system and blood transfusion	• Define the **Rh blood group system** and its role in blood transfusion. Explain the **Rh antigen (D antigen)** as the key determinant of Rh status. Differentiate between **Rh-positive (Rh^+) and Rh-negative (Rh^-) individuals**. Clinical Significance of Rh Factor
Phy-40&41: Blood Group (Practical)	• To determine an individual's **ABO and Rh blood group** using the **agglutination method** and understand its clinical significance.
Phy-42: Hemostasis & its natural mechanism 1	• Define **Hemostasis. Primary and secondary hemostasis.** platelets **and their role in** hemostasis (blood clotting)**.**
Phy-43 and 44: Clotting pathways 2 (Physiology Tutorial)	• Understand the **two main clotting pathways** (Intrinsic & Extrinsic) and how they converge into the **Common Pathway**. • Explain the **sequential activation of clotting factors** leading to fibrin clot formation. • Understand the **role of thrombin and fibrin** in clot stabilization. • Recognize **clinical disorders** related to clotting pathway defects
Phy-45&46: clotting time Measurement (Practical)	• To determine the **clotting time** of blood using the **capillary tube method** and understand its clinical significance.
Phy-47: Anti-clotting + bleeding disorder 3	• Understand the **natural anti-clotting mechanisms** that prevent excessive clotting. • Describe **anticoagulant drugs** and their clinical use. Bleeding Disorders. Hemophilia A/B (Factor VIII/IX deficiency) → defective clot formation. • Thrombocytopenia (low platelet count) • Recognize **common bleeding disorders**, their causes, and clinical presentations. • Explain the **diagnostic tests** for bleeding disorders.
Phy-48&49: to measure Bleeding Time (Practical)	• To measure the **bleeding time (BT)** and understand its clinical significance in assessing **platelet function and primary hemostasis**.
(1B) Blood	
Topic	**Learning objectives**
Phy-19 Composition & Functions of Blood	• Describe blood as a connective tissue with plasma and formed elements. • Explain the components of plasma, including water, proteins (albumin, globulins, fibrinogen), electrolytes, nutrients, hormones, and waste products. • Identify the three main formed elements of blood • Describe the Functions of Blood.

(1 C) Respiration	
Topic	**Learning objective**
RESP-1C-PHY-1 **Introduction of the respiratory tract and its functions**	Explain the **functions of each part of the respiratory system**.
RESP-1C-PHY-2 **The mechanics of breathing**	• Explain the process of inspiration (inhalation) and expiration (exhalation). • Describe the role of the diaphragm, intercostal muscles, and pressure changes in breathing • Understand the concept of lung compliance and airway resistance. • Discuss the clinical significance of breathing disorders.
RESP-1C-PHYS-3 and 4 ***Practi*** **To record the effect of sitting and standing on respiration on Power lab**	• **Explain how posture influences respiratory rate and depth.** • Operate the Power Lab system to record breathing rate, tidal volume, and other respiratory parameters • Compare respiratory data during sitting and standing
RESP-1C-PHYS-5 **Compliance of lungs and surfactant** **Physiology tutorial)**	• Define lung compliance and explain its significance. • Describe the factors affecting lung compliance • Role of surfactant
RESP-1C-PHYS-6 and 7 ***Practical*** **1.To record the effect of exercise on respiration on Power lab**	• Explain how exercise influences respiratory rate and depth. • Operate the Power Lab system to record breathing rate, tidal volume, and other respiratory parameters • Compare respiratory data before, during, and after exercise.
RESP-1C-PHYS-8 **Lung volumes & capacities & their importance**	• Define lung volum**es** and lung capacities**.** • Explain the significance of each lung volume and capacity**.** • Understand how these measurements are used in clinical diagnosis. • Discuss the clinical importance of altered lung volumes in respiratory diseases**.**
RESP-1C-PHYS-9 **Pulmonary Circulation, zones of lungs**	• Explain the pulmonary circulation and its role in gas exchange. • Describe the pressure differences between pulmonary and systemic circulation • Define and explain the three zones of lung perfusion (West's zones**)**. • Discuss the clinical significance of pulmonary circulation and lung zones
RESP-1C-PHYS-10 **Exchange of Gasses and Respiratory Membrane**	• Describe the **process of gas exchange** in the lungs and tissues. • Explain the structure and function of the respiratory membrane**.** • Identify the factors affecting gas diffusion and transport. • Understand the clinical significance of impaired gas exchange**.**
RESP-1C-PHYS-11 **Transport of CO2**	• Explain the three main methods of CO_2 transport in blood. • Describe the role of carbonic anhydrase in CO_2 transport. • Understand the Haldane effect and its clinical significance**.** • Explain how CO_2 transport is linked to acid-base balance (buffer system).
RESP-1C-PHYS-12	• Explain the two main methods of O_2 transport in blood.

Transport of O2 oxygen	• Describe the role of hemoglobin in oxygen transport**.** • Understand the Oxygen-Hemoglobin Dissociation Curve & its shifts**.** • Identify the factors affecting O_2 transport**.** • Explain the clinical significance of impaired O_2 transport.
RESP1C-PHYS-13 and 14 Exchange of gases Physiology tutorial	
RESP-1C-PHYS-15 Helden and Bohar Effect Oxygen-Hb dissociation curve	• Define the Oxygen-Hemoglobin (O_2-Hb) Dissociation Curve and explain its significance in oxygen transport. • Describe the Bohr Effect and explain how changes in pH and CO_2 levels shift the O_2-Hb dissociation curve. • Explain the Haldane Effect and its role in CO_2 transport in the blood. • Compare the Bohr and Haldane Effects in terms of their physiological significance. • Interpret shifts in the O_2-Hb dissociation curve and predict how factors like pH, CO_2, temperature, and 2,3-BPG affect oxygen binding and release. • Correlate the clinical importance of these effects in conditions like respiratory disorders, acidosis, and exercise physiology.
RESP-1C-PHYS-16 Respiratory centers and Nervous Regulation of respiration	• Identify the main respiratory centers in the brainstem and their locations (Medullary and Pontine centers). • Describe the role of the Medullary Respiratory Center (Dorsal and Ventral Respiratory Groups) in generating the basic rhythm of respiration. • Explain the function of the Pontine Respiratory Centers (Pneumotach and Apneustic Centers) in modifying respiration. • Illustrate the role of the higher brain centers (cerebral cortex, limbic system, hypothalamus) in voluntary and emotional control of breathing. • Discuss the role of chemoreceptors (central and peripheral) in detecting changes in CO_2, O_2, and pH to regulate breathing.
RESP-1C-PHYS-17 Chemical Regulation of Respiration	• Define chemical regulation of respiration and its importance in maintaining homeostasis. • Describe the role of chemoreceptors in detecting changes in blood gases (O_2, CO_2) and pH. • Differentiate between central chemoreceptors (located in the medulla) and peripheral chemoreceptors (carotid and aortic bodies) in respiratory control.
RESP-1C-PHYS-18 and 19 Physiology tutorial (regulation of respiration)	• Explain how central chemoreceptors respond primarily to CO_2 and H^+ levels to regulate breathing rate and depth. • Discuss how peripheral chemoreceptors respond to low O_2 (hypoxia), high CO_2 (hypercapnia), and acidosis to influence respiration.
RESP-1C-PHYS-20 Respiratory reflexes (coughing and sneezing and the effect of deglutition)	• Define respiratory reflexes and explain their protective roles in airway clearance. • Describe the cough reflex pathway, including the role of irritant receptors in the respiratory tract.

	• Discuss clinical conditions related to an impaired cough reflex (e.g., aspiration pneumonia). • Describe the sneeze reflex, its triggers (irritants in the nasal mucosa), and its role in airway defense.
RESP-1C-PHYS-21 and 22 Effect of coughing on respiration on the Power Lab	• To see the effect of coughing on in graphical form on Power Lab.
CARDIOVASCULAR SYSTEM (CVS-I)	
CVS-1D-PHY-1 Overview of CVS	• Describe the Functions of CVS. • Describe the Components of CVS • Explain how CVS plays a crucial role in maintaining homeostasis.
CVS-1D-PHY-2 Properties of cardiac muscle	• Describe the Structure of Cardiac Muscle • Explain the unique characteristics of cardiac muscle, including striations, intercalated discs, and gap junctions. • Understand Excitability • Define excitability and explain how cardiac muscle responds to electrical stimuli. • Explain Automaticity • Describe how the cardiac muscle generates its own action potential without external stimulation. • Understand Conductivity – Explain how electrical impulses travel through the heart and ensure coordinated contraction. • Describe Contractility • Discuss the role of calcium ions (Ca^{2+}) in cardiac muscle contraction and the Frank-Starling mechanism. • Explain Rhythmicity • Understand how the cardiac muscle maintains a regular and continuous heartbeat.
CVS-1D-PHY-3 Excitatory and Conducting system of the heart	• Describe the Components of the Conducting System • Explain the Generation of Action Potentials • Describe the Role of the SA Node • Recognize Disorders of the Conducting System
CVS-1D-PHY-4 Electrocardiogram (ECG)	• Understand the Basic Principles of ECG • Describe the significance of the P wave, QRS complex, and T wave in cardiac activity. • Correlate ECG waves with atrial and ventricular depolarization and repolarization. • Identify common ECG abnormalities such as bradycardia, tachycardia, heart blocks, and arrhythmias. • Explain how ECG is used for diagnosing myocardial infarction, ischemia, and conduction disorders • To interpret the ECG with the electrical events of the heart
CVS-1D-PHY-5 and 6	• Define the Cardiac Cycle • Describe the Phases of the Cardiac Cycle • Understand Pressure and Volume Changes.

Electrical events in the heart and ECG interpretation (Tutorial)	• Explain the Role of Heart Valves in the cardiac cycle • Correlate Mechanical and Electrical Events • Relate **ECG waves (P wave, QRS complex, and T wave)** to mechanical events of the cardiac cycle.
CVS-1D-PHY-7 Cardiac cycle and its mechanical events-I	• Understand the Concept of Stroke Volume and Cardiac Output – Define and calculate stroke volume (SV), cardiac output (CO), and ejection fraction (EF). • Explain the Frank-Starling Law – Understand how ventricular filling affects the force of contraction and cardiac output. • Discuss the Effects of Heart Rate on the Cardiac Cycle – Explain how heart rate changes influence cycle duration and cardiac efficiency.
CVS-1D-PHY-8 Cardiac cycle and its mechanical events-II	• Describe the Structure and Function of Heart Valves • Explain the Mechanism of Valve Opening and Closing – Understand how pressure changes in the heart chambers control valve function. • Understand the Physiological Basis of Heart Sounds – Explain how the first heart sound (S1) and second heart sound (S2) are produced by valve closure.
CVS-1D-PHY-9 Heart valves, heart sounds, and murmurs	• Differentiate Between Normal and Abnormal Heart Sounds • Define and Classify Heart Murmurs • To understand the parts of a stethoscope and the concept of auscultation
CVS-1D-PHY-10 &11 Heart valves and heart sounds (Practical)	• To listen to heart sounds with a stethoscope
Practical-PHY-12&13 To record Pulse on the Power Lab and see the effect of exercise on pulse	• Understand the Physiological Basis of Pulse – Explain how the pulse wave is generated and its relationship with cardiac activity. • Learn the Use of Power Lab for Pulse Recording – Understand the setup and operation of the Power Lab system for measuring pulse • Explain how an electrocardiogram (ECG) records the electrical activity of the heart. Learn the correct placement of electrodes • Identify the Standard ECG Leads – Describe the bipolar limb leads (I, II, III), augmented leads (aVR, aVL, aVF), and precordial chest leads (V1-V6).
Practical-PHY-14: To record the ECG manually	• Explain how an electrocardiogram (ECG) records the electrical activity of the heart Learn the correct placement of electrodes • Identify the Standard ECG Leads – Describe the bipolar limb leads (I, II, III), augmented leads (aVR, aVL, aVF), and precordial chest leads (V1-V6).

	ANATOMY BLOCK-I
Terminal Objective	• Demonstrate appropriate basic knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision-making by critical thinking. • Recognize patients with special care and perform dental emergencies by having good communication skills.

Rationale	Teaching Anatomy in the first year of BDS is essential because it provides the foundational knowledge required for all dental sciences. Understanding the structure of the human body, especially the head, neck, and oral region, enables students to appreciate the relationships between tissues, nerves, vessels, and organs relevant to dental practice. It supports safe clinical procedures, accurate diagnosis, and effective treatment planning. Early exposure to Anatomy fosters critical thinking, spatial understanding, and a scientific approach to patient care. This grounding prepares students for advanced subjects such as physiology, pathology, and clinical dentistry, ensuring competent and confident future dental professionals.

	At the end of the module, students should be able to:		
S. No	**Learning Objectives**	**Teaching Strategies**	**Assessment Tool**
1.	Describe the basic structure of cell	IL	BCQs
2.	Describe the different types of organelles and inclusion bodies	IL	BCQs
3.	Describe the surface modification of cell	IL	BCQs
4.	Define the different types of cell junctional complex	IL / SGIS	BCQs
5.	Explain the cell cycle	IL	BCQs
6.	Differentiate between mitosis and meiosis	IL	BCQs
7.	Identify the different stages of mitosis and meiosis	SGIS	OSPE
8.	Discuss anatomical terms	IL /SGIS	BCQs & OSPE
9.	Identify planes and sections with the anatomical position of the human body	SGIS	BCQs & OSPE
10.	Classify bones, joints, cartilages, and muscles	IL /SGIS	BCQs & OSPE
11.	Introduction to the nervous system	IL	BCQ
12.	Identify different parts of a compound microscope	PW	OSPE
13.	Discuss the processes of tissue processing	PW	BCQs
14.	Describe the microscopic features of epithelial tissues (squamous, cuboidal, columnar, and transitional)	IL	BCQs & OSPE
15.	Identify the epithelial tissues on a given slide (squamous, cuboidal, columnar and transitional)	PW	OSPE
16.	Describe the microscopic features of connective tissues	IL	BCQs & OSPE
17.	Identify the various types of connective tissue on a given slide	PW	OSPE
18.	Describe the microscopic features of skeletal, cardiac and smooth muscles	IL	SEQS ,BCQs
19.	Identify skeletal, cardiac and smooth muscles on a given slide	PW	OSPE

20.	Describe the microscopic features of different types of cartilage	IL	BCQs & OSPE
21.	Identify the microscopic features of hyaline, elastic and fibrocartilage on a given slide	PW	OSPE
22.	Describe the microscopic features of compact and spongy bone	IL	BCQs & OSPE
23.	Identify the microscopic features of compact and spongy bone on a given slide	PW	OSPE
24.	Differentiate between gross and microscopic features of artery, vein and capillaries	IL	SEQS ,BCQs
25.	Identify the microscopic features of artery and vein	PW	OSPE
26.	Identify male and female genital organs	SGS	OSPE
27.	Describe oogenesis and spermatogenesis	IL	BCQs & OSPE
28.	Discuss the uterine and ovarian cycle	IL	BCQs
29.	Describe the phases of fertilization	IL	BCQs & OSPE
30.	Identify different stages of zygote on a given model	SGIS	OSPE
31.	Discuss the events of second week of development	IL/ SGIS	BCQs & OSPE
32.	Describe the events of 3rd week of development	IL/ SGIS	BCQs & OSPE
33.	Identify different stages of 3rd week of development on a given model	SGIS	OSPE
34.	Discuss the fate of primitive streak and the related abnormalities	IL	BCQs & OSPE
35.	Describe the 4th week of development	IL	BCQs & OSPE
36.	Describe the development of placenta	IL/ SGIS	BCQs & OSPE
37.	Enlist events from 5th – 8th week of development	IL	BCQs
38.	Enlist the events of the Fetal period	IL	BCQs
39.	Describe the process and types of Twin pregnancy	IL/SGIS	BCQS, OSPE
40.	Name sites of Ectopic pregnancy	IL	BCQS
41.	Discuss the factors causing Teratogenesis	IL	BCQS

BIOCHEMISTRY BLOCK-I		
	Terminal Objective	• Demonstrate appropriate basic knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision-making by critical thinking. • Recognize patients with special care and perform dental emergencies, having good communication skills.

	Rationale	Teaching Biochemistry in the first year of BDS is essential because it explains the molecular basis of life processes that influence oral and systemic health. It helps students understand the biochemical composition of teeth, saliva, and oral tissues, as well as the mechanisms underlying diseases such as caries and periodontal disorders. Biochemistry builds a foundation for comprehending metabolism, nutrition, enzymatic functions, and the effects of drugs used in dentistry. It also promotes scientific reasoning and supports future learning in pathology, pharmacology, and clinical subjects. By establishing this core knowledge early, students become better prepared for evidence-based dental practice.		
42.	Discuss the biochemical aspects of cell Biochemical composition of cell membrane		IL, SGS	BCQs & OSPE
43.	Introduction to instruments		PW	OSPE
44.	Identify the laboratory Hazards and their importance		PW	OSPE
45.	Discuss the cell organelles		IL,SGS	BCQs & OSPE
46.	Discuss the various modes of membrane transport		IL,SGS	BCQs & OSPE
47.	Perform the preparation of Solutions		PW	OSPE
48.	Elaborate the concept of pH and explain different types of Buffers with their mechanism of action		IL, SGS	BCQs & OSPE
49.	Discuss the buffering capacity & H.H equation		IL, SGS	BCQs & OSPE
50.	Identify pH of different solutions		PW	OSPE
51.	Discuss the chemistry of nucleotide and nucleoside		IL, SGS	BCQs & OSPE,
52.	Perform DNA Extraction on onion cells		PW	OSPE
53.	Discuss the chemistry of nucleic acids		IL, SGS	BCQs & OSPE
54.	Detection of Carbohydrates in a given solution		PW	OSPE
55.	Define and classify carbohydrates with its biomedical importance		IL, SGS	BCQs & OSPE, CP
56.	Discuss the properties & Biomedical importance of carbohydrates		IL, SGS	BCQs & OSPE
57.	Discuss the chemistry of monosaccharides and their biomedical importance		IL, SGS	BCQs & OSPE
58.	Discuss the chemistry of disaccharides and their biomedical importance		IL, SGS	BCQs & OSPE
59.	Discuss the chemistry of oligosaccharides and their biomedical importance		IL, SGS	BCQs & OSPE
60.	Discuss the chemistry of polysaccharides and their biomedical importance		IL, SGS	BCQs & OSPE

Commencement of 1ST BLOCK		Weekly Schedule of BLOCK-I ANATOMY		
Activity	**Week**	**Lecture 1 (LO)**	**Lecture 2 (LO)**	**Lecture 3 (LO)**
Academic Session – BDS First Professional	Week- 1	Introduction to human body, discuss the anatomical terms (LO=8)	Identify planes and sections (9)	Describe the basic structure of cell (1)
	Week- 2	Describe the different types of organelles and inclusion bodies(2)	Describe surface modification of cell, define different types of cell junctional complex (3, 4)	Describe the microscopic features of epithelial tissues (simple) (I) (14)
	Week- 3	Explain cell cycle, Differentiate between mitosis and meiosis (5, 6,7)	Describe the microscopic features of epithelial tissues(stratify d) (II) (14)	Classification of bone (10)
	Week- 4	Discuss the uterine and ovarian cycle (28)	Describe the microscopic features of connective tissues (I) (16)	Describe the microscopic features of connective tissues(II)(16)
	Week- 5	Describe oogenesis and spermatogenesis I (27)	Classification of muscle(10)	Describe the microscopic features of skeletal, cardiac and smooth muscles (18)
	Week- 6	Describe oogenesis and spermatogenesis II (27)	Describe the classification & microscopic features of different types of cartilage (10, 20)	Introduction to nervous system (11)
	Week- 7	Describe the phases of fertilization (29)	Describe the microscopic features of compact and spongy bone (22)	Discuss the events of second week of development (31)
	Week- 8	Describe the events of 3rd week of development (32)	Discuss the fate of primitive streak and related abnormalities (34)	Differentiate between gross and microscopic features of artery, vein
	Week- 9	Describe the 4th week of development (35)	Classification of joints (10)	Describe the development of placenta
	Week10	Enlist events from 5th – 8th week of development (37)	Describe the development of placenta II (36)	Enlist events of fetal period (38)
	Week 11	Describe the process and types of Twin pregnancy and sites of ectopic pregnancy (39, 40)	Discuss the factors causing Teratogenesis (41)	Revision
		THEORY AND VIVA EXAMINATION		

		ORAL BIOLOGY-BLOCK -I		
	Terminal Objective	• Demonstrate appropriate basic knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision-making by critical thinking. • Recognize patients with special care and perform dental emergencies, having good communication skills		
	Rationale	Teaching Oral Biology in the first year of BDS is vital because it provides students with a detailed understanding of the development, structure, and function of oral tissues. It introduces foundational concepts related to teeth, saliva, oral mucosa, and supporting structures, helping students appreciate their normal biology before learning about diseases. Oral Biology also builds scientific thinking and links basic sciences with clinical dentistry. This knowledge prepares students to understand oral pathology, periodontology, and operative procedures in later years. By establishing a strong biological framework early, students develop the skills needed for accurate diagnosis, preventive care, and effective patient management.		
S#	**Topic**	**Learning outcomes**	**Mode of teaching**	**Mode of assessment**
1	**Structure of the Oral Tissues**	**Knowledge** • Discuss parts of the tooth • Enlist the functions of each part • Outline the supporting structures of the • tooth • Clinical relevance of the structure of the tooth • Outline the mechanism of hard tissue • formation • Discuss the mechanism of mineralization • and degradation	**Interactive Lectures**	**SBQs, VIVA**
		Skill • Illustrate the components of the tooth & its supporting tissues	**Practical**	**OSPE**
		• Radiographic Study: Structure of the tooth and its clinical significance	**Tutorial**	**OSPE**
2	**General Embryology**	**Knowledge** Integration with Anatomy • Discuss the germ cell formation & fertilization • Enlist the phases of prenatal development • Review the process of formation of the layered embryo and fate of germ layers. • Highlight the process of formation of the three-layered embryo and fate of germ layers. • Summarize the formation of the neural tube • Enlist the derivatives of neural crest cells	**Interactive Lectures**	**SBQs, VIVA**
		Skill Illustrate the process of neurulation	**Practical**	**OSPE**

3	**Cytoskeleton & Intercellular Junctions**	**Knowledge** • Categorize structural elements of cytoskeleton • Classify intercellular junctions with their functions • Highlight the characteristic features of fibroblasts • Secretary of the fibroblast	**Interactive Lectures**	**SBQs, VIVA**
		Skill • Demonstrate the types of the fibroblast • Demonstrate the structure of basal lamina	**Practical**	**OSPE**
4.	**Development of the Tooth & Supporting Structures**	**Knowledge** • Outline the initiation of tooth development. • Enlist different stages of the tooth development • Highlight the salient features of bud, cap, early and late bell stages of tooth development • Express the process of root formation of single & multi-rooted tooth Formation of the Permanent Dentition	**Interactive Lecture**	**SBQs, VIVA**
		Skill • Demonstrate the initial stages of tooth development • Draw the developmental stages of tooth • Label the structures in the developmental stages of tooth • Illustrate the development of single & multirooted teeth	**Practical**	**OSPE**
		• **Case base learning** Developmental anomalies of tooth	**Tutorial**	**OSPE**
5.	**Physiologic Tooth Movements: Eruption & Shedding**	**Knowledge** • Classify types of tooth movements • Enlist the histological features of tooth movements • Illustrate the mechanisms involved in tooth movements • Analyze the process & pattern of shedding of teeth • Highlight the abnormal & orthodontic tooth movement	**Interactive lectures**	**SBQs, VIVA**
		Skill • Draw the histology of eruptive tooth movement • Illustrate the pattern of the shedding	**Practical**	**OSPE**
		• **Case-based learning** • Determine the age of the given models/ Casts	**Tutorial**	**OSPE**

PHYSIOLOGY SYLLABUS BLOCK II CARDIOVASCULAR SYSTEM (CVS-II)	
Terminal Objective	• Demonstrate appropriate basics knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision making by critical thinking. • Recognize patients with special care and perform dental emergencies having good communication skills.
Rationale	Teaching Physiology in the first year of BDS is crucial because it helps students understand the normal functions of the human body, forming the basis for recognizing disease and planning appropriate dental care. Knowledge of systems such as the cardiovascular, nervous, and endocrine systems enables students to relate general body functions to oral health. It builds scientific reasoning, supports safe clinical decision-making, and prepares students to manage patients with systemic conditions. Physiology also links foundational sciences with future clinical training, ensuring that students develop a comprehensive understanding of how the body responds to stress, medications, and dental procedures.
Topic	**Learning Objectives**
CVS-ll -PHYS-1 Interrelationship among blood flow, pressure and resistance	• Define Ohm's law of circulation • Describe main factors that determine vascular resistance • Define total peripheral vascular resistance and total pulmonary vascular resistance • Mention Poiseuille's law
CVS-ll -PHYS-2 Control of local blood flow	• Mention the specific needs of the tissues for blood flow • Define local blood flow • Describe acute/short-term control of local blood flow • Describe long-term control of local blood flow • Explain the autoregulation of blood flow
CVS-ll -PHYS-3 Capillary fluid exchange	• Describe the structure of microcirculation and the capillary wall • Explain the flow of blood in capillaries • Define vasomotion • Define Starling forces and give their approximate values • Describe the role of Starling forces in fluid exchange across the capillary wall
CVS-ll -PHYS-4 Nervous regulation of circulation	• Describe the vasomotor center's important areas and functions • Define vasomotor tone • Describe the role of the sympathetic nervous system in the regulation of circulation • Describe the role of the parasympathetic nervous system in the regulation of circulation.
CVS-ll -PHYS-5 Blood pressure and its Regulation-I (Baroreceptor reflex mechanism	• Define systolic blood pressure, diastolic blood pressure, pulse pressure and mean arterial pressure • Mention important factors on which blood pressure depends • List various mechanisms that regulate/control blood pressure • Describe role of the baroreceptor reflex in the regulation of blood pressure

CVS-ll -PHYS-6 Blood pressure and its regulation-II (Role of kidneys in long-term control of blood pressure)	• Explain the renal-body fluid system and its role in arterial pressure control • Describe the Renin-Angiotensin system and its role in arterial pressure control
CVS-ll -PHYS-7 Cardiac output and venous return	• Define cardiac output and mention its relationship to stroke volume & heart rate • Describe factors that regulate cardiac output • Describe the Frank-Starling mechanism of the heart
CVS-ll -PHYS-8 **Cardiac output and venous return**	• Define venous return and mention factors that affect/regulate venous return • Describe central venous pressure
CVS-ll -PHYS-9&10 TUTORIAL) **Cardiac output and venous return**	BCQ PRACTICE and DISCUSSION
CVS-ll -PHYS-11 **Circulatory shock**	• Define circulatory shock • Describe causes and major types of shock • Mention stages of shock • Describe pathophysiology of non-progressive and progressive hemorrhagic shock • Mention compensatory mechanisms that attempt to return cardiac output and arterial pressure back to normal in a hemorrhagic shock (hypovolemic shock) • Mention factors that lead to progression of shock (i.e. factors worsening the shock)
CVS-ll -PHYS-12 &13 **PRACTICAL Record of blood pressure by palpatory and auscultatory methods**	• To Identify different parts of the stethoscope • &sphygmomanometer • Differentiate the auscultatory and palpatory methods of blood pressure measurement. • Demonstrate the correct technique for auscultatory and palpatory methods of blood pressure measurement, To Hear the Korotkoff's sound during auscultation.
CVS-ll -PHYS-14 &15 **PRACTICAL** **Heart rate during standing, sitting and during exercise on Power lab**	• To record the heart rate during sitting & standing & effect of exercise on power lab.
CVS-ll -PHYS-16&17 **(TUTORIAL)** **Circulatory shock**	• Mention compensatory mechanisms that attempt to return cardiac output and arterial pressure back to normal in a • hemorrhagic shock (hypovolemic shock) • Mention factors that lead to progression of shock (i.e. factors worsening the shock) • BCQ PRACTICE AND KEY POINT DISCUSSION

2B NEUROSCIENCES (CNS SENSORY & MOTOR) AUTONOMIC NERVOUS SYSTEM	
Terminal Objective	• Demonstrate appropriate basic knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision-making by critical thinking. • Recognize patients with special care and perform dental emergencies, having good communication skills.
Rationale	Teaching Physiology in the first year of BDS is crucial because it helps students understand the normal functions of the human body, forming the basis for recognizing disease and planning appropriate dental care. Knowledge of systems such as the cardiovascular, nervous, and endocrine systems enables students to relate general body functions to oral health. It builds scientific reasoning, supports safe clinical decision-making, and prepares students to manage patients with systemic conditions. Physiology also links foundational sciences with future clinical training, ensuring that students develop a comprehensive understanding of how the body responds to stress, medications, and dental procedures.
TOPIC	**OBJECTIVES**
NS-PHYS-1: Nervous system – overview	• Definition & Organization of the nervous system • Know about Physiological division of nervous system • Determine different Levels of nervous system
NS-PHYS- 2: Neuron & Neuroglia	• Discuss electrical properties of neuron • Discuss generation of action potential, • List functions of neuroglia cells • Define Myelin sheath • Define Saltatory conduction, Regeneration of nerve fiber and the Blood-brain barrier
NS-PHYS-3: Synapse & its mechanism	• Define synapse and its types. • List the properties of a synapse. • Discuss the Physiological role of the Synapse • Discuss transmission of electrical signals between neurons
NS-PHYS-4: Sensory receptors	• Describe the general characteristics of receptors. • Classify receptors according to location and stimulus type. • Discuss the following: Receptor potential. Neurotransmitters Transduction of sensory stimuli into nerve impulses.
NS-PHYS-5: Somatic sensory pathway (DCML)	• List the different types of sensory pathways. • Discuss the transmission of sensory information into the CNS (DCML).

NS-PHYS-6 Somatic sensory pathway (anterior lateral)	• Discuss the transmission of sensory information into the CNS (Anterolateral system).
NS-PHYS -7&8 **PRACTICAL** **Examination of the sensory system**	• To examine the sensory system
NS-PHYS-9 **Descending pathways-** **(Pyramidal & extra pyramidal tracts**	• Define the Pyramidal tracts features & their pathway, • Define Extra pyramidal tracts features & their Pathway • Define brown-Sequard syndrome & its pathophysiology.
NS-PHYS -10 &11 **PRACTICAL** **Examination of the motor system**	• To examine the motor system
NS-PHYS-12 **Pain pathway**	Discuss types of pain, their qualities and pain receptors. Discuss dual • pathways for transmission of pain signals into CNS.
NS-PHYS-13	• Discuss the analgesia system in the brain and spinal cord. • Describe the brain opioid system
NS-PHYS-14 &15 **TUTORIAL:** Pain and analgesia clinical application in dental health	• Discuss dual pathways for transmission of pain signals into the CNS. • Discuss the analgesia system in the brain and spinal cord o BCQ Practice and Discussion
NS-PHYS-16: Spinal cord & it functions (reflexes)	• Discuss the organization of the spinal cord for motor functions. Discuss spinal cord reflexes.
NS-PHYS -17 &18 **PRACTICAL** Superficial and deep reflexes	• To check out the superficial and deep reflexes of the body
NS-PHYS-19 UMN + LMN	• Functions of UMN and LMN in Motor Pathways • Difference between upper and lower Motor neuron lesions •
NS-PHYS-20 Cerebellum	• Discuss the structure and functions of the cerebellum. • Describe various cerebellar disorders.
NS-PHYS-21: Basal nuclei	• Discuss the functions and related disorders of the basal ganglia.

NS-PHYS-22 Hypothalamus.	• Describe the functions of the Hypothalamus
NS-PHYS -23 Autonomic. nervous system	• Discuss the general organization and activation of the ANS. • Discuss the structure and functions of sympathetic, • Nervous parasympathetic nervous system
NS-PHYS -24 Areas of cerebral cortex	• Functions of Specific Cortical Areas • Motor & sensory areas • Cortical Control of Motor Function
NS-PHYS -25&26 Formative Assessment (Neurophysiology)	• BCQ Test • Areas of cerebral cortex • Sympathetic and parasympathetic nervous system • basal ganglia Hypothalamus Cerebellum • Pain pathways • Sensory and Motor NS • Spinal reflexes
(2C) SPECIAL SENSES (HEAD AND NECK)	
Terminal Objective	• Demonstrate appropriate basics knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision making by critical thinking. Recognize patients with special care and perform dental emergencies having good communication skills.
Rationale	Teaching Physiology in the first year of BDS is crucial because it helps students understand the normal functions of the human body, forming the basis for recognizing disease and planning appropriate dental care. Knowledge of systems such as the cardiovascular, nervous, and endocrine systems enables students to relate general body functions to oral health. It builds scientific reasoning, supports safe clinical decision-making, and prepares students to manage patients with systemic conditions. Physiology also links foundational sciences with future clinical training, ensuring that students develop a comprehensive understanding of how the body responds to stress, medications, and dental procedures.
TOPIC	**OBJECTIVES**
H&N-PHYS -1 Optics of vision Errors of refraction and accommodation	• Discuss refraction and structures of the eye. • Discuss: • -Errors of refraction and their corrections. • Accommodation pathway
PRACTICAL **H&N-PHYS- 2&3** Examination of optic nerve	• To examine the optic nerve • Optic pathway
H&N-PHYS- 4 Function of ear (middle + external + inner)	• Discuss the functions of the External, Middle, and Internal Ear.

PRACTICAL H&N-PHYS- 5& 6 Ronnie's test and Weber's test	• To examine the sense of hearing
H&N-PHYS- 7 Physiology of taste	• Discuss types of taste sensations and their perception on T tongue. List factors affecting taste sensation. • Describe the location and activation of taste buds.
PRACTICAL H&N-PHYS-8&9 Examination of taste	• To examine the taste sensation
H&N-PHYS-10 Physiology of smell	Describe the location and activation of the olfactory receptors. Describe different types of smell. Define Anosmia, parosmia •
PRACTICAL:H&N-PHYS -11& 12 Examination of Smell	• To examine the different types of smell
2D NERVE & MUSCLE PHYSIOLOGY (SKELETAL AND SMOOTH MUSCLE	
Terminal Objective	• Demonstrate appropriate basics knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision making by critical thinking. • Recognize patient with special care and perform dental emergencies having good communication skills.
Rationale	• Teaching Physiology in the first year of BDS is crucial because it helps students understand the normal functions of the human body, forming the basis for recognizing disease and planning appropriate dental care. Knowledge of systems such as the cardiovascular, nervous, and endocrine systems enables students to relate general body functions to oral health. It builds scientific reasoning, supports safe clinical decision-making, and prepares students to manage patients with systemic conditions. Physiology also links foundational sciences with future clinical training, ensuring that students develop a comprehensive understanding of how the body responds to stress, medications, and dental procedures.
MSK-PHYS-1: Overview of muscle physiology	• Discuss different types of muscles, the structure of skeletal muscle, types, characteristics, and general features of skeletal muscle
MSK-PHYS-2: neuromuscular junction	• Discuss the parts of neuromuscular junctions, discuss the steps of impulse transmission through the neuromuscular junction, and neuromuscular dysfunction
MSK-PHYS-3: contraction of skeletal muscle	• Define power stroke • Discuss the mechanism of skeletal muscle contraction and skeletal muscle relaxation at the molecular level • Describe role of ATP in muscle contraction
Practical: MSK-PHYS-7 &8: simple muscle twitch (SMT)	• To record the SMT graph on the power lab
Practical:MSK-PHYS-9&10: muscle fatigue	• To observe the graph of the muscle fatigue phenomenon on the Power Lab

MSK-PHYS-11 Smooth muscle & its Contraction	• Action potentials in smooth muscles. • Contractile mechanism of smooth muscles. • Nervous and hormonal control of smooth muscle **contraction**
MSK-PHYS-12& 13 TUTORIAL Formative assessment	• BCQ test Practice • (open book exam)

ANATOMY BLOCK-II			
Terminal Objective	• Demonstrate appropriate basic knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision-making by critical thinking. • Recognize patients with special care and perform dental emergencies, having good communication skills.		
Rationale	Teaching Anatomy in the first year of BDS is essential because it provides the foundational knowledge required for all dental sciences. Understanding the structure of the human body, especially the head, neck, and oral region, enables students to appreciate the relationships between tissues, nerves, vessels, and organs relevant to dental practice. It supports safe clinical procedures, accurate diagnosis, and effective treatment planning. Early exposure to Anatomy fosters critical thinking, spatial understanding, and a scientific approach to patient care. This grounding prepares students for advanced subjects such as physiology, pathology, and clinical dentistry, ensuring competent and confident future dental professionals.		
	At the end of the module, students should be able to		
S. No	**Learning Objectives**	**Teaching strategy**	**Assessment tool**
1.	Discuss the components of reticuloendothelial system	IL	BCQ
2.	Describe the macroscopic and microscopic features of lymphoid organs: a. Lymph node b. Tonsils c. Thymus d. Spleen	IL	BCQs & OSPE
3.	Identify the microscopic features of lymphoid organs on given slides	PW	OSPE
4.	Identify the skeleton of the upper limb	SGIS	OSPE
5.	Name the muscles of the pectoral region, arm, and forearm	SGIS	BCQ, OSPE
6.	Correlate the location and structure of cubital fossa with its clinical significance	SGIS	OSPE

7.	Relate the extent and branches of the brachial artery with its clinical significance	SGIS	BCQ
8.	Identify the skeleton of the lower limb	SGIS	OSPE
9.	Name the muscles of the gluteal region, and thigh	SGIS	OSPE
10.	Identify the bones of rib cage	SGIS	OSPE
11.	Discuss the boundaries and contents of mediastinum and thoracic cage	SGIS	BCQ
12.	Discuss the gross anatomy of the heart	IL	OSPE
13.	Discuss the development of the cardiovascular system	IL	BCQ
14.	Discuss the great vessels of head and neck	IL	BCQ
15.	Describe the gross morphology and blood supply of nose	IL	BCQs & OSPE
16.	Relate the location and structure of paranasal air sinuses with their clinical significance	IL	BCQs & OSPE
17.	Describe the gross morphology of pharynx	IL, SGIS	BCQs & OSPE
18.	Explain the macroscopic features of larynx (cartilages, joints, ligaments, membranes, cavity, muscles and neurovascular supply)	IL, SGIS	BCQs & OSPE
19.	Describe the gross morphology of trachea and bronco-pulmonary segments	IL	BCQ
20.	Identify the anatomical structures related to cardiovascular and respiratory systems on a chest X- ray	SGIS	OSPE
21.	Describe the microscopic features of upper and lower respiratory tract	IL	BCQ
22.	Identify the microscopic features of the respiratory system (trachea & lungs) on given slides	PW	OSPE
23.	Name the parts of gastrointestinal tract	SGIS	OSPE
24.	Describe the gross morphology of the oral cavity and tongue	IL	BCQ
25.	Describe the microscopic features of tongue	IL	SEQS
26.	Identify the microscopic features of tongue on a given slide	PW	OSPE
27.	Describe the gross structure of salivary glands (Parotid, submandibular and sublingual)	IL	BCQs & OSPE
28.	Describe the microscopic features of salivary glands	IL	BCQs & OSPE
29.	Identify the microscopic structures of Parotid, submandibular and sublingual glands on given slides	PW	OSPE
30.	Discuss the location and structure of the liver, pancreas and gall bladder	SGIS	OSPE
31.	Describe the microscopic features of the hepatobiliary system	IL	BCQ
32.	Identify the microscopic features of the hepatobiliary system on a given slide	PW	OSPE
33.	Name the organs of the urinary system	SGIS	OSPE

34.	Describe the osteology of exterior of skull (Norma verticalis, occipitalis, frontalis and basalis)	SGIS	OSPE
35.	Explain the osteology of the interior of skull (vault, anterior, middle and posterior cranial fossae)	SGIS	OSPE
36.	Identify the foramina of skull and the structures passing through them	SGIS	BCQs & OSPE
37.	Explain the external and internal attachments of skull	SGIS	BCQs & OSPE
38.	Describe the development of: a. Skull b. Cervical vertebrae c. Pharyngeal apparatus d. Face e. Tongue f. Palate	IL	BCQs & OSPE
39.	Correlate the features and attachments of maxilla with its clinical significance	SGIS	BCQ, OSPE
40.	Describe the gross features of hard and soft palate	SGIS	BCQs & OSPE
41.	Discuss the features of mandible and hyoid bone	SGIS	OSPE, BCQ
42.	Describe the changes that occur in the mandible in different age groups (child, young, old)	SGIS	BCQ
43.	Identify the features of cervical vertebrae	SGIS	OSPE, BCQ
44.	Describe the scalp and superficial temporal region	IL	BCQs & OSPE
45.	Relate the attachments of facial muscles with their actions	IL	BCQ, OSPE
46.	Explain the neurovascular supply of face, with course and branches of facial artery	IL	BCQs & OSPE
47.	Describe the actions and neurovascular supply of the muscles of mastication.	IL	BCQs & OSPE
48.	Correlate the structure of temporomandibular joint with its neurovascular supply and movements	IL, SGIS	BCQs & OSPE
49.	Describe the boundaries, communications and contents of pterygopalatine and infratemporal fossae	IL	BCQs & OSPE
50.	Demonstrate the surface marking of: a. Facial artery b. Common carotid artery c. External carotid artery d. Internal jugular vein e. External jugular vein f. Parotid gland and duct g. Submandibular duct	SGIS	OSPE
51.	Identify the normal anatomical structures visible on radiographs of head and neck	SGIS	OSPE
BIOCHEMISTRY BLOCK-II			

	Terminal Objective	• Demonstrate appropriate basic knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision-making by critical thinking. • Recognize patients with special care and perform dental emergencies, having good communication skills.		
	Rationale	Teaching Biochemistry in the first year of BDS is essential because it explains the molecular basis of life processes that influence oral and systemic health. It helps students understand the biochemical composition of teeth, saliva, and oral tissues, as well as the mechanisms underlying diseases such as caries and periodontal disorders. Biochemistry builds a foundation for comprehending metabolism, nutrition, enzymatic functions, and the effects of drugs used in dentistry. It also promotes scientific reasoning and supports future learning in pathology, pharmacology, and clinical subjects. By establishing this core knowledge early, students become better prepared for evidence-based dental practice.		
52.	Discuss the definition, classification & importance of amino acids		IL, SGS	BCQS, SEQS
53.	Discuss the definition, classification & importance of proteins		IL, SGS	BCQS, SEQS,
54.	Discuss the structure, physical & chemical properties of amino acids		IL, SGS	BCQS, SEQS
55.	Discuss the importance of amino acids and the maintenance of body pH		IL, SGS	BCQS, SEQS,
56.	Perform the separation of amino acids by paper chromatography		PW	OSPE
57.	Discuss the structure level of protein & clinical importance		IL, SGS	BCQS, SEQS,
58.	Discuss the plasma protein & immunoglobulin's clinical importance		IL, SGS	BCQS, SEQS
59.	Study the principles of Spectrophotometry		PW	OSPE
60.	Discuss the importance of protein & nutrition, kwashiorkor & marasmus		IL, SGS	BCQS, SEQS
61.	Discuss the definition & classification of lipids		IL, SGS	BCQS, SEQS
62.	Discuss the biomedical importance of lipids		IL, SGS	BCQS, SEQS
63.	Perform the detection of different lipids in given solution		PW	OSPE
64.	Discuss the definition & classification of fatty acids		IL, SGS	BCQS, SEQS
65.	Discuss the chemistry of essential fatty acids & their biomedical importance		IL, SGS	BCQS, SEQs
66.	Discuss the importance of cholesterol & lipoproteins		IL, SGS	BCQS, SEQS
67.	Discuss the chemical & physical properties of triglycerides		IL, SGS	BCQS, SEQS
68.	Discuss the Identification of fat (Saponification, iodine No.)		IL, SGS	BCQS, SEQS
69.	Discuss the rancidity its types & Biomedical importance		IL, SGS	BCQS, SEQS
70.	Discuss the structure, function & types of hemoglobin		IL, SGS	BCQS, SEQS

71.	Perform the estimation of HbA1c	PW	OSPE
72.	Discuss hemoglobinpathies & their Biomedical causes, Thalassemia, Hbs	IL, SGS	BCQS, SEQ
73.	Discuss the factor affecting & regulating the oxygen binding capacity hemoglobin	IL, SGS	BCQS, SEQS, CP
74.	Discuss the chemistry & biosynthesis of porphyrins& their clinical importance	IL, SGS	BCQS, SEQS,
75.	Perform the estimation of Serum Bilirubin	PW	OSPE
76.	Discuss the degradation of heme formation of bile pigment, it's types, transport & execration-	IL, SGS	BCQS, SEQS,
77.	Discuss the mechanism of development of different types of jaundice	IL, SGS	BCQS ,SEQS, CP

Commencement of 2nd Block		Weekly Schedule of Block-II ANATOMY		
Activity	**Week**	**Lecture 1 (LO)**	**Lecture 2 (LO)**	**Lecture 3 (LO)**
Academic Session – BDS First Professional	Week- 1	Discuss the components of reticuloendothelial system (1)	Microscopic features of tonsils and thymus (2)	Microscopic features of spleen (2)
	Week- 2	Describe the scalp and superficial temporal region (28)	Describe the development of skull & cervical vertebrae (38)	Describe the boundaries,communication and contents of pterygopalatine fossa (49)
	Week- 3	Describe the development of pharyngeal apparatus I (38)	Describe the boundaries,communications and contents of the infratemporal fossa (49)	Describe gross morphology of nose & blood supply of nose (15)
	Week- 4	Describe the development of pharyngeal apparatus II (38)	Relate location and structure of Para nasal sinuses with their clinical significance (16)	Describe gross morphology of oral cavity and tongue(I) (24) Describe gross features of hard and soft palate(40)
	Week- 5	Describe the development of palate (38)	Describe gross morphology of oral cavity and tongue(II) (24)	Describe microscopic features of tongue (25)
	Week- 6	Development of tongue (38)	Gross features of salivary glands (27)	Microscopic features of salivary glands (28)
	Week- 7	Describe the facial muscles with their action (45)	Explain the neurovascular supply of face,with course and branches of facial artery (49)	Describe great vessels of head and neck (14)
	Week- 8	Describe the development of face (38)	Describe the development of palate (38)	Describe gross morphology of pharynx (17)
	Week- 9	Describe the morphology of larynx I (18)	Describe the morphology of larynx II (18)	Describe the gross morphology of trachea and bronchopulmonary segments (19)
	Week 10	Describe the microscopic features of upper and lower respiratory tract (21)	Describe microscopic features of hepatobiliary tract and pancreas ((31)	Describe the gross anatomy of heart-(12)
	Week-11	Describe the development of heart (13)	Correlate the structure of the temporomandibular joint with its neurovascular supply and movements (48)	Revision
	Week 13 & 14	**THEORY AND VIVA EXAMINATION**		

Commencement of 2ND Module		Weekly Schedule of BLOCK- II BIOCHEMISTRY	
Activity	**Week No**	**Lecture-1 (LO)**	**Lecture-2 (LO)**
Academic session – BDS First Professional	Week-1	Definition, classification & importance of amino acids (90)	Definition classification & importance of proteins (91)
	Week-2	Structure physical & chemical properties of amino acids (92)	Importance of amino acids and maintenance of body pH (93)
	Week-3	Structure level of protein & clinical importance (95)	Plasma protein & clinical importance (96)
	Week-4	Immunoglobulin's & clinical importance (96)	Importance of protein & nutrition, kwashiorkor & marasmus (98)
	Week-5	Define & classify lipids (99)	Biomedical importance of lipids (100)
	Week-6	Definition & classification of fatty acids (102)	Essential fatty acids & their biomedical importance (103)
	Week-7	Importance of cholesterol & lipoproteins (104)	Chemical & physical Properties of triglycerides (105)
	Week-8	Identification of fat (Saponification), iodine No. (106)	Rancidity its types & Biomedical importance (107)
	Week-9	Structure, function & types of hemoglobin (108)	Hemoglobinopathies& their Biomedical causes, Thalassemia, Hbs (110)
	Week-10	Factor affecting & regulating the oxygen binding capacity hemoglobin (111)	Chemistry & Biosynthesis of porphyrins& their clinical importance (112)
	Week-11	Degradation of heme formation of bile pigment, it's types, transport & execration-1 (114)	Degradation of heme formation of bile pigment, it's types, transport & execration-2 (114)
	Week-12	Mechanism of development of different types of jaundice (115)	Revision
		THEORY AND VIVA EXAMINATION	

ORAL BIOLOGY-BLOCK -II				
	Terminal Objective	• Demonstrate appropriate basic knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision-making by critical thinking. • Recognize patients with special care and perform dental emergencies, having good communication skills		
	Rationale	Teaching Oral Biology in the first year of BDS is vital because it provides students with a detailed understanding of the development, structure, and function of oral tissues. It introduces foundational concepts related to teeth, saliva, oral mucosa, and supporting structures, helping students appreciate their normal biology before learning about diseases. Oral Biology also builds scientific thinking and links basic sciences with clinical dentistry. This knowledge prepares students to understand oral pathology, periodontology, and operative procedures in later years. By establishing a strong biological framework early, students develop the skills needed for accurate diagnosis, preventive care, and effective patient management.		
S#	**Topic**	**Learning outcomes**	**Mode of teaching**	**Mode of assessment**
1.	**Introduction to Bone**	**Knowledge** • Interpret the composition of bone. • Describe the gross histology of bone • Enlist the bone cells (osteoblasts & osteoclasts) • Reproduce the two mechanisms of bone formation e.g. endochondral, intramembranous • Discuss the remodeling of bone • Discuss the clinical considerations of bone		
		Skill • Sketch the gross structure of bone • Illustrate the steps of bone formation and remodeling		

2.	**Temporomandibular joint**	Knowledge • Define the TMJ • The prenatal development of the TMJ & the postnatal development of the TMJ • Classify joints • Enlist the articular surfaces, ligaments, nerve supply & clinical aspects. • Review the bones and cartilages associated with TMJ • Demonstrate the capsule and disk of the joint. • Express the histology of synovial membrane • Discuss the innervations of the joint • Highlight the development of TMJ • Enlist the clinical correlations of TMJ Integration **Integration with Anatomy** • Arrange the Muscles of mastication according to their & insertion and functions	Interactive Lectures	SBQS
		Skill • Draw and label the gross anatomy of the TMJ • Discuss the biomechanics of TMJ with the help of a diagram		
		Case-based Learning □ Correlate the development of jaws with Facial Profiles	**Tutorial**	**OSPE**
3.	**Dento-osseous structures**	**Knowledge** • The prenatal development of the mandible • The postnatal development of the mandible • The prenatal development of the maxillae **Integration with Anatomy** • Describe the anatomical features of the bones that comprise the jaws (mandible and maxillae)	**Interactive Lectures**	**SBQS**
		Skill • Discuss the role of primary & secondary cartilages involved in the development of the mandible	Practical	OSPE
4.	**Vasculature & innervation of the mouth**	**Knowledge** • Describe the sources and distribution of blood vessels supplying the mouth and associated structures (i.e., the teeth and their supporting structures, the salivary glands, the tongue, palate, floor of mouth, lips, and cheeks). • Describe the sources and distribution of nerves supplying the mouth and associated	Interactive Lectures	SBQS

		structures (i.e., the teeth and their supporting structures, the salivary glands, the tongue, palate, floor of mouth, lips, and cheeks) **Integration with Anatomy** • Describe the courses and distribution of the maxillary and mandibular divisions of the trigeminal nerve		
		Skill • Relate the inferior alveolar nerve block to its anatomy	Practical	OSPE
5.	**Periodontium**	**Knowledge** • Enlist the tissues included in the periodontium • Outline the biochemical composition of cementum. • Classify cementum • Discuss the process of initiation of cementum formation & theories (Development) • Classify the cementoenamel junction • Enlist the PDL and gingival ligament fibers along with their functions • Enlist the cells present in the periodontal ligaments • Highlight the innervation of PDL • Discuss the alveolar process and the histology of alveolar bone • Enlist the age changes associated with periodontium	Interactive lecture	SBQS
		Skill • Illustrate the development of periodontium • Illustrate the fibers of the periodontal ligament • Draw & label the gingival ligament fibers • Sketch the structure of the alveolar bone, showing its components	Practical	OSPE

LEARNING OBJECTIVES OF PHYSIOLOGY 1ST YEAR BLOCK -III (3A) GASTROINTESTINAL SYSTEM(GIT)	
Terminal Objective	• Demonstrate appropriate basic knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision-making by critical thinking. • ecognize patients with special care and perform dental emergencies, having good communication skills.
Rationale	Teaching Physiology in the first year of BDS is crucial because it helps students understand the normal functions of the human body, forming the basis for recognizing disease and planning appropriate dental care. Knowledge of systems such as the cardiovascular, nervous, and endocrine systems enables students to relate general body functions to oral health. It builds scientific reasoning, supports safe clinical decision-making, and prepares students to manage patients with systemic conditions. Physiology also links foundational sciences with future clinical training, ensuring that students develop a comprehensive understanding of how the body responds to stress, medications, and dental procedures.
TOPIC	**Learning objectives**
GIT-3A -PHY-1 . Overview of GIT physiology	• Discuss the physiological anatomy and functions of Gastro Intestinal tract. • Describe the electrical activity of gastrointestinal smooth muscle
GIT-3A-PHY-2 Neural control of GIT function	• Describe enteric nervous system. • Mention the role of enteric nervous system in control of GIT function • Mention the role of autonomic nervous system in control of GIT function • Define three types of gastrointestinal reflexes that are essential to gastrointestinal control
PRACTICAL GIT-3A -PHY-3& 4 Introduction of Nasogastric (NG) tube	• Its uses, indications, and contraindications
GIT- 3A-PHY-5 Saliva; its composition, function, and regulation	• Mention the major salivary glands • Describe the composition and function of saliva • Describe the role of saliva in oral hygiene • Explain the regulation/control of salivary secretion
GIT- 3A-PHY-6&7 TUTORIAL	BCQ Practice and discussion of gastrointestinal reflexes, Enteric NS, Saliva, • Spike potential, slow waves
GIT-3A-PHY-8 Mastication and Deglutition	• Define mastication/chewing and mention its importance. • Define swallowing/deglutition and name its stages. • Describe the mechanism of each stage • Mention the function of the lower esophageal sphincter. • Discuss the mechanisms that prevent food from entering the nasal cavity and larynx during swallowing
PRACTICAL	

GIT-3A -PHY-9 &10 Effect of deglutition on respiration	• To see the effect of deglutition on respiration
GIT-3A -PHY-11 Gastric juice; its composition, function and regulation	• Describe the physiological anatomy of gastric glands • Describe the composition of gastric juice • Mention the functions of important constituents of gastric juice • Describe the regulation/control of gastric juice secretion
GIT-3A –PHY-12 Mechanism of gastric acid (HCl) secretion and its control	• Describe the mechanism of HCl secretion by • Parietal cells of oxyntic/gastric glands • Mention the function of gastric HCl • Describe the regulation of gastric acid secretion
GIT-3A -PHY-13 Motor functions of stomach	• Describe the motor functions of the stomach • Explain how the gastric emptying is regulated
GIT- 3A-PHY-14&15 TUTORIAL	• BCQ Practice and discussion stomach
GIT-3A -PHY-16 Pancreatic juice; its composition, function and regulation	• Mention the physiological anatomy of the exocrine part of the pancreas. • Describe the composition of pancreatic juice. • Mention the functions of pancreatic juice. Mention the importance of the trypsin inhibitor. • Describe basic stimuli that cause pancreatic secretion. • Mention the phases of pancreatic secretion
GIT-3A -PHY-17	• Describe the main functions of the liver • Describe the composition of bile juice • Mention the difference between hepatic bile and gallbladder bile • Discuss the composition, formation, conduction and functions of Bile and Bile salts.
GIT-3A -PHY-18 &19	• BCQ Practice and discussion • Pancreas and liver •
GIT-3A -PHY-20 & 21	• BCQ TEST
(3B) ENDOCRINE SYSTEM	
Terminal Objective	• Demonstrate appropriate basic knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision-making by critical thinking. • Recognize patients with special care and perform dental emergencies having good communication skills.
Rationale	• Teaching Physiology in the first year of BDS is crucial because it helps students understand the normal functions of the human body, forming the basis for recognizing disease and planning appropriate dental care. Knowledge of systems such as the cardiovascular, nervous, and endocrine

	systems enables students to relate general body functions to oral health. It builds scientific reasoning, supports safe clinical decision-making, and prepares students to manage patients with systemic conditions. Physiology also links foundational sciences with future clinical training, ensuring that students develop a comprehensive understanding of how the body responds to stress, medications, and dental procedures.
TOPIC	• **Learning objectives**
Endo-3B- PHY- 1 Overview Of Endocrine Physiology	• Classify hormones. Discuss endocrine hormones. Differentiate between endocrine and exocrine glands. • List the major endocrine glands and their locations
Endo-3B- PHY- 2: Mechanism of action of hormone	• Discuss the secretion, transport, clearance, and mechanism of action of different hormones. • Describe the hormone receptors and their activation
Endo-3B- PHY- 3 : Overview of Anterior pituitary	• Discuss the classification, secretions, and effects of anterior pituitary hormones
Endo-3B- PHY- 4: Growth hormone	• Describe the functions and pathophysiology of growth • hormones
Endo-3B- PHY- 5 Posterior pituitary	• Discuss the classification, secretions, and effects of posterior pituitary hormones. • Mechanisms and Functions of ADH
Endo-3B- PHY- 6: Posterior pituitary oxytocin	• Describe the Mechanism of action, functions of oxytocin, and the milk let-down effect
Endo – 3B-PHY-7&8: TUTORIAL	• Posterior pituitary • BCQ Practice and discussion
Endo-3B- PHY- 9: Thyroid function + features + hypo & hyper **Endo-3B- PHY- 10&11 TUTORIAL Thyroid function** **Endo-3B- PHY-12: Calcium homeostasis (PTH)**	• Describe the synthesis, secretion, function, and regulation of thyroid hormones. Discuss disorders of thyroid hormones • Discuss disorders of thyroid hormones • List the hormones that regulate calcium and phosphate homeostasis. • Discuss the functions of parathyroid hormone, vitamin D, and calcitonin
Endo-3B- PHY- 15: Pancreas gland (insulin + glucagon)	• Describe the functions of insulin, glucagon • Discuss the mode of action of insulin and glucagon release and their disorders

Endo-3B- PHY- 16 & 17: TUTORIAL	• BCQ PRACTICE • Discuss the functions of Glucagon
Endo- 3B -PHY- 18: Overview of Adrenal Gland. **Endo- 3B -PHY- 19: Adrenal gland-I mineral corticoids** **Endo- 3B -PHY- 20: Adrenal gland-II Glucocorticoids** **Endo- 3B -PHY- 21: Adrenal medulla** **Endo- 3B -PHY- 22&23: tutorial** **Endo- 3B -PHY-24: tutorial**	• Describe the functional anatomy of the adrenal gland and its clinical importance. • Describe the hormones of the adrenal cortex and adrenal medulla • Describe the site of formation, function, and control of secretion of the following: • mineral corticoids. • Describe the site of formation, function, and control of secretion of the following: glucocorticoids. • Describe the site of formation, function, and control of secretion of adrenal medulla hormones • BCQS practice and discussion (adrenal gland and cortex) • BCQS practice and discussion
3C) KIDNEY **(RENAL PHYSIOLOGY)**	
Terminal Objective	• Demonstrate appropriate basic knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision-making by critical thinking. • Recognize patients with special care and perform dental emergencies, having good communication skills.
Rationale	• Teaching Physiology in the first year of BDS is crucial because it helps students understand the normal functions of the human body, forming the basis for recognizing disease and planning appropriate dental care. Knowledge of systems such as the cardiovascular, nervous, and endocrine systems enables students to relate general body functions to oral health. It builds scientific reasoning, supports safe clinical decision-making, and prepares students to manage patients with systemic conditions. Physiology also links foundational sciences with future clinical training, ensuring that students develop a comprehensive understanding of how the body responds to stress, medications, and dental procedures.
RENAL-3C-PHY-1: Overview of urinary	• Discuss the functional anatomy of the kidney.

system (functions of the Kidney)	
RENAL-3C-PHY-2: Nephron parts & types, steps of urine formation	• Discuss the Homeostatic functions of the kidney, Renal blood supply • Define nephrons and their types • Describe parts of nephrons • Discuss the steps of urine formation
RENAL-3C-PHY-3 GFR & structure of the glomerular filtration membrane	• Define GFR. • State the normal range of GFR. • Describe the glomerular filtration membrane and its function.
RENAL-3C-PHY-4 GFR & its determinants	• Discuss the forces that promote and oppose glomerular filtration. • Describe the regulation of glomerular filtration by hormones and the nervous system
RENAL-3C-PHY-5: Autoregulation of GFR and renal blood flow	• Define Autoregulation, explain the myogenic mechanism, and how vascular smooth muscle responds to changes in blood pressure.
RENAL-3C-PHY-6&7: Tutorial glomerular filtration and regulation	• Describe the tubuloglomerular feedback (TGF) mechanism, including the role of the macula densa in detecting sodium chloride concentration and adjusting afferent arteriole tone • BCQ Practice and discussion
RENAL-3C-PHY-8: Tubular reabsorption	• Discuss passive and active mechanism of transport for tubular reabsorption • Discuss reabsorption of fluid by peritubular capillaries. • Discuss tubular reabsorption along different parts of the nephron and its regulation. • Define tubular load and Tubular transport maximum (Tm).
RENAL-3C-PHY-9: Tubular secretion	• Discuss the tubular secretion processes. • Describe the secretion in different parts of nephron
RENAL-3C-PHY-10&11: Tutorial	• BCQ Practice and discussion • Tubular reabsorption + secretion
RENAL-3C-PHY-12:	• Factors that increase and decrease renal calcium excretion
RENAL-3C-PHY-13:	• Discuss the role of the bladder in accommodating the wide range of urine volumes
RENAL-3C-PHY-14:	• Describe the neural reflex pathway that regulates an empty bladder
RENAL-3C-PHY-15&16: tutorial	• BCQS discussion: hormones acting on the kidney

BLOCK III **ANATOMY**		
	Terminal Objective	• Demonstrate appropriate basic knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret

		the results to arrive at clinical decision-making by critical thinking. • Recognize patients with special care and perform dental emergencies, having good communication skills.		
	Rationale	Teaching Anatomy in the first year of BDS is essential because it provides the foundational knowledge required for all dental sciences. Understanding the structure of the human body, especially the head, neck, and oral region, enables students to appreciate the relationships between tissues, nerves, vessels, and organs relevant to dental practice. It supports safe clinical procedures, accurate diagnosis, and effective treatment planning. Early exposure to Anatomy fosters critical thinking, spatial understanding, and a scientific approach to patient care. This grounding prepares students for advanced subjects such as physiology, pathology, and clinical dentistry, ensuring competent and confident future dental professionals.		
	At the end of the module, students should be able to			
S. No	**Objectives**		**Teaching strategy**	**Assessment tool**
1.	Explain the general layout of the nervous system and its classification.		IL	BCQ
2.	Discuss the gross anatomy & cross sections of spinal cord with blood supply.		IL	BCQ,SEQ
3.	Discuss the ascending tracts of spinal cord with their functions and clinical correlates.		IL	BCQ, SEQ
4.	Discuss the descending tracts of the spinal cord with their functions and clinical correlates.		IL	BCQ, SEQ
5.	Explain the gross structure of brain stem (medulla, pons and midbrain).		SGIS	BCQ, SEQS & OSPE
6.	Discuss the cross sections of brain stem (medulla, pons and midbrain) at different levels with clinical correlates.		IL	BCQ, SEQ & OSPE
7.	Discuss in detail cranial nerves I – XII.		IL	BCQ, SEQ & OSPE
8.	Discuss the gross structure of cerebellum and fibers associated with it.		IL	BCQ, SEQ & OSPE
9.	Explain the cranial meninges with their neurovascular supply and clinical correlates.		SGIS	BCQ, OSPE
10.	Explain the Dural infoldings/ reflections (falx cerebri, tentorium cerebelli, falx cerebelli and sellar diaphragm).		SGIS	BCQ, OSPE
11.	Relate the location and communications of Dural venous sinuses with their clinical significance.		SGIS	BCQ, SEQ & OSPE
12.	Demonstrate the sulci and gyri of cerebrum on the given model.		SGIS	BCQ, OSPE
13.	Explain the functions of different cortical areas of cerebrum with their lesions.		SGIS	BCQ, SEQ
14.	Describe the white matter (commissural, projection and association fibers) of brain.		IL	BCQ
15.	Relate the parts of basal nuclei of the brain with clinical disorders.		IL	BCQ
16.	Describe the microscopic features of: a. spinal cord b. cerebellum c. cerebral cortex		IL	BCQ, SEQ

17.	Identify the microscopic features of spinal cord, cerebellum and cerebral cortex.	PW	OSPE
18.	Explain the ventricular system of brain with clinical correlates.	SGIS	BCQ, SEQ, OSPE
19.	Describe the blood supply of the brain.	SGIS	BCQ, SEQ, OSPE
20.	Describe the vertebral system of veins.	SGIS	BCQ
21.	Explain the gross anatomical features of eye with its neurovascular supply.	SGIS	BCQ, OSPE
22.	Describe the microscopic features of eye.	IL, PW	OSPE
23.	Describe the extra-ocular muscles with their nerve supply and actions.	SGIS	BCQ, SEQ, OSPE
24.	Identify the extra-ocular and facial muscles on a given model.	SGIS	OSPE
25.	Explain the gross features of ear (external, middle and internal) with its neurovascular supply and clinical correlates.	SGIS	BCQ, SEQ, OSPE
26.	Describe the development of brain and spinal cord with its anomalies.	IL	BCQ, SEQ
27.	Discuss cervical fascia.	IL	BCQ
28.	Explain the anterior and posterior triangles of the neck.	SGIS	BCQ, SEQ, OSPE
29.	Describe the lymphatic drainage of head and neck.	IL	BCQ
30.	Discuss the ganglia and plexus present in the neck.	IL	BCQ
31.	Identify the muscles and joints in the pre-vertebral region of the neck.	SGIS	OSPE
32.	Describe the location, structure and blood supply of pituitary gland.	IL	BCQ, SEQ
33.	Explain the location and structure of thyroid and parathyroid gland.	IL	BCQ, SEQ
34.	Discuss the location and structure of endocrine pancreas.	IL	BCQ
35.	Explain the location and structure of suprarenal glands.	IL	BCQ
36.	Describe the developmental anatomy of the endocrine glands.	IL	BCQ, SEQ
37.	Describe the microscopic features of endocrine glands.	IL	BCQ, SEQ
38.	Identify the microscopic features of endocrine glands on the given slide.	PW	OSPE
39.	Describe the microscopic features of the skin.	IL	BCQ
40.	Identify the microscopic features of the skin.	PW	OSPE
41.	Demonstrate the examination of cranial nerves	SGS	OSPE
BIOCHEMISTRY			
	Terminal Objective	• Demonstrate appropriate basic knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision-making by critical thinking.	

		• Recognize patients with special care and perform dental emergencies, having good communication skills.		
	Rationale	Teaching Biochemistry in the first year of BDS is essential because it explains the molecular basis of life processes that influence oral and systemic health. It helps students understand the biochemical composition of teeth, saliva, and oral tissues, as well as the mechanisms underlying diseases such as caries and periodontal disorders. Biochemistry builds a foundation for comprehending metabolism, nutrition, enzymatic functions, and the effects of drugs used in dentistry. It also promotes scientific reasoning and supports future learning in pathology, pharmacology, and clinical subjects. By establishing this core knowledge early, students become better prepared for evidence-based dental practice.		
42.	Discuss the definition of enzyme with classification		IL, SGS	BCQS, SEQS
43.	Study the activity of different factors on Enzyme action		PW	OSPE
44.	Discuss the properties of enzymes		IL, SGS	BCQS ,SEQS
45.	Discuss the mode of action & regulation of enzyme		IL, SGS	BCQS, SEQS
46.	Discuss the factors affecting enzymes activity		IL, SGS	BCQS, SEQS
47.	Discuss the mechanism of action of different inhibitors of enzyme		IL, SGS	BCQS, SEQS
48.	Discuss the isoenzyme clinical importance, application clinical & therapeutic uses of enzymes		IL, SGS	BCQS, SEQS, CP
49.	Perform the analysis of normal and abnormal urine		PW	OSPE
50.	Discuss the sources, Absorption, regulation, biomedical importance, clinical aspect of Na & K		IL, SGS	BCQS, SEQS
51.	Discuss the sources, Absorption, regulation, biomedical importance, clinical aspect of Cl,PO_4 &Ca		IL, SGS	BCQS, SEQS
52.	Discuss the sources, Absorption, regulation, biomedical importance, clinical aspect of iron & Zinc		IL, SGS	BCQS, SEQS
53.	Discuss the sources, Absorption, regulation, biomedical importance, clinical aspect of Mg., selenium, iodine		IL, SGS	BCQS, SEQS
54.	Perform milk analysis by separating different components		PW	OSPE
55.	Discuss the sources, Absorption, regulation, biomedical importance, clinical aspect of copper, chromium, cadmium, manganese		IL, SGS	BCQS, SEQS, CP
56.	Discuss the sources, Absorption, regulation, biomedical role, clinical aspect deficiency of vitamin A & E		IL, SGS	BCQS, SEQS,
57.	Discuss the sources, Absorption, regulation, biomedical role, clinical aspects/ deficiency of vitamin D,K		IL, SGS	BCQS, SEQS,
58.	Discuss the sources, Absorption, regulation, biomedical role, clinical aspect deficiency of vitamin C		IL, SGS	BCQS, SEQS
59.	Discuss the sources, Absorption, regulation, biomedical role, clinical aspect deficiency of vitamin B1 & folic acid		IL, SGS	BCQS, SEQS
60.	Discuss the sources, Absorption, regulation, biomedical role, clinical aspect deficiency of Pyridoxine, riboflavin		IL, SGS	BCQS, SEQS
61.	Discuss the sources, Absorption, regulation, biomedical role, clinical aspect deficiency of nicotinic acid & biotin		IL, SGS	BCQS, SEQS
62.	Discuss the sources, Absorption, regulation, biomedical role, clinical aspect deficiency of vitamin B12		IL, SGS	BCQS, SEQS

63.	Perform CSF analysis	PW	OSPE
64.	Discuss the gastric, pancreatic, bile juice/ digestion & absorption carbohydrates	IL, SGS	BCQS, SEQS
65.	Discuss the digestion & absorption of protein and nucleic acid with clinical importance	IL, SGS	BCQS, SEQS
66.	Discuss the digestion & absorption of lipids with clinical importance	IL, SGS	BCQS, SEQS,
67.	Discuss the gastric, pancreatic, intestinal and bile juices with their composition and clinical significance	IL, SGS	BCQS, SEQS

Commencement of 3rd Block		Weekly Schedule of BLOCK-III ANATOMY		
Activity	**Week**	**Lecture 1 (LO)**	**Lecture2 (LO)**	**Lecture 3 (LO)**
Academic Session – BDS First Professional	Week- 1	Explain the general layout of the nervous system and its classification (1)	Discuss the gross anatomy of spinal cord and its blood	Describe the microscopic features of spinal cord (16)
	Week- 2	Discuss the ascending tracts of spinal cord with their functions & clinical correlates	Discuss the ascending tracts of spinal cord with their functions &	Discuss the descending tracts of the spinal cord with their functions and clinical correlates
	Week- 3	Discuss the cross section of spinal cord (2)	Discuss the cross section of medulla oblongata (6)	Discuss the gross & microscopic structure of cerebellum and fibers associated with it (8, 17)
	Week- 4	Discuss the cross section of Pons (6)	Discuss the cross section of Midbrain	Describe white matter (commissural, projection &
	Week- 5	Describe the development of spinal cord (26)	Relate parts of basal nuclei of brain with clinical disorders (15)	Describe the microscopic features of cerebrum (16)
	Week- 6	Introduction to cranial nerves, discuss CN I (7)	Cranial nerve II (7)	Describe the microscopic features of eye (22)
	Week- 7	Cranial nerve III, IV and VI (7)	Cranial nerve V (7)	Cranial nerve VII (7)
	Week- 8	Describe the development of brain (26)	Cranial nerve VIII (7)	Cranial nerve IX (7)
	Week- 9	Describe the microscopic features of the skin (39)	Cranial nerve X (7)	Cranial nerve XI & XII (7)
	Week10	Discuss cervical fascia (27)	Describe the lymphatic drainage of	Discuss the ganglia and plexus present in the neck (30)
	Week-11	Describe the location, structure & blood supply of pituitary gland (32)	Describe development & microscopic features of pituitary	Explain the location and structure of thyroid and parathyroid gland (33)
	Week -12	Describe development and microscopic features of thyroid and parathyroid gland (36, 37)	Discuss the location, structure, development & microscopic features	Describe the location, structure, development and microscopic features of endocrine pancreas (34, 36, 37)
		THEORY AND VIVA EXAMINATION		

Commencement of 3rd Block		Weekly Schedule of BLOCK- III Biochemistry	
Activity	**Week No**	**Lecture-1 (LO)**	**Lecture-2 (LO)**
Academic Session – BDS First Professional	Week-1	Definition of enzyme with classification (69)	Properties of enzymes (71)
	Week-2	Mode of action & regulation of enzyme (72)	Factors affecting enzymes activity (73)
	Week-3	Mechanism of action of different inhibitors of enzyme (74)	Isoenzyme clinical importance, application clinical& therapeutic uses of enzymes (75)
	Week-4	Sources, Absorption, regulation, biomedical importance, clinical aspect of Na & K (77)	Sources, Absorption, regulation, biomedical importance, clinical aspect of Cl,PO_4 &Ca
	Week-5	Sources, Absorption, regulation, biomedical importance, clinical aspect of iron & Zinc (79)	Sources, Absorption, regulation, biomedical importance, clinical aspect of Mg., selenium, iodine (80)
	Week-6	Sources, Absorption, regulation, biomedical importance, clinical aspect of copper, chromium, cadmium, manganese (82)	Sources, Absorption, regulation, biomedical role, clinical aspect deficiency of vitamin A & E (83)
	Week-7	Sources, Absorption, regulation, biomedical role, clinical aspects/ deficiency of vitamin D,K (84)	Sources, Absorption, regulation, biomedical role, clinical aspect deficiency of vitamin C
	Week-8	Sources, Absorption, regulation, biomedical role, clinical aspect deficiency of vitamin B1 & folic acid (86)	Sources, Absorption, regulation, biomedical role, clinical aspect deficiency of Pyridoxine, riboflavin (87)
	Week-9	Sources, Absorption, regulation, biomedical role, clinical aspect deficiency of nicotinic acid & biotin (88)	Sources, Absorption, regulation, biomedical role, clinical aspect deficiency of vitamin B12 (89)
	Week-10	Discuss digestion & absorption carbohydrates with their clinical disorder (91)	Digestion & absorption of protein and nucleic acid with clinical importance and their clinical disorder (92)
	Week-11-12	Digestion & absorption of lipids with clinical importance and their clinical disorder (93)	Discuss the gastric, pancreatic, intestinal & bile juices with their composition and clinical significance (94)
		THEORY AND VIVA EXAMINATION	

	ORAL BIOLOGY-BLOCK -III			
	Terminal Objective	• Demonstrate appropriate basic knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision-making by critical thinking. • Recognize patients with special care and perform dental emergencies, having good communication skills		
	Rationale	Teaching Oral Biology in the first year of BDS is vital because it provides students with a detailed understanding of the development, structure, and function of oral tissues. It introduces foundational concepts related to teeth, saliva, oral mucosa, and supporting structures, helping students appreciate their normal biology before learning about diseases. Oral Biology also builds scientific thinking and links basic sciences with clinical dentistry. This knowledge prepares students to understand oral pathology, periodontology, and operative procedures in later years. By establishing a strong biological framework early, students develop the skills needed for accurate diagnosis, preventive care, and effective patient management.		
S#	**Topic**	**Learning outcomes**	**Mode of teaching**	**Mode of assessment**
1	**Enamel: Composition, Formation & Structure**	**Knowledge** • Enlist the physical & chemical characteristics of enamel • Discuss the fundamental organization of enamel • Outline the life cycle ameloblast • Demonstrate the light & electron microscopy of amelogenesis • Enlist the enamel proteins • Give the location, features & functions of enamel proteins • Identify Enamel surface characteristics • Discuss stria of Retzius, cross striations, Gnarled Enamel, Tufts & Lamella • Categorize the defects of amelogenesis • Explain the changes that take place in enamel with age	Interactive Lectures	SBQS
		Skill • Sketch the life cycle of ameloblast • Demonstrate the microscopic structures present in enamel • Illustrate enamel tufts, lamellae & spindles	Practical	OSPE

2.	**Dentin Pulp Complex**	**Knowledge** • Define dentin-pulp complex. • Highlight the basic structure of dentin & its composition. • Classify dentin • Describe odontoblast differentiation, formation of primary, secondary & tertiary dentin • Distinguish the dentinal tubules, peri & intertubular dentin, sclerotic dentin, interglobular dentin, incremental lines & granular layer of Tomes Define pulp. • Enlist the cells present in the pulp • Enlist the functions of pulp • Enlist Zones of the pulp • Compare different theories of dentin sensitivity • Summarize their clinical relevance • Classify pulp stones • Enlist the changes that take place in dentin pulp complex with age with clinical correlation	Interactive Lectures	SBQS
		Skill • Demonstrate the microscopic picture of the histological structures of dentin • Illustrate histological structures present • in Dentin • Illustrate different theories of dentin sensitivity • Draw & label the histological zones of pulp	Practical	OSPE
3.	**Salivary Glands**	**Knowledge** • Highlight the major & minor salivary Glands • Discuss the cells of the Salivary Glands • Discuss the mechanism of formation of saliva • Highlight the ductal modification of saliva • Identify the changes that takes place with age in salivary glands • Categorize the diseases associated with it • Integration with Biochemistry	Interactive Lecture	SBQS

		• List down the biochemical composition • of saliva • Enlist the functions of saliva		
		Skill • Illustrate the structural organization of salivary glands • Draw the histology of the major Salivary glands • Annotate the ductal system of salivary glands		
4.	**Oral Mucosa**	**Knowledge** • Define oral mucosa • Outline the boundaries of Oral Cavity & tissues in Oral Cavity • Enlist the functions of Oral Mucosa • Enlist layers of oral epithelium • Enlist the non-keratinocytes in oral epithelium • Arrange the ultrastructural features & functions of non-keratinocytes • Highlight the junction of the epithelium & lamina propria • Illustrate the structural variations of the masticatory & lining mucosa • Differentiate lingual papillae according to their location, structure, histology, and specification to the type of taste • Express the mucocutaneous, mucogingival & dentogingival junctions • Summarize the development of the oral mucosa • Correlate the changes that take place in the oral mucosa with age **Integration with Anatomy** • Differentiate papillae of the tongue according to their location, structure, histology, and specification to type of taste	Interactive Lectures	SBQS
		Skill • Illustrate the histological components of the oral mucosa • Draw and label the histology of Ortho keratinized, parakeratinized & non keratinized epithelium	Practical	OSPE

		• Illustrate the dentogingival junction and junctional epithelium		
5.	**Repair & Regeneration of Oral Tissues**	**Knowledge** • Relate the phases of healing with repair • Brief healing of enamel & dentin-pulp complex • Highlight Repair following tooth extraction • Highlight the mechanism of repair of the Periodontium	Interactive Lectures	SBQS

LEARNING OBJECTIVES OF DENTAL MATERIAL-					
	Terminal Objective	• Demonstrate appropriate basics knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision making by critical thinking. • Recognize patients with special care and perform dental emergencies having good communication skills.			
	Rationale	Teaching Dental Materials in the first year of BDS is essential because it introduces students to the properties, composition, and behavior of materials used in clinical dentistry. Early understanding helps students appreciate how materials interact with oral tissues, withstand functional forces, and contribute to long-term treatment success. The subject develops critical skills in material selection, manipulation, and evaluation, which are fundamental for all operative and restorative procedures. It also promotes scientific reasoning by linking material science with oral environment challenges. By learning Dental Materials early, students build a strong foundation for preclinical training and safe, effective clinical practice in later years.			
SR#	**TOPIC**	**LEARNING OBJECTIVES**	**TEACHING STRATEGIES**	**ASSESSMENT**	**HOURS**
1	**Introduction To Dental Materials**	To choose the appropriate dental materials for specific dental applications	Lecture/Practical /Lab Work	**Written Examination/OSPE**	8 hrs Lecture
2	**Properties Of Dental Materials**	To understand the materials' biocompatibility, strength and durability, aesthetic, thermal conductivity, corrosion resistance, adhesion flexibility radiopacity, wear resistance, ease of use	Lectures	**Written Examination/OSPE**	8 hrs Lecture
3	**Cements**	To understand the material retention, support, sealing,	Lecture/Practical /Lab Work	**Written Examination/OSPE**	8hours lec+16 hr practical

		insulation strength and durability			
4	**Dental Amalgam**	To understand the primary goal to replace and restore tooth structure, durability, biocompatibility, ease of placement and esthetic consideration	Lecture/Practical /Lab Work	**Written Examination/OSPE**	8 hr lec + 16 hr practical
5	**Composite Resin**	To restore tooth function, preserve tooth structure, achieve aesthetic results, bond securely, and minimize sensitivity.	Lecture/Practical /Lab Work	**Written Examination/OSPE**	8 hr lec+ 16 hr practical
6	**Impression Materials**	To create an accurate and reliable mould of oral cavity, ensuring the successful fabrication of prosthetic and restoration while prioritizing patient comfort and safety	Lecture/Practical /Lab Work	**Written Examination/OSPE**	8 hr lec + 16 hr practical
7	**Gypsum**	To make casts and model, diagnostic and treatment planning, prosthodontic fabrication	Lecture/Practical /Lab Work	**Written Examination/OSPE**	8 hr lec + 16 hr practical
8	**Dental waxes**	To understand diagnostic waxups, impression modeling, articulation pattern waxing, investment casting, and temporization	Lecture/Practical /Lab Work	**Written Examination/OSPE**	8 hr lec+16 hr practical
9	**Dental investment and casting**	To understand the properties of Mould formation, refractory properties, dimensional accuracy, surface Finish, strength and stability, material replication, material integrity, material bonding, biocompatibility	Lecture/Practical /Lab Work	**Written Examination/OSPE**	8 hr lec + 16 hr practical
10	**Denture base polymer**	To provide stability and support to dentures, a natural-looking aesthetic, biocompatibility, and durability	Lecture/Practical /Lab Work	**Written Examination/OSPE**	8 hr lec+ 16 hr practical

11	**Abrasion and polishing materials**	To understand the significance of polishing material i.e, to remove surface irregularities, enhance esthetics, prevent plaque accumulation, improve biocompatibility, optimize occlusal function and increase patient comfort	Lecture/Practical /Lab Work	**Written Examination/OSPE**	8 hrs Lecture
12	**Tissue conditioner**	To know soft tissue support, tissue handling, improve denture fit enhance patient comfort, temporary solutions	Lecture	**Written Examination/OSPE**	8 hrs Lecture
13	**Metal And Alloys**	To understand strength and durability, conductivity, corrosion resistance, temperature resistance and appearance.	Lecture/Practical /Lab Work	**Written Examination/OSPE**	8 hrs Lecture
14	**Cermets**	To know hardness and wear resistance, high temperature resistance, chemical inertness, biocompatibility, and thermal conductivity	Lecture/Practical /Lab Work	**Written Examination/OSPE**	8 hrs Lecture
15	**Direct Filling** Gold	To know the properties of gold, such as durability and longevity, biocompatibility, minimal tooth preparation, corrosion, malleability and adaptability, and patient comfort	Lecture/Practical /Lab Work	**Written Examination/OSPE**	8 hrs Lecture
16	**Adhesion**	To create a strong bond between dental restorative material (amalgam and composite) and natural tooth structures, minimize microleakage, prevent infiltration, prevent tooth integrity	Lectures	**Written Examination/OSPE**	8 hrs Lecture
17	**Dental Ceramic**	To provide durability and aesthetically pleasing restoration for tooth,	Lectures	**Written Examination/OSPE**	8 hrs Lecture

		natural appearance, biocompatibility, aim to offer long lasting solutions for crown, veneers and other restorative applications			
18	**Endodontic Materials**	Discuss the introduction of endodontic instruments and materials, to know about the composition, manipulation an uses of endodontic materials(irrigants,intracanal medication Gp and paper points, sealer)to know about root canal treatment, to know about pulp capping	Lecture/Practical /Lab Work	**Written Examination/OSPE**	8 hrs Lecture
19	**Dental implant**	Discuss the introduction of dental implants, to know about titanium, to learn about dental implants, types, components, advantages, and disadvantages	Lectures	**Written Examination/OSPE**	8 hrs Lecture
	TOTAL HOURS=72 HOURS IN 36 WEEKS IN FIRST YEAR BDS				300 hours

PRE-CLINICAL MODULE OF DENTAL MATERIAL AND PROSTHODONTICS

REQUIREMENTS FOR PRE-CLINICALS

1. **Student's Protocol**
2. Proper Dress Code With White Coat
3. Gloves
4. Mask
5. Eye Protector

6. **Instruments & Materials**

Dental Unit Preparation Items

- Metal Instrument Box
- Instrument Tray
- Typhodont Teeth In Blo0ck / Phantom Head

- **Examination Instrument**
  - Mirrors
  - Probe
  - Tweezers
  - Periodontal Probe
- **Instruments**
  - Hand Piece
  - Flat Ended Tapered Fissure Bur
  - Round Ended Tapered Fissure Bur
  - Round Bur
  - Flame Shaped Bur
  - Wheel Shape Bur
  - Interdental Bur
  - Finishing Bur
  - Spatula
  - Bowl
  - Articulator
  - Hard Plaster

PRE-CLINICAL MODULE OF DENTAL MATERIAL AND PROSTHODONTICS						
Terminal Objective			• Demonstrate appropriate basic knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision making by critical thinking. • Recognize patient with special care and perform dental emergencies having good communication skills.			
Rationale			Teaching Dental Materials and Preclinical Prosthodontics together in the first year of BDS provides students with a strong, integrated foundation for future clinical practice. Understanding the properties, composition, and handling of dental materials enables students to appreciate their role in fabricating restorations and prostheses. When combined with preclinical prosthodontics, students apply this knowledge through hands-on exercises that develop manual skills, precision, and attention to detail. This integrated approach enhances problem-solving, fosters scientific reasoning, and builds confidence before clinical exposure. Together, these subjects prepare students for constructing high-quality prostheses and performing safe, effective restorative procedures in later years.			
WEEK.DAY			**TOPIC**	**LECTURE**	**INT. LECTURE DEMO**	**PRACTICAL**
				MONDAY, TUESDAY & WEDNESDAY		
				11:30 am to 1:00 pm	**11:30 am to 1:00pm**	**11:30 am to 1:00 pm**
	Mon	1	Terminology of Prosthodontics, Objectives of partial/complete denture, types of dentures	Dr.Paras/dr.Sehar		
			Types of dentures and their objectives (Practical)			
	Tuesday	2	Kennedy's Classification and Appligate's rules for applying kennedy's classification	Dr.Hassan/Dr.Paras		
	Wednesday	3	Kennedy's Classification (Practical)			
	Monday	4	Stainless steel & wrought alloys	Dr.Nourein		
	Tuesday	5	Clasp Formation	Dr.Hassan		
			Clasp construction (Practical)			
	Wednesday	6	Impression Materilas-1	Dr.Uzma		DR.UZAM,DR.PARAS
			Impression for Removable partial denture (Practical)			

	Monday	7	Outline and Surfaces of maxillary & mandibular dentures (Lecture & Practical)	Dr.Paras	Dr.Hassan	
	Tuesday	8	Gypsum	Dr.Paras/Dr.Sehar		
			Model making (Practical)			
	Wednesday	9	Impression Materials-2 Impression for complete denture (Practical)	Dr.Paras		
	Monday	10	Gypsum	Dr.Paras/Dr.Sehar		
			Model making (Practical)			
	Tuesday	11	Beading and boxing	Dr.Hassan/Dr.Paras		
			Beading and boxing the impression (Practical)			
	Wednesday	12	Suryeing, use of surveyor (Practical)	Dr.Uzma		
	Mon	13	Acrylic material	Dr.paras	Dr.sehar	
			Construction of customised tray (Practical)			
	Tue	14	Waxes	Dr.hassan	Dr.sehar	
			Construction of wax occlusal rims (Practical)			
	Wed	15	Anterior teeth arrangement	Dr.Uzma		
			Anterior teeth arrangement (Practical)			
	Mon	16	Articulation	Dr.Paras/Dr.Sehar		
			Articulation and Articulators (Practical)			
	Tue	17	Flasking	Dr.Paras/Dr.Hassan		
			Dental flask and flasking (Practical)			
	Wed	18	Posterior teeth arrangement	Dr.uzma		
			Posterior teeth arrangement (Practical)			
	Mon	19	Separating medias	Dr.Paras/Dr.Hassan		
			Application of separating medias (Practical)			
	Tue	20	Dewaxing, Packing and Curing	Dr Sehar/Dr.Hassan		
			Denture Processing (Practical)			
	Wed	21	Finishing & Polishing materials &procedure	Dr.Paras		

			Deflasking, Finishing and Polishing (Practical)		

			TOPIC	LECTURE	INT. LECTURE DEMO	PRACTICAL
				MONDAY, TUESDAY & WEDNESDAY		
				11:30 am to 1:00 pm	11:30 am to 1:00 pm	11:30 am to 1:00 pm
	Mon	**22**	Denture liners	Dr.Nourein		
			Faults in Finished Denture (Practical)			
	Tue	**23**	Denture Cleansers	Dr.Uzma		
			Follow-up Instructions (Practical)			
	Wed	**24**	Completion of practical work	Dr.Uzma/Dr.Paras		
			Complete denture remaining work (Practical)			
	Mon	**25**	Revision (Lecture & Practical)	Dr.Uzma	Dr.Paras/Dr.Sehar	
	Tue	**26**	Posting End Test & Psychomotor Skill Assessment Test			

PRE-CLINICAL MODULE OF TOOTH MORPHOLOGY

Terminal Objective	• Demonstrate appropriate basics knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision making by critical thinking.			
Rationale	Teaching Tooth Morphology in the first year of BDS is essential because it provides students with detailed knowledge of the shape, structure, and characteristics of each tooth. This foundation is crucial for understanding occlusion, performing cavity preparations, and recognizing normal versus abnormal dental forms. Mastery of tooth anatomy enhances diagnostic skills and supports accurate restorative and prosthodontic work in later years. The subject also helps students develop fine motor skills through carving exercises, improving their precision and hand–eye coordination. By learning Tooth Morphology early, students build the essential groundwork needed for effective clinical practice and reliable patient care.			
WEEK/ DAY		**TOPIC**	**INTERACTIVE (ILD)**	**PRACTICAL**
			Monday, Tuesday and Wednesday	
			01:00 To 2:00 PM	**02:30 To 03:30 PM**
WEEK 1	Monday	An Introduction to Dental Nomenclature	Dr. Sadia	Dr.

		Introduction to Interior and Posterior teeth	Dr. Saif	
	Tuesday	Tooth Numbering System	Dr. Saif	
		Eruption Sequance for permanent teeth	Dr. Sadia	
	Wednesday	Tooth Surfaces	Dr. Saif	
		Dental Formulae for correct eruption sequance	Dr. Saif	
WEEK-II	Monday	Tooth Numbering Systems used in	Dr. Sadia	
		Tooth surface makings	Dr. Saif	
	Tuesday	Tooth and supporting tissues	Dr. Saif	
		Structure of cells in dental tissues	Dr. Sadia	
	Wednesday	Fine structures present in cells of dental	Dr. Saif	
		Blood and nerve supply of dental tissues	Dr. Saif	
WEEK-III	Monday	Dental hard tissues and there histological variations	Dr. Sadia	
		Central incisor	Dr. Saif	
	Tuesday	Central incisor	Dr. Saif	
		Lateral incisor	Dr. Sadia	
	Wednesday	Lateral incisor	Dr. Saif	
		Canine	Dr. Saif	
WEEK-IV	Monday	Canine	Dr. Sadia	
		First pre-molar	Dr. Saif	
	Tuesday	First pre-molar	Dr. Saif	
		Second pre-molar	Dr. Sadia	
	Wednesday	Second pre-molar	Dr. Saif	
		Molar Teeth	Dr. Saif	
WEEK-V	Monday	Molar Teeth	Dr. Sadia	
		Ligaments of THJ	Dr. Saif	
	Tuesday	Bones involved in joint (TMJ)	Dr. Saif	
		Muscle movements	Dr. Sadia	
	Wednesday	Comparison of TMJ with other joints	Dr. Saif	
		Muscle influencing dental impressions	Dr. Saif	
WEEK-VI	Monday	Occlusion	Dr. Sadia	
		Intra-arch relationship	Dr. Saif	
	Tuesday	Cusp to cusp relationship	Dr. Saif	
		Balanced occlusion	Dr. Sadia	
	Wednesday	Mutually protected occlusion	Dr. Saif	
		Mandibular movements	Dr. Saif	
WEEK-VII	Monday	Differences between permanent and deciduous teeth	Dr. Sadia	
		Deciduous teeth surface makings	Dr. Saif	
	Tuesday	Identify deciduous teeth	Dr. Saif	

		Tooth numbering system	Dr. Sadia	
	Wednesday	Root canal morphology	Dr. Saif	
		Sequence of deciduous tooth eruption	Dr. Saif	
WEEK-VIII	Monday	Class Quiz		
	Tuesday	BCQ's, SEQ's		
	Wednesday	Psychomotor Assessment		

PRE-CLINICAL MODULE OF CLINICAL CARE AND PROFESSIONALISM, ETHICS

Terminal Objective	• Demonstrate appropriate basic knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision-making through critical thinking. • Recognize patients with special care and perform dental emergencies having good communication skills. • Elicit professional skills while providing patient-centered care by a relevant and comprehensive physical and dental examination. • To exhibit ethical patient-centered care based on integrity, humility, social accountability, and high ethical values of this sacred profession
Rationale	Clinical Care and Professionalism, including Ethics, is essential for first-year BDS students as it establishes the foundation for safe, responsible dental practice. Early exposure helps students understand patient rights, informed consent, confidentiality, and professional accountability. It develops empathy, effective communication, and respect for diverse patient needs. Teaching these principles from the beginning nurtures integrity, ethical decision-making, and a commitment to high standards of care. It also prepares students to handle clinical situations with confidence and compassion as they progress in their training. Overall, this module ensures students grow into competent, trustworthy, and ethically grounded dental professionals.

WEEK/ DAY		**TOPIC**	**INTERACTIVE (ILD)**	**PRACTICAL**
			Monday, Tuesday, and Wednesday	
			11:30 am to 1:00 pm	
WEEK-I	Monday	Orientation, Course Overview, Class Code Of	Dr.Nimra Kaka	
		Conduct		
	Tuesday	Introduction To Ethics		
	Wednesday	Fundamental Principles Of Biomedical Ethics		
WEEK-II	Monday	Dental Practice Management I: Introduction Dental Chair, Position of Dentist & Assistant	Dr. Nimra Kaka	
	Tuesday	Dental Management-II: Basic Instruments for Dental Practice		
		Dental Practice	Dr. Nimra Kaka	
	Wednesday	Cross Infection Control-I Hand Hygiene		
		Standards And PPE (Personal Protective Equipment		
WEEK-III	Monday	Cross Infection Control-II Waste Management	Dr. Nimra Kaka	
		And Needle Stick Injury		
	Tuesday	Cross Infection-III Sterilization and Disinfection	Dr.Nimra Kaka	
		Disinfection		
	Wednesday	Dental Practice Management-III Record	Dr.Nimra Kaka	
		Keeping		
WEEK-IV	Monday	Dental Practice Management -Iv Dental	Dr.Nimra Kaka	
		Material Available in Clinic		
	Tuesday	Stress Management	Dr.Nimra Kaka	
	Wednesday	Time Management	Dr.Nimra Kaka	

WEEK-V	Monday	Communication Skills-I Patient, Professionalism,	Dr.Nimra Kaka	
		Colleagues And Dental Staff		
	Tuesday	Communication Skill-II Prescription Writing	Dr.Nimra Kaka	
		Progress Note, Writing, and Referrals to Specialists		
	Wednesday	Professionalism In Dentistry		
WEEK-VI	Monday	Informed Consent in Dental Practice	Dr.Nimra Kaka	
	Tuesday	Dentist Patient Relations		
	Wednesday	Confidentiality And Privacy		
WEEK-VII	Monday	Ethical Issues in Dental Practice Malpractice	Dr.Nimra Kaka	
		Harassment		
	Tuesday	Ethical Issues in Dental Practice-II Pt:Or Denti		
		infectious disease conflict of interest		
	Wednesday	Photography in dental practice		
WEEK-VIII	Monday	Radiography in dental practice		
	Tuesday	BCQ's, SEQ's		
	Wednesday	Psychomotor Assessment		

PRE-CLINICAL MODULE OF DENTAL MATERIAL AND OPERATIVE DENTISTRY				
Terminal Objective		• Demonstrate appropriate basics knowledge of medical and dental sciences. • Evaluate the use of laboratory tests and imaging studies and interpret the results to arrive at clinical decision making by critical thinking.		
Rationale		Teaching Dental Materials and Operative Dentistry in the first year of BDS is essential for building a strong foundation in restorative dental care. Knowledge of dental materials, including their properties, handling, and suitability for clinical use, enables students to make informed choices for treatments. When combined with operative dentistry, students apply this understanding through preclinical exercises that develop hand skills, precision, and attention to detail. Early exposure fosters scientific reasoning, problem-solving, and clinical judgment, preparing students for safe and effective patient care. This integrated approach ensures that students are equipped with both theoretical knowledge and practical skills for future clinical training.		
WEEK/ DAY		**TOPIC**	**INTERACTIVE (ILD)**	**PRACTICAL**
			Monday, Tuesday, and Wednesday	
			11:30 am To 1:00 pm	
WEEK-I	Monday	Introduction to Operative Dentistry	Dr.Priyanka	Dr. Priyanka And Dr.Nourein
	Tuesday	Caries classification	Dr. Priyanka	
	Wednesday	Fundamental of tooth preparation	Dr. Priyanka	
WEEK-II	Monday	Dental Instruments	Dr. Priyanka	
	Tuesday	Ergonomics	Dr. Priyanka	
	Wednesday	Isolation	Dr. Priyanka	
WEEK-III	Monday	Bio-material amalgam, liners	Dr. Nourein	
	Tuesday	Bio-material cavity sealers	Dr. Nourein	
	Wednesday	Bio-material metal alloys	Dr. Nourein	
WEEK-IV	Monday	Class-I cavity	Dr. Priyanka	
	Tuesday	Class-I cavity	Dr.Priyanka	
	Wednesday	Class-I cavity	Dr. Priyanka	
WEEK-V	Monday	Class-II cavity	Dr. Priyanka	
	Tuesday	Class-II cavity	Dr. Priyanka	
	Wednesday	Class-II cavity	Dr. Priyanka	
WEEK-VI	Monday	Class-II cavity	Dr. Priyanka	
	Tuesday	Matrix band system	Dr. Priyanka	
	Wednesday	Matrix band system	Dr.Priyanka	
WEEK-VII	Monday	Complex amalgam restorations	Dr. Priyanka	
	Tuesday	Amalgam Failure & Repair	Dr. Nourein	
	Wednesday	Mercury hazard & handling	Dr. Nourein	
WEEK-VIII	Monday	Class Quiz		
	Tuesday	BCQ's, SEQ's		
	Wednesday	Psychomotor Assessment		

TABLE OF SPECIFICATION (T.O.S) FIRST YEAR

FIRST YEAR BDS-2024-2025

BLOCK-I

Theme-I: Cell Molecules & Mechanisms

Theme-II: Dentofacial Complex-I

Theme- III: Hematology (Blood)

Theme-IV: Cardiovascular System-I-CVS-I

Subject	Anatomy	Physiology	Biochemistry	Oral Biology	Total
Contact Hours	41	90	36	25	192
	21%	47%	19%	13%	100%
No. of BCQs	11	23	9	7	50
No. of OSPE Stations	2	5	2	1	10
Date of BCQs & OSPEs (50 BCQs & 10 OSPEs from each subject as per the above table)					
TBL Discussion on BCQs & OSPEs					

FIRST YEAR BDS-2024-2025

BLOCK-II

Module-1: CVS-II

Module-2&3: Neurosciences / Craniofacial Complex

Subject	Anatomy	Physiology	Biochemistry	Oral Biology	Total
Contact Hours	60	58	5	31	154
	39%	38%	3%	20%	100%
No. of BCQs	19	19	2	10	50
No. of OSPE Stations	4	4	0	2	10
Date of BCQs & OSPEs (50 BCQs & 10 OSPEs from each subject as per the above table)					
TBL Discussion on BCQs & OSPEs					

FIRST YEAR BDS-2024-2025-BLOCK-III

Module-2: Endocrine System

Module-3: Renal System

Module-4: Orofacial Complex

Subject	Anatomy	Physiology	Biochemistry	Oral Biology	Total
Contact Hours	23	26	22	32	103
	22.33%	25.24%	21.36%	31.07%	100%
No. of BCQs	11	13	10	16	50
No. of OSPE Stations	2	3	2	3	10
Date of BCQs & OSPEs (50 BCQs & 10 OSPEs from each subject as per the above table)					
TBL Discussion on BCQs & OSPEs					

LEARNING RESOURCES

The learning resources for the educational contents of BDS program are available for the students which assist learners to achieve the outcomes and by focusing on educational content. Ina addition; the names of the books for each subject as a learning resources is available with the educational content of the same subject.

Following learning resources can be used by the undergraduates;

- Books
- Evidence based articles from journals
- Digital library to search the material for self-directed learning
- Video Tapes
- Displays
- Models
- Phantom Heads
- Printed Notes
- Case based scenarios'
- Community Visits

Recommended Books First YEAR BDS			
Anatomy	**Physiology**	**Biochemistry**	**Oral Anatomy & Tooth Morphology**
1. Snell's Clinical Anatomy, 9th Edition. 2. Langman's Medical Embryology 14th Edition By T.W. Sadler Phd. 3. Wheater's Functional Histology – 6th Edition – Elsevier. 4. Snell's Clinical Neuroanatomy, Eighth Edition.	1. Guyton and Hall Textbook of Medical Physiology – 15th Edition. 2. Ganong's Review of Medical Physiology, 27th Edition.	1. Harper's Illustrated Biochemistry, 32 edition. 2. Lippincott' Illustrated Reviews- Biochemistry 7th edition.	1. Ten Cate's Oral Histology 9th edition. 2. Wheeler's Dental Anatomy, Physiology and Occlusion, 11th edition
Recommended E- Books First YEAR BDS			
Anatomy	**Physiology**	**Biochemistry**	**Oral Anatomy & Tooth Morphology**
1. BRS Cell Biology and Histology 6th 2. BRS Gross Anatomy 5th 3. Netter atlas of Human Anatomy	1. Sherwood Human Physiology 3rd 2. Guyton text book of medical	1. Harper the Biochemistry 26th 2. Lehniger principle of biochemistry 4th	2. Wheeler Dental Anatomy, Physiology and

4. BRS Neuroanatomy 4th 5. Difiores Atlas of Histology 11th 6. Last Anatomy Regional and applied 9th 7. Wheater Functional Histology 8. Wheaters Functional Histology 5th ed. 9. Grants Atlas of Anatomy 13th ed. 10. GraysAnatomy 39th ed. 11. Neurohistology 12. Junqueira Basic Histology 13. Netter Clinical Anatomy 14. Langmans Medical Embryology 2003 15. Clinical Oriented Anatomy KLM 16. BRS Gross Anatomy by Kyung W Chung 17. BRS Cell Biology and Histology by Leslie P.Gartner 18. BRS Neuroanatomy by DoughalsJ,Gould 19. High yield Embryology 20. BRS Embryology 21. Before we born embryology 22. The development human clinical oriented embryology 9th 23. High Yield Embryology	physiology 11th 3. Guyton Text Book of Medical Physiology 12th 4. USMLE Step 1 Physiology (lecture notes) 5. Sherwood Human Physiology for cell to system 7th ed. 6. Medical Physiology 11th ed. 7. Ganong Review of Medical Physiology 8. BRS Physiology by Constanzo 9. Jaypee Essential of Medical Physiology 10. Principal Anatomy and Physiology by Totora 11. Pocket companion by Guyton 12. Medical physiology for undergraduate by Khurana 13. Medical Physiology: Principles for clinical Medicine	3. USMLE Step 1 Biochemistry and Genetic (lecture notes) 4. Devlin text Book of Biochemistry 4th ed. 5. USMLE Step 1 Biochemistry and Genetic (lecture notes) 6. Lippincott biochemistry 6th ed. 7. Harper the Biochemistry 29th 8. Text Book of Medical Biochemistry by Dinesh Puri 9. Text Book of Medical Biochemistry by Chatterjee 8th 10. Clinical biochemistry. An illustrated color text. 11. BRS Biochemistry 12. Medical Biochemistry. Human Metabolism in Health and Disease 13. Lehniger principle of biochemistry 5th ed. 14. Lippincott Biochemistry review 6th ed	Occlusion 9th ed. 3. The development Human clinical oriented Anatomy 4. Oral Health Surveys Basic Method by WHO 5. Oral and Maxillofacial surgery Secrets by Omer Abubaker 6. Text Book of Dental Radiology by Pramod John R

24. Thieme Atlas of Anatomy ,General Anatomy and Musculoskeletal System 25. Text Book of Anatomy: Head and Neck by Visharm Sing			

Day Venue	08:00-09:30	09:30-10:30	10:30-11:30	11:30-13:00	13:00-14:00	14:00-14:30	14:30-15:00	15:00-16:00
	Lecture Hall	Lecture Hall	Lecture Hall	Practical/Lab/Sgt	Lecture Hall		I.T Lab	Lecture/Tutorials/Sgd
Monday 27-01-2025	Ob-6: Introduction To Oral Biology-Ii (Dr. Ali Raza)	Phy-07: Transport-I (Passive Transport) (Dr. Farzana Majeed)	Ana-06 : Introduction To The Part Of Axial And Appendicular Skeleton-I (Dr Imran)	Dental Practical A: Dental Anatomy (Phantom Lab) B: Preclinical Operative (Phantom Lab) C: Preclinical : Prostho D: Clinical Care & Prof	Dental Anatomy - 07 Tutorial Tooth Morphology (Dr. Sadia Memon)	Namaz & Prayer Break	Survive-01:	Ana-07: Tutorial Terms Of Movements (Dr.Kailash/ Dr.Tooba Usman)
Tuesday 28-01-2025	Bio-05: Cell Membrane Structure & Function (Dr.Jagdesh)	Phy-08: Transport-Ii (Active Transport) (Dr.Farzana Majeed)	Ana-08: Structure Of The Cell Membrane, Nucleus &Cell Organelles (Dr.Imran)	Dental Practical A: Dental Anatomy (Phantom Lab B: Preclinical Operative (Phantom Lab) C : Preclinical : Prostho D: Clinical Care & Prof	Phy-09 Tutorial Mcqs Discussion (Dr. Tooba Naz/ Dr.Shadab)		14:30-16:00	
							Ob-08: Cytoskeleton (Dr.Madiha)	
Wednesday 29-01-2025	Ana-09: Skeletal System (Axial & Appendicular-Ii (Dr.Imran)	Phy-10 : Resting Membrane/Graded Potential (Dr. Farzana Majeed)	Bio-06: Classification Of Carbohydrates (Dr. Jagdesh)	Dental Practical A: Dental Anatomy (Phantom Lab) B: Preclinical Operative (Phantom Lab) C : Preclinical : Prostho D: Clinical Care & Prof	Resm:01 Introduction To Research (Dr.Kiran Fatima)		Dental Anatomy -09: Tutorial Tooth Morphology (Dr. Sadia Memon)	
Thursday 30-01-2025	Phy-11: Action Potential (Saltatory Conduction) Dr. Farzana Majeed/Dr. Tooba Naz	Ob-10: Intracellular Junction (Dr.Madiha)	Sdm-03: Impression Materials-I (Dr.Hafiz Mehmood)	Ana-10 : Microscope (Practical) Dr.Tooba Usman	Ana-G His-11: Connective Tissue (Dr Kalish)		Biochem-07 Tutorial Cell Organelles (Dr.Sara/Dr.Abshar)	
Friday 31-01-2025	Phy-12: Sterilization & Hand Washing (Practical) Skill Lab Dr,Shadab	Phy-13: Study Of Microscope Physio Lab Dr,Shadab	Biochem-08: Practical Analysis Of Carbohydrates (Dr.Sara)	11:30-12:30 Ana-G His-12 Muscular Tissue (Dr.Tooba Usman)	12:30-01:30 Sdm-04: Impression Maerials-Ii (Dr.Nourein)	1:30- 2:30 Juma'a Break	14:30-16:00 Ob-11: Revision (Dr.Sadia Memon)	

MUHAMMAD DENTAL COLLEGE MIRPURKHAS

FIRST YEAR BDS-2025-BATCH-6 (1st Year)

TIMETABLE OF FIRST YEAR BDS /BLOCK:1 MODULE: I FOUNDATION

27th-Jan to 31st Jan -2025 (2ndWeek Schedule)