

## **Islam Dental College, Sialkot**

### **Study Guide Block II**

#### **Drafted By Department of Dental Education**

#### **Program Overview**

The mission of the Bachelor of Dental Surgery (BDS) program is to develop competent, safe, and ethical dental practitioners through an integrated curriculum that combines basic sciences, clinical training, research, and community-oriented practice. The program aims to align with the standards of the Pakistan Medical and Dental Council and the University of Health Sciences, ensuring graduates are equipped with the knowledge, skills, professionalism, and lifelong learning abilities required to meet national oral health needs and compete at international levels.”

#### **Program Outcomes**

By the completion of the Bachelor of Dental Surgery, a graduate is expected to;

1. Demonstrate the professional values expected of a doctor
2. Behave ethically and lawfully in clinical practice
3. Communicate effectively with patients, carers, and colleagues
4. Gather and record relevant information from patients
5. Make a clinical assessment of the patient’s problems
6. Make clinical decisions and construct management plans
7. Perform clinical procedures safely and effectively
8. Use evidence to support clinical decision-making
9. Improve the quality and safety of patient care
10. Carry out research and contribute to evidence-based practice
11. Promote health and prevent disease
12. Develop as a professional through lifelong learning

#### **1<sup>ST</sup> Professional B.D.S oVERVIEW**

Year 1 of the BDS program, structured under the integrated curriculum framework of the University of Health Sciences Lahore, serves as the foundational phase that builds the essential scientific, clinical, and professional base for dental education. Organized into three progressive blocks, it introduces students to the structure and function of the human body with a strong emphasis on craniofacial anatomy, oral biology, and basic biomedical sciences. Through integration of subjects such as Anatomy, Physiology, Biochemistry, General Pathology, and Oral Biology & Tooth Morphology, students develop a deep understanding of normal structure and function, which forms the basis for recognizing disease processes later in the curriculum. Early exposure to research principles, along with longitudinal courses such as Islamiyat/Ethics, Pakistan Studies, and behavioural sciences, ensures that students begin to develop a sense of ethical responsibility, professionalism, and critical thinking from the outset.

As students progress through the three blocks, the curriculum shifts from foundational sciences in Block I to systems-based integration in Blocks II and III. Block II emphasizes the pathophysiological basis of disease, integrating General Pathology, Pharmacology, Periodontology, Oral Pathology, and Dental Radiology with anatomical and physiological concepts to help students understand disease mechanisms and their clinical relevance. This block also strengthens psychomotor skills through early clinical exposure in Operative Dentistry (Preclinical) and reinforces communication, patient interaction, and behavioural sciences. Block III further advances this integration by focusing on systemic diseases, diagnostics, and clinical applications, incorporating cardiovascular, gastrointestinal, and nutritional sciences with dental disciplines. Students begin to interpret diagnostic data, understand radiographic findings, and apply pharmacological knowledge in simulated clinical scenarios, preparing them for more advanced clinical training in subsequent years.

Throughout Year 1, emphasis is placed on developing core competencies, including communication skills, teamwork, time management, and professional behaviour. The inclusion of Community & Preventive Dentistry fosters an early understanding of public health principles and preventive care, aligning dental education with population health needs. Parallel courses such as Ethics and Pakistan Studies nurture civic responsibility and cultural awareness, while Research methodology introduces students to evidence-based thinking and academic inquiry. Teaching strategies such as lectures, small group discussions, case-based learning, practical sessions, and simulations are paired with diverse assessment methods, including MCQs, SEQs, OSPE/OSCE, viva voce, and reflective evaluations. Collectively, Year 1 establishes a strong academic, ethical, and clinical foundation, ensuring that students transition into higher years with the necessary knowledge, skills, and professional attitudes required for competent dental practice.

## **BLOCK II – SYSTEMS INTEGRATION & DISEASE BASIS**

## Block Overview

Block II of the BDS curriculum represents a critical progression from basic foundational concepts toward a more integrated and clinically oriented understanding of human biology and oral health sciences. This block is structured around five interrelated modules—*Foundation II*, *Craniofacial Structure & Function II*, *Neurosciences-I*, *Alveo-Cemental Complex-I*, and *Communication, Ethics & Research*—each contributing to the development of a well-rounded dental professional. The emphasis is on vertical and horizontal integration, allowing students to connect basic sciences with early clinical relevance, particularly in the context of dentistry.

The *Foundation II* module deepens students' understanding of systemic organization, focusing on the normal structure and function of key body systems and their relevance to oral health. *Craniofacial Structure & Function II* builds on prior anatomical knowledge, offering a detailed exploration of the head and neck region, including muscles of mastication, vascular and nerve supply, and functional relationships essential for dental practice. Complementing this, *Neurosciences-I* introduces the basic principles of the nervous system, with particular emphasis on neuroanatomy and neurophysiology relevant to pain perception, reflexes, and orofacial functions.

The *Alveo-Cemental Complex-I* module marks an important transition toward dental-specific sciences by focusing on the structure, development, and function of the supporting tissues of teeth, including alveolar bone and cementum. This lays the groundwork for understanding periodontal health and disease in later years. Alongside the scientific modules, *Communication, Ethics & Research* aims to cultivate essential professional attributes, including effective communication skills, ethical reasoning, and an introduction to research methodology. This ensures that students not only gain scientific competence but also develop the interpersonal and professional skills necessary for patient-centered care.

Overall, Block II fosters the integration of knowledge, skills, and professional attitudes, preparing students for more advanced clinical concepts while reinforcing the importance of ethical practice, teamwork, and lifelong learning in dentistry.

## Modules Table

Module No.	Module Title	Integrated Subjects	Key Focus Areas
4	Foundation II	General Pathology, Pharmacology &	Inflammation, immunity, infections, and antimicrobial therapy

Module No.	Module Title	Integrated Subjects	Key Focus Areas
		Therapeutics, Microbiology (integrated)	
5	Craniofacial Structure & Function II	Anatomy, Physiology, Dental Radiology	Head & neck vasculature, cranial nerves, functional anatomy, radiographic basics
6	Neurosciences-I	Physiology (Neuro), Psychiatry & Behavioural Sciences	Nervous system, pain pathways, behaviour, patient interaction
7	Alveo-Cemental Complex- I	Periodontology, Oral Biology, Oral Pathology	Gingiva, PDL, cementum, eruption, periodontal disease
L (Longitudinal)	Communication, Ethics & Research	CFRC-I, Research, Islamiyat/Ethics/Pak Studies	Communication skills, ethics, and research methodology

### Teaching & Learning Strategies:

- **Interactive Lectures** – Short, focused sessions incorporating questioning, polling, and discussion to actively engage students rather than passive listening.
- **Small Group Discussions (SGDs)** – Facilitated group work to analyze concepts such as cell structure, molecular pathways, and genetics, promoting peer learning and critical thinking.
- **Problem-Based Learning (PBL)** – Case-triggered learning where students explore clinical or scenario-based problems (e.g., cellular dysfunction, genetic disorders) to integrate basic science concepts.
- **Case-Based Learning (CBL)** – Structured clinical cases linking molecular and cellular mechanisms to oral and systemic diseases.
- **Practical/Laboratory Sessions** – Hands-on activities including microscopy, identification of cellular components, and basic biochemical experiments to reinforce theoretical knowledge.
- **Self-Directed Learning (SDL)** – Guided independent study using predefined objectives, encouraging students to explore resources, research topics, and develop lifelong learning habits.
- **Flipped Classroom Approach** – Pre-class preparation through videos or reading materials, followed by in-class application and discussion.
- **Peer Teaching & Presentations** – Students present assigned topics, enhancing understanding, communication skills, and confidence.

- **Skills-Based Sessions** – Early exposure to basic laboratory techniques, use of digital tools, and academic writing skills.
- **E-Learning / LMS-Based Activities** – Online discussions, quizzes, and resource sharing to supplement classroom teaching.
- **Reflective Practice** – Short reflective writing tasks to help students connect learning with personal and professional development.

## **Module IV Introduction**

Block II: *Foundation II* builds upon the fundamental concepts introduced in Block I and advances students' understanding of the structural and functional organization of the human body. This block is designed to provide a deeper insight into the integration of basic sciences—particularly anatomy, physiology, and biochemistry—at tissue, organ, and system levels, forming a critical bridge between foundational knowledge and its clinical relevance in dentistry.

The module emphasizes the normal structure and function of major body systems, with a gradual introduction to mechanisms underlying health and disease. Students begin to appreciate how cellular processes translate into organ function and how disturbances in these processes can lead to pathological conditions. This integrated approach enables learners to develop a cohesive understanding necessary for interpreting clinical scenarios in future dental practice.

In addition to core scientific knowledge, Block II promotes the development of essential professional competencies such as critical thinking, problem-solving, and early clinical reasoning. Through a blend of interactive lectures, practical sessions, and small-group discussions, students are encouraged to actively engage with the material and apply their learning in context. Overall, this block lays a strong scientific and professional foundation that supports subsequent clinically oriented modules in the BDS curriculum.

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
<b>Module 1V: Foundation II</b>					
Physiology	Composition and Properties of Blood	List the composition of blood, its cellular elements, and plasma. (Expanded with hematocrit, PCV, plasma proteins).	C	Lecture	MCQs
	Red Blood Cells	Explain the structure, morphology, and lifespan of red blood cells, including factors affecting RBC production and destruction.	C	Lecture	MCQs/Viva
	Anemias and Polycythemias	Discuss the effects of anemia on circulation	C	Lecture	MCQs
		Define and list types of polycythemias.	C	Lecture	MCQs/Viva
		Discuss the effects of polycythemias on circulation	C	Lecture	MCQs
	Erythropoiesis and Its Regulation	Explain erythropoiesis and regulation by erythropoietin.	C	SGD	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		Discuss the role of factors/nutrients that are required and Regulation regulate erythropoiesis.	C	SGD	MCQs
	Blood Indices and Diagnostic Interpretation	Define blood indices mentioned as: MCV (mean corpuscular volume), MCH (mean corpuscular hemoglobin), and MCHC (mean corpuscular hemoglobin concentration).	C	Lecture	MCQs/Viva
		Interpret their values according to relevant health conditions.	C	Lecture	MCQs
Biochemistry	Structure, Synthesis, and Functions of Hemoglobin	Describe the structure of heme	C	Lecture	MCQs
		Explain the steps of heme synthesis with its regulation.	C	Lecture	MCQs/Viva
		Explain the metabolism of iron, including its absorption,	C	Lecture	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		transport (transferrin), storage (ferritin, hemosiderin), and regulation.			
		Discuss the process of heme combining with globin to form hemoglobin	C	Lecture	MCQs/Viva
		List the functions of hemoglobin.	C	Lecture	MCQs/Viva
		List the types of hemoglobin along with their percentage and chain composition.	C	Lecture	MCQs
		Discuss the oxygen-binding mechanism of hemoglobin, including the concepts of cooperative binding and allosteric regulation.	C	Lecture	MCQs
		Describe hemoglobin structure, functions, and oxygen	C	Lecture	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		dissociation curve, including hemoglobinopathies (sickle cell anemia, thalassemia).			
		Explain the significance of HbA1c.	C	SGD	MCQs
		Describe the structure and functions of myoglobin	C	SGD	MCQs
		Compare hemoglobin in terms of oxygen-binding and clinical relevance (MI marker).	C	Lecture	MCQs
	Porphyria	Explain the biochemical basis of porphyria along with its classification.	C	Lecture	MCQs/Viva
		Describe the oral and dental manifestations of porphyria, including erythrodontia, photosensitivity, mucosal lesions,	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		and delayed healing.			
	Red Blood Cell Metabolism and Energy Pathways	Describe RBC metabolism (glycolysis, pentose phosphate pathway, G6PD deficiency) and the role of trace elements (iron, selenium).	C	Lecture	MCQs
		Explain RBC metabolism, including glycolysis, pentose phosphate pathway, and G6PD deficiency.	C	SGD	MCQs
		Describe the steps in the hexose monophosphate pathway (HMP) and its significance in RBCs.	C	Lecture	MCQs/Viva
		Compare glycolysis and the HMP shunt.	C	Lecture	MCQs
		Explain hemolytic anemia due to pyruvate kinase and glucose 6-phosphate	C	SGD	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		dehydrogenase deficiencies.			
	Vitamins	Describe vitamins (A, B6, B9, B12, E), their active forms, sources, RDA, biochemical roles, and deficiency manifestations.	C	Lecture	MCQs/Viva
Oral Biology & Tooth Morphology	Pulp–Dentin Complex	Describe the composition and functions of dentin and pulp; correlate structural features with clinical conditions.	C	Lecture	MCQs/Viva
	Extracellular Matrix	Explain the structure, functions, and degradation of the extracellular matrix in oral tissues.	C	Lecture	MCQs
	Dentin	Describe the process of dentinogenesis.	C	Lecture	MCQs
		Differentiate between the three main types of dentin: primary, secondary, and	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		tertiary, alongside their location.			
		Describe the mechanisms that control dentin mineralization, and differentiate between the pattern of mineralization in mantle dentin and circumpulpal dentin.	C	Lecture	MCQs
		Explain the processes of secondary and tertiary dentinogenesis, including the stimuli that trigger their formation.	C	Lecture	MCQs
		Describe the structure and function of dentinal tubules	C	Lecture	MCQs/Viva
		Differentiate between peritubular and intertubular dentin, alongside their respective	C	Lecture	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		compositions and roles.			
		Explain the formation and significance of sclerotic dentin and interglobular dentin.	C	Lecture	MCQs
		Describe the structural features of dentin, including incremental growth lines and the granular layer of Tom's.	C	Lecture	MCQs
	Pulp	Describe the cellular contents and zones of the dental pulp.	C	Lecture	MCQs
		Discuss the innervation, vascular supply, and lymphatic supply of the dentin–pulp complex.	C	Lecture	MCQs
		Explain the mechanisms of dentin sensitivity, focusing on the	C	Lecture	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		hydrodynamic theory.			
		Describe the formation and clinical significance of pulp stones (denticles).	C	Lecture	MCQs/ Viva
		Explain the age-related changes that occur in the dentin-pulp complex.	C	SGD	MCQs
		Analyze the pulp's cellular response to dental caries and the mechanical trauma of cavity preparation.	C	Lecture	MCQs
	Developmental Timeline and Chronology of Dentition	Develop a detailed timeline chart illustrating the calcification stages and eruption periods for deciduous and permanent dentition.	C	Lecture	MCQs
	Pulp Anatomy	Describe the anatomy of the pulp tissue and	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		pulp cavities in teeth.			
	Age-Related Changes in the Pulp	Explain the age-related morphological and physiological changes occurring in the pulp cavity.	C	Lecture	MCQs/Viva
Pharmacology & Therapeutics	General Pharmacology	Define pharmacology along with its major branches	C	Lecture	MCQs
		Explain its scope, importance, and applications in dentistry and medicine.	C	SGD	MCQs
		Describe sources of drugs and active principles	C	Lecture	MCQs
		Enumerate the advantages and disadvantages of various routes of administration.	C	Lecture	MCQs
	Drug Transport	Describe drug distribution, including concepts of volume of distribution and	C	Lecture	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		plasma protein binding.			
	Drug Metabolism	Describe drug metabolism (biotransformation, first-pass metabolism, phase I and II reactions, enzyme induction & inhibition, clinical relevance)	C	Lecture	MCQs/Viva
	Drug Excretion	Describe drug excretion, elimination, and clearance mechanisms (renal, biliary, other routes) alongside factors affecting them.	C	Lecture	MCQs
	Plasma Half-Life	Define half-life, loading dose, maintenance dose, and steady-state concentration; explain their clinical relevance.	C	Lecture	MCQs
	Pharmacodynamics	Explain pharmacodynamics: dose-response relationships,	C	SGD	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		graded vs quantal response.			
		Describe types of drug receptors, cell signaling, and mechanisms of receptor action.	C	Lecture	MCQs/Viva
		Differentiate between agonists, antagonists, and partial agonists with examples.	C	Lecture	MCQs
		Define therapeutic index and/or therapeutic window with its clinical significance.	C	Lecture	MCQs/Viva
		Identify factors that alter drug response (age, genetics, disease, pregnancy).	C	Lecture	MCQs
		Describe adverse drug reactions and their classification.	C	Lecture	MCQs
Pathology	Intracellular Accumulations and Calcification	Describe intracellular accumulations (lipids, proteins,	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		glycogen, pigments).			
		Differentiate between dystrophic and metastatic calcification.	C	Lecture	MCQs
	Pigmentation and Amyloidosis	Define pigmentation	C	Lecture	MCQs/Viva
		Describe endogenous (melanin, hemosiderin) and exogenous pigments (carbon, tattoos).	C	SGD	MCQs/Viva
		Define amyloidosis	C	Lecture	MCQs
		Describe pathogenesis and morphology.	C	Lecture	MCQs
	Cellular Adaptations	Explain cellular adaptations: atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia.	C	Lecture	MCQs/Viva
	Aging	Define aging	C	Lecture	MCQs
		Describe theories of aging and	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		morphological features.			
	Inflammation	Define acute and chronic inflammation	C	SGD	MCQs
		Enlist cardinal signs.	C	Lecture	MCQs
		Enumerate the differences between acute and chronic inflammation	C	Lecture	MCQs/ Viva
	Wound healing	Define wound healing (primary vs secondary intention).	C	Lecture	MCQs
Microbiology	Introduction to Microbiology	Define microbes	C	Lecture	MCQs
		Describe their role in health and disease.	C	Lecture	MCQs
		Differentiate between prokaryotic and eukaryotic microorganisms.	C	SGD	MCQs
		Classify bacteria according to morphology and	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		staining characteristics			
		Describe bacterial structure, spores, and growth curve.	C	SGD	MCQs
		Describe the composition and types of culture media (selective, differential, enrichment).	C	Lecture	MCQs/Viva
		Compare and contrast applications of different culture media used in microbiology and oral diagnostic labs.	C	Lecture	MCQs
	Microbial Physiology and Genetics	Define aerobic and anaerobic growth	C	Lecture	MCQs
		Explain fermentation in oral bacteria.	C	Lecture	MCQs
		Discuss the role of iron metabolism in bacterial growth and virulence	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		Define mutation and its types.	C	Lecture	MCQs
		Explain recombination	C	Lecture	MCQs/Viva
		Discuss DNA transfer within and between bacterial cells (conjugation, transformation, transduction).	C	SGD	MCQs
		Explain the mechanisms of bacterial resistance to antibiotics.	C	Lecture	MCQs
	Infection Control in Dentistry	Define sterilization, disinfection, cross-infection, and antisepsis.	C	SGD	MCQs
		Describe common methods of sterilization and disinfection (physical and chemical).	C	Lecture	MCQs
		Explain the application of these methods in dental clinical practice to prevent cross-infection.	C	Lecture	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
	Normal Flora and Host Interaction	Define normal flora, colonizer, and dysbiosis.	C	Lecture	MCQs
		Discuss the normal flora of different body sites, especially the oral cavity and skin.	C	SGD	MCQs/Viva
		Describe their distribution, beneficial roles, and contribution to opportunistic infections.	C	Lecture	MCQs
	Bacterial Pathogenesis and Virulence	Define pathogen, pathogenesis, virulence factors, ID <sub>50</sub> , and LD <sub>50</sub> .	C	Lecture	MCQs
		Identify factors influencing microbial pathogenicity, including host and immune evasion mechanisms.	C	Lecture	MCQs
		Discuss principles and stages of bacterial pathogenesis.	C	Lecture	MCQs
		Explain determinants of	C	SGD	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		pathogenesis: transmission, adherence, invasion, inflammation, toxin production, and immune pathogenesis.			
		Discuss the role of biofilm and glycocalyx in infections, particularly dental plaque and chronic oral infections.	C	Lecture	MCQs
		List different bacterial strains that cause distinct diseases	C	Lecture	MCQs
		Define typical stages of an infectious disease.	C	Lecture	MCQs
	Antibiotic Agents	Summarize the mechanism of action of major antimicrobial classes (e.g., $\beta$ -lactams, aminoglycosides).	C	SGD	MCQs
		Identify appropriate antibiotic agents	C	Lecture	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		for bacterial infections of dental relevance.			
		Explain mechanisms of bacterial resistance and their implications in dental practice.	C	Lecture	MCQs/Viva
	Oral Microbiology and Related Infections	Define osteomyelitis	C	Lecture	MCQs
		List microorganisms commonly associated with it.	C	Lecture	MCQs
		Discuss Actinomycetes with emphasis on epidemiology, virulence factors, and pathogenesis in cervicofacial infections.	C	Lecture	MCQs
	Introduction to Virology	Describe the structure and classification of viruses (DNA and RNA).	C	Lecture	MCQs
		Explain basic principles of viral	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		replication and its clinical relevance in Virology oral infections.			
	Mycology	Describe the structure of fungi	C	Lecture	MCQs
		Classify fungi	C	Lecture	MCQs/ Viva
Oral Pathology	Dentinogenesis imperfecta	Describe developmental disturbances in dentin.	C	Lecture	MCQs
		Explain dentinogenesis imperfecta, regional odontodysplasia, and dentin dysplasia (clinical, radiographic, and histopathological).	C	SGD	MCQs/Viva
	Dentinal Caries	Describe dentinal caries.	C	Lecture	MCQs
Dental Radiology	Introduction to Dental Radiology	Describe the basic principles of dental imaging and its role in diagnosis	C	Lecture	MCQs
		Identify the types and indications of conventional radiographs, including	C	Lecture	MCQs

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
		periapical, bitewing, and orthopantomogram (OPG).			

Subject	Topic	Learning Objective
Oral Biology & Tooth Morphology	Dentin & Pulp	Draw labelled dentin types (primary, secondary, tertiary), tu tracts, pulp stones.
		Identify the dentin and pulp radiographically.
		Identify the Dento-enamel junction radiographically.
Pharmacology & Therapeutics	Dose calculation	Calculate drug dose & rate of infusion and unit conversions
		Apply dose calculation principles in labs.
Pathology	Microscopic Identification	Identify cellular adaptations (metaplasia) in pictures.
Oral Pathology	Dentinogenes Imperfecta	Identify dentinogenesis imperfecta, pulp cavity, and dentin
Microbiology	Microscopic Identification	Perform Gram staining on bacterial smears
		Identify Gram-positive and Gram-negative bacteria & ZN fo
	Disinfection	Demonstrate appropriate disinfection methods for dental in
	Sterilization	Demonstrate appropriate sterilization methods (autoclave,
	Culture Media	Identify culture media used in the Microbiology laboratory f McConkey agar, Nutrient agar, SDA, LJ medium, TSI, Citra
Dental Radiology	Interpretation of Conventional Radiographs	Interpret basic dental radiographs to recognize normal ana pathology (radiolucency, radiopacity, and resorption).

## Module V Introduction

Module V builds upon the foundational knowledge established in Craniofacial I and advances students' understanding of the complex structure, development, and functional dynamics of the craniofacial region. The module emphasizes the integration of anatomical, histological, and physiological concepts with early clinical relevance, enabling students to appreciate how normal

craniofacial structures support essential functions such as mastication, speech, swallowing, and facial expression.

A key focus of this module is the detailed study of craniofacial growth and development, including the postnatal changes in the maxilla, mandible, temporomandibular joint (TMJ), and associated musculature. Students explore the biological mechanisms governing bone remodeling, tooth eruption, and occlusal development, while also examining variations and deviations that may lead to malocclusion and other craniofacial anomalies. This provides a conceptual bridge between basic sciences and clinical disciplines such as orthodontics, oral surgery, and prosthodontics.

The module also highlights the structure and function of the temporomandibular joint and masticatory muscles, focusing on their coordinated role in functional movements and occlusion. Emphasis is placed on understanding functional anatomy in the context of clinical conditions, including TMJ disorders and developmental abnormalities, fostering early diagnostic reasoning.

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
Module V: Craniofacial II					
Anatomy	Scalp	List the layers of the scalp	C	Lecture	MCQs
		Describe anatomical features of the scalp, including neurovascular	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		supply and lymphatic drainage.			
		Give an anatomical justification of the spread of scalp infections, profuse bleeding in superficial scalp lacerations, gaping of scalp wounds	C	Lecture	MCQs
		Define the routes of spread of infection from the scalp to the brain	C	SGD	MCQs
	Face	List in tabulated manner the muscles of facial expression, giving their nerve supply and actions.	C	SGD	MCQs
		Describe the extracranial course, branches, and distribution of the facial nerve.	C	Lecture	MCQs

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
		Explain the causes and clinical consequences of damage to the nerve.	C	Lecture	MCQs
		Describe the vascular supply and lymphatic supply of the face.	C	SGD	MCQs
		Describe the danger area of the face with its clinical significance	C	CBL	MCQs
		Define the routes of spread of infection from the face to the brain	C	SGD	MCQs
	Eye	Define the boundaries and openings of the orbital cavity	C	Lecture	MCQs
		List the structures traversing these openings.	C	Demonstration on Models	MCQs
		List the extraocular and intraocular muscles of the eyeball and	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		eyelid muscles, giving their nerve supply and actions.			
		Describe the movements of the eyeball with special reference to the axis	C	Lecture	MCQs
		List the parts of the lacrimal apparatus, giving their location and anatomical features.	C	Lecture	MCQs
		Describe the nerve supply of the lacrimal gland	C	Lecture	MCQs
		Describe the extracranial course, distribution, and branches of oculomotor, trochlear, and abducent nerves.	C	Lecture	MCQs
		Describe the location, roots, and distribution of the ciliary ganglion	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		Explain the clinical correlations of nerves supplying the muscles of the eyeball.	C	SGD	MCQs
		Describe the course and branches of the ophthalmic artery, mentioning its origin and termination.	C	Lecture	MCQs
		Discuss the anatomical structure of the eyeball, emphasizing its three coats and their neurovascular supply (including optic nerve and central retinal vessels).	C	Lecture	MCQs
	Temporal, Infratemporal, and Pterygopalatine Fossa	Describe the boundaries, contents, and primary communications of the temporal, infratemporal, and	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		pterygopalatine fossa.			
\		Describe the location, roots, and distribution of the pterygopalatine ganglion.	C	Lecture	MCQs
	Ear	Describe the anatomical features and neurovascular supply of the external ear.	C	Lecture	MCQs
		Describe the boundaries, contents, neurovascular supply, and communications of the middle ear cavity.	C	Lecture	MCQs
		Describe the anatomical features of the auditory tube.	C	Demonstration on Models	MCQs/OSPE
		Describe the parts, anatomical features, and neurovascular supply of the internal ear.	C	SGD	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		Describe the course and distribution of the vestibulocochlear nerve	C	Demonstration on Models	OSCE
	Nose	Describe the anatomical features and neurovascular supply of the external nose.	C	Lectures	MCQs
		Describe the boundaries of the nasal cavity (nasal septum, lateral wall, roof, and floor) with their anatomical features, olfactory and trigeminal nerves supply, and vascular supply.	C	SGD	MCQs
		Discuss the clinical correlates of the nose: Epistaxis, Foreign body in the nose.	C	CBL	MCQs
	Sinuses	Identify the paranasal sinuses (maxillary, frontal,	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		ethmoidal, sphenoidal)			
		Describe location, neurovascular supply, relations, and drainage  Pathways of paranasal sinuses	C	SGD	MCQs
		Explain the lining and basic functions of the paranasal sinuses.	C	Lecture	MCQs
		Relate the maxillary sinus to the posterior maxillary teeth	C	Lecture	MCQs
		Discuss the clinical importance of maxillary in dentistry (e.g., extractions, implants, sinus lift).	C	SGD	MCQs
		Discuss the clinical features of sinusitis and its differentiation from odontogenic pain.	C	SGD	MCQs

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
	Fractures	Classify fractures of the maxilla based on anatomical patterns (Le Fort classification)	C	Lecture	MCQs
		Classify fractures of the mandible based on anatomical regions	C	SGD	MCQs
Physiology	Membrane Potentials and Action Potentials (Nerve)	Describe the physiological anatomy of a neuron, including its structure and function	C	Lecture	MCQs/Viva
	Myelinated and Unmyelinated Nerve Fibers	List the neuroglia cells responsible for myelination in the Central Nervous System (CNS) & Peripheral Nervous System (PNS)	C	Lecture	MCQs
		List the steps of myelination in the peripheral nervous system.	C	Lecture	MCQs
		Define Multiple Sclerosis	C	Lecture	MCQs

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
	Membrane Potentials	Explain the Nernst potential of Na & K.	C	Lecture	MCQs
		Derive the Nernst equation.	C	SGD	MCQs
		Explain the physiological basis of the Goldman equation and write the equation.	C	Lecture	MCQs
	Resting Membrane Potential	Describe the resting membrane potential of a nerve fiber and the role of various ion channels.	C	Lecture	MCQs
		Discuss the role of different channels in calculating the resting membrane potential of a nerve fiber.	C	Lecture	MCQs
	Action Potentials	Define Action potential and ionic basis.	C	Lecture	MCQs
		Discuss the role of voltage-gated	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		channels in generating action potentials.			
		Define threshold stimulus	C	Lecture	MCQs
		Define the All-or-None Law	C	Lecture	MCQs
		Define absolute refractory period and relative refractory period on their physiological basis.	C	Lecture	MCQs/Viva
		Discuss the effects of hypocalcemia on nerve excitability.	C	Lecture	MCQs
		Explain the mechanism of local anesthetics on nerve excitability	C	SGD	MCQs
	Propagation of the action potential	Explain the propagation of action potentials	C	Lecture	MCQs
		Define Saltatory conduction and its benefits.	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		Explain the mechanism of tetany.	C	Lecture	MCQs
	Contraction of Skeletal Muscles	Describe the physiological anatomy of skeletal muscles	C	Lecture	MCQs
		Describe the structure of the sarcomere.	C	Lecture	MCQs
		Explain the general mechanism of skeletal muscle contraction (walk-along theory)	C	Lecture	MCQs
		Differentiate between isotonic and isometric contraction with 2 examples of each.	C	Lecture	MCQs
	Characteristics of Whole Muscle Contraction	Give the physiological basis of tetanization and multiple fiber summation	C	Lecture	MCQs
		Define a motor unit.	C	Lecture	MCQs
		Explain the mechanism of	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		muscle contraction by illustrating the role of motor units in regulating force and precision of movement.			
		Give the physiological basis of Rigor mortis	C	Lecture	MCQs
		Explain muscle fatigue	C	Lecture	MCQs
		Describe the following: Physiology of muscle contraction, including sliding filament theory, excitation-contraction coupling, neuromuscular junction, endplate potential, and muscle fatigue.	C	SGD	MCQs
	Smooth Muscles	Describe the types of smooth muscle	C	Lecture	MCQs
		Explain their functional	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		properties, including the latch phenomenon.			
Biochemistry	Biochemistry and Structural Basis of Muscle Function and Integrity	Describe the structure, types, biosynthesis, and functions of collagen and elastin	C	Lecture	MCQs/Viva
		Explain their roles in maintaining the mechanical strength and elasticity of muscle connective tissue.	C	Lecture	MCQs
		Identify disorders associated with collagen and elastin defects, particularly those affecting muscle support structures and connective tissue integrity.	C	Lecture	MCQs
		Explain the composition and function of the extracellular matrix (ECM) in muscle tissue, including the	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		roles of proteoglycans, collagen, fibronectin, and integrins in muscle cell adhesion, signaling, and repair.			
	Energy Production in Muscles	Explain the structure and basic function of the electron transport chain (ETC)	C	Lecture	MCQs/Viva
		Describe the process through which oxidative phosphorylation generates ATP in muscle cells.	C	Lecture	MCQs
		Explain the processes of glycogenesis and glycogenolysis in muscle tissue, including their regulation, the role of key enzymes, and their contribution to ATP production during exercise	C	SGD	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		Discuss the role of muscle glycogen as an energy source during different exercise intensities, its depletion and recovery, and how regular exercise influences glycogen storage capacity and muscle adaptation.	C	SGD	MCQs
		Describe the ATP-phosphocreatine (ATP-PC) system and its role in providing immediate energy during short-term, high-intensity muscle activity.	C	SGD	MCQs
		Differentiate muscle fiber types (Type I, IIa, IIb) based on structure, metabolism, and functional properties.	C	SGD	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
	Vitamins	Describe vitamin C and its active forms, sources, RDA, biochemical roles, and deficiency manifestations.	C	Lecture	MCQs
Oral Biology & Tooth Morphology	Bone	Describe the chemical composition of bone.	C	Lecture	MCQs
		Describe the functions of osteoblasts, osteocytes, and osteoclasts in Bone Formation and Remodeling.	C	Lecture	MCQs
		Describe the process of intramembranous and endochondral ossification	C	SGD	MCQs
		Describe the microscopic Structure of Bone: (Osteon, central canal, lamellae, lacunae, canaliculi, and blood vessels).	C	SGD	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		Explain the regulation of bone cell formation	C	SGD	MCQs
Microbiology	Microbial Teratogens	Define microbial teratogens	C	Lecture	MCQs
		Define TORCH infections	C	Lecture	MCQs
		Identify the impact of maternal infections (TORCH complex) on embryonic development and their dental implications.	C	Lecture	MCQs
	Staphylococcus aureus	Briefly discuss Staphylococcus aureus with its epidemiology, virulence factors, pathogenesis, lab diagnosis & prevention.	C	SGD	MCQs
	Mucormycosis	Briefly discuss mucormycosis with its epidemiology, virulence factors, pathogenesis, lab	C	SGD	MCQs

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
		diagnosis & prevention.			

**Clinical Practicum**

<b>Subject</b>	<b>Topic</b>	<b>Learning Objective</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
Gross Anatomy	Surface Anatomy	Demonstrate systematic identification of major arteries, veins, and nerves alongside their branches and anatomical relations on anatomical models or cadaveric dissections.	C	Demonstration	OSCE/OSPE
		Correlate their clinical significance with surrounding structures	C	Demonstration	OSCE/OSPE
	Jaw Muscles	Demonstrate identification of the origin, insertion, nerve supply, and actions of the muscles of facial expression on models or cadaveric specimens.	C	Demonstration	OSCE/OSPE
	Neurovascular Supply of the Face	Demonstrate surface marking of extracranial branches of the facial nerve and trigeminal nerve in relation to	P	Demonstration	OSCE/OSPE

		relevant structures.			
		Identify their anatomical pathways and clinical relevance.	C	Demonstration	OSCE/OSPE
Oral Biology & Tooth Morphology	Bone	Draw labelled osteoblasts, osteocytes, and osteoclasts	C	Tutorial	OSCE/OSPE
	Ossification	Draw labelled the stages / histological features of intramembranous and endochondral ossification.	C	Tutorial	OSCE/OSPE

## Module VI Introduction

Module VI introduces students to the fundamental principles of neuroscience with a focused relevance to the head, neck, and oral regions. As an essential component of the integrated BDS curriculum, this module establishes the structural and functional basis of the nervous system, enabling students to understand how neural mechanisms regulate sensation, movement, and vital reflexes associated with dental practice.

The module covers the organization of the central and peripheral nervous systems, emphasizing the anatomy and functional pathways of cranial nerves, particularly those involved in orofacial sensation, mastication, salivation, and facial expression. Students are guided through the basic concepts of neurophysiology, including nerve impulse transmission, synaptic communication, and sensory processing, which form the foundation for interpreting pain, touch, and proprioception in the craniofacial region.

A significant component of this module is the study of pain mechanisms and their clinical implications in dentistry. Learners explore the pathways of orofacial pain, referred pain, and the neurobiological basis of common conditions such as trigeminal neuralgia and dental pain. This facilitates early development of clinical reasoning and enhances students' ability to correlate basic neuroscience concepts with patient symptoms.

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
<b>Module VI: Neurosciences I</b>					
Anatomy	Nervous System Overview	Describe the general organization of the nervous system	C	Lecture	MCQs
	Neuron	Describe a neuron with its structure	C	Lecture	MCQs/Viva
	Neuron Classification	Classify neurons morphologically and functionally with examples	C	SGD	MCQs
	CNS & PNS Overview	Describe the components of the central and peripheral nervous system	C	Lecture	MCQs
	Neuroglia	Describe the supporting cells in the central and peripheral nervous systems.	C	Lecture	MCQs
	Receptors and Effectors	Define Receptors and Effectors	C	Lecture	MCQs

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
		Classify receptors and effectors.	C	Lecture	MCQs
	Sympathetic vs. Parasympathetic System	Describe the major subdivisions of the ANS into the sympathetic and parasympathetic nervous systems with a comparison of anatomical differences.	C	SGD	MCQs/Viva
	Cranial Nerves	List all cranial nerves and their distribution.	C	Lecture	MCQs
	Spinal Nerve Anatomy	Explain the classification, structure, and functions of peripheral nerve fibers in a typical spinal nerve.	C	Lecture	MCQs
	Dermatome	Define dermatome	C	Lecture	MCQs
	Brain Regions	List the parts of the brain	C	Lecture	MCQs/Viva
	Spinal Cord Overview	Identify the location, extent, coverings, and blood supply of the spinal cord.	C	Lecture	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
	Spinal Cord Nuclei	Discuss the nuclear organization at different levels of the spinal cord	C	SGD	MCQs
	Spinal Cord Cross-Section	Describe the transverse section of the spinal cord at the mid cervical level, showing ascending & descending tracts.	C	Lecture	MCQs
	Spinal Cord Gray & White Matter	Elaborate on the cross-sectional details of the white and gray matter of the cervical and thoracic segments of the spinal cord.	C	Lecture	MCQs
	Ascending Tracts	Tabulate the sensory nerve endings and anatomical sites of first, second, third order neurons of ascending tracts.	C	Lecture	MCQs
	Descending Tracts	Trace the descending tracts	C	Tutorial	OSCE/OSPE
	UMN vs. LMN Lesions	Differentiate clearly between upper and lower motor neuron lesions	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
	Brainstem Cross-Sectional Anatomy	Describe the key structures and the distribution of grey and white matter in cross-sections of the brainstem at the levels of the midbrain, pons, and medulla.	C	Lecture	MCQs
	Cranial Nerve Nuclei and Pathways	Describe the location of cranial nerve nuclei, their functional components, distribution, and their exit from respective skull foramina.	C	Lecture	MCQs
	Cerebellar Lobes	Identify the lobes of the cerebellum	C	Lecture	MCQs
	Cerebellar Clinical Correlates	Define important clinical correlates, vermis syndrome, ataxia, dysarthria, dysdiadochokinesia, nystagmus, and vertigo.	C	Lecture	MCQs
	Cerebral Cortex Anatomy	Identify the lobes, sulci & gyri and cortical areas of the cerebrum	C	Lecture	MCQs

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
	Functional Cortex	Describe the functional areas of the cerebrum	C	Lecture	MCQs
	Cerebral Hemisphere Structure	Describe the internal structure of the cerebral hemisphere (white matter, basal ganglia, lateral ventricle)	C	SGD	OSPE/OSCE
	Ventricular System	Describe the ventricular system (Lateral, 3rd & 4th ventricles)	C	Lecture	MCQs
	Internal Capsule	Describe various parts of the internal capsule	C	Lecture	MCQs
	Circle of Willis	Discuss the formation of the Circle of Willis	C	Lecture	MCQs
		Label the formation of the Circle of Willis	C	SGD	OSPE/OSCE
	Meninges	Describe the meninges of the brain	C	Lecture	MCQs
	Dural Venous Sinuses	Discuss the location, origin, and termination of dural venous sinuses.	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
	Cavernous Sinus	Discuss the important structures associated with the cavernous sinus and its clinical significance in relation to the danger area of the face.	C	Lecture	MCQs/Viva
	Intracranial Hemorrhages	Discuss the anatomical basis of extradural, subdural, and subarachnoid hemorrhages.	C	Lecture	MCQs
	CSF Physiology	Explain the formation, circulation, and absorption of CSF (Cerebrospinal fluid)	C	Lecture	MCQs
	Brain Blood Supply	Discuss the origin, course, branches, and distribution of the internal carotid and vertebral artery.	C	Lecture	MCQs
	Thalamus & Hypothalamus Connections	List the nuclei of the thalamus and the hypothalamus, along with their functions.	C	Lecture	MCQ/Viva

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
Physiology	Organization of the Nervous System, Basic Functions of Synapses, and Neurotransmitters	Classify synapse	C	Lecture	MCQs/Viva
		Explain the physiological anatomy of a chemical synapse.	C	Lecture	MCQs
		Elaborate on the role of the synapse in processing information.	C	Lecture	MCQs
		Classify the substances that act as neurotransmitters or synaptic transmitters.	C	Lecture	MCQs/Viva
		Enlist functions related to dentistry of each group.	C	Lecture	MCQs
		Define Excitatory and inhibitory postsynaptic potential.	C	Lecture	MCQs/Viva
		Explain their mechanism of generation.	C	SGD	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		Explain spatial and temporal summation.	C	SGD	MCQs/Viva
		Explain the mechanism of synaptic fatigue (its significance) and synaptic delay.	C	SGD	MCQs
		Discuss the effects of hypoxia, acidosis, and alkalosis on synaptic transmission.	C	SGD	MCQs/Viva
	Sensory Receptors, Neuronal Circuits for Processing Information	Define sensory receptors	C	Lecture	MCQs/Viva
		Classify the sensory receptors in the body on the basis of the stimuli they detect.	C	Lecture	MCQs
		Discuss tonic and phasic receptors with 2 to 3 examples of each	C	Lecture	MCQs/Viva
	Receptors: Transduction of sensory stimuli	Classify the nerve fibers on the basis of diameter and	C	SGD	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
	into nerve impulses	speed of conduction			
	Somatosensory cortex	Classify somatic sensations.	C	Lecture	MCQs
		Explain the two main ascending pathways (DCML and Anterolateral system) for transmitting sensation to the CNS.	C	Lecture	MCQs
		List sensations carried by the dorsal column medial Lemniscal system and Anterolateral Pathway with special reference to the Trigeminal sensory system.	C	Lecture	MCQs/Viva
		Trace these pathways from receptors to the sensory cortex and compare their features.	C	SGD	OSPE//OSCE
		Discuss the location and functions of the primary	C	Lecture	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		somesthetic area and sensory association area of the sensory cortex.			
		Describe the sensations lost when there is damage to somesthetic areas	C	Lecture	MCQs/Viva
		Discuss the representation of body parts in the sensory cortex	C	Lecture	MCQs/Viva
	Pain, Headache, and Thermal Sensations	Discuss the dual pain pathway of the spinal cord and the brain for transmission of pain signals into the CNS, with special reference to tooth pain.	C	SGD	MCQs/Viva
		Compare the features of dual pain pathways	C	SGD	MCQs/Viva
		Explain the analgesia system/pain suppression system of the brain and spinal cord.	C	Lecture	MCQs/vIVA

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		Discuss its significance	C	Lecture	MCQs
		Define the physiological basis of referred pain with two examples	C	Lecture	MCQs
		Define Trigeminal Neuralgia	C	Lecture	MCQs
	Cortical and Brain Stem Control of Motor Function	Name the motor areas of the cerebral cortex alongside the representation of body parts.	C	Lecture	MCQs
		Discuss the functions of motor areas.	C	SGD	MCQs/Viva
		List the functions of the brain stem.	C	Lecture	MCQs
		List the descending motor tracts.	C	Lecture	MCQs/Viva
		Describe the functions of the corticospinal tract.	C	Lecture	MCQs
	Spinal Cord Motor Functions and Reflexes	Explain the functional organization of the spinal cord.	C	Lecture	MCQs/Viva
		Define reflex action	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		Identify the components of a reflex arc.	C	Lecture	MCQs
		List components of the stretch reflex with special reference to the jaw reflex.	C	Lecture	MCQs/Viva
	Effect of Lesions in the Motor Cortex or in the Corticospinal Pathway	Define cerebrovascular accident along with its types and salient features.	C	Lecture	MCQs
	The Limbic System and the Hypothalamus	List the components of the limbic system and its general functions	C	Lecture	MCQs
		List the functions of different portions of the hypothalamus.	C	Lecture	MCQs
		Explain the physiological basis and features of Alzheimer's disease	C	SGD	MCQs
	Memory	Define memory	C	Lecture	MCQs
		Classify memory on the basis of	C	Lecture	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		duration and information stored.			
	The Autonomic Nervous System and the Adrenal Medulla	Define retrograde and anterograde amnesia	C	Lecture	MCQs/Viva
		Explain the effects of sympathetic and parasympathetic on various organs/ system of the body.	C	Lecture	MCQs
		List types of autonomic receptors present in the heart, blood vessels, smooth muscles, GIT, & EYE.	C	Lecture	MCQs
		Discuss the features of the alarm or stress response	C	SGD	MCQs/Viva
	Cerebral circulation	List the functions of CSF Cerebral	C	Lecture	MCQs/Viva
	Cerebellum and Basal Ganglia Contributions to Overall Motor Control	Explain the functional divisions of the cerebellum, along with their functions.	C	Lecture	MCQs/Viva

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
		List cerebellar nuclei	C	Lecture	MCQs/Viva
		List features of cerebellar dysfunction	C	Lecture	MCQs
	Contributions to Overall Motor Control	List the components of the basal ganglia in relation to other structures of the brain.	C	Lecture	MCQs
		Discuss the functions of the basal ganglia.	C	Lecture	MCQs/Viva
		Discuss pathophysiology and features of Parkinson's disease	C	SGD	MCQs
	The Chemical Senses—Taste and Smell	List the primary taste sensations	C	Lecture	MCQs
		Trace the taste pathway.	C	Lecture	MCQs/OSPE
		List the primary sensations of smell.	C	Lecture	MCQs
		Describe the physiological anatomy and	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		location of the olfactory membrane and olfactory receptors.			
Biochemistry	Osmotic Diuretic	Elaborate on the structure of mannitol with its clinical uses	C	Lecture	MCQs
	Neuropathies	Discuss neuropathies associated with deficiency/ toxicity of B1, B6 & B12	C	SGD	MCQs/Viva
	Neurotransmitters	Explain the biosynthesis, mechanism of action, and physiological role of acetylcholine.	C	Lecture	MCQs
		Discuss the clinical consequences of its deficiency	C	SGD	MCQs/Viva
		Outline the reactions involved in the biosynthesis of catecholamines	C	Lecture	MCQs
		Elaborate on the mechanism of action of catecholamines.	C	Lecture	MCQs

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
	Inherited disorders of amino acid metabolism	Describe the cause, clinical features & management of Phenylketonuria.	C	Lecture	MCQs/ Viva
		Outline the metabolism of branched-chain amino acids (BCAA).	C	Lecture	MCQs/OSPE
		Describe the cause, clinical features & management of maple syrup urine disease (MSUD).	C	Lecture	MCQs
	Protein misfolding	Describe the consequences of protein misfolding (Alzheimer's disease and prion diseases).	C	Lecture	MCQs
Pharmacology & Therapeutics	Introduction to ANS	Describe the synthesis, storage, release, and degradation of acetylcholine and norepinephrine of the ANS.	C	SGD	MCQs/Viva
		Classify types of autonomic receptors (adrenergic and cholinergic) along	C	Lecture	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		with their location, actions, and post-receptor mechanisms.			
	Classification	Classify the prototype drugs acting on the autonomic nervous system according to their site and mechanism of action.	C	Lecture	MCQs
Pathology & Microbiology	Infections of the CNS	Define meningitis	C	Lecture	MCQs
		Identify different types of meningitis according to etiology.	C	Lecture	MCQs/Viva
		Differentiate between the CSF findings of different types of meningitis	C	SGD	MCQs
		Define encephalitis	C	Lecture	MCQs
		Describe its etiology and pathogenesis.	C	Lecture	MCQs/Viva
		Discuss Streptococcus pneumoniae with its epidemiology, virulence factors,	C	SGD	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		pathogenesis, lab diagnosis & prevention.			
		Discuss Treponema pallidum with its epidemiology, virulence factors, pathogenesis, lab diagnosis & prevention.	C	SGD	MCQs/Viva
		Discuss herpes simplex virus with its epidemiology, virulence factors, pathogenesis, lab diagnosis & prevention.	C	SGD	MCQs/Viva
		Discuss varicella zoster virus with its epidemiology, virulence factors, pathogenesis, lab diagnosis & prevention.	C	SGD	MCQs/Viva
		Discuss Clostridium tetani and Clostridium botulinum with their virulence, factors, pathogenesis, and lab diagnosis.	C	SGD	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
	Trauma to the CNS	Define concussion and contusion	C	Lecture	MCQs
		List their clinical features.	C	Lecture	MCQs/Viva
	Demyelinating diseases of the CNS	Enumerate various demyelinating diseases of the CNS	C	Lecture	MCQs/Viva
		List clinical features and diagnosis of Multiple Sclerosis & Guillain-Barré syndrome.	C	Lecture	MCQs/Viva

Clinical Practicum					
Subject	Topic	Learning Objective	Domain	Teaching Strategy	Assessment Tool
Neuro-Anatomy	Nervous system	Demonstrate gross neuroanatomical knowledge of the brain and brainstem with particular focus on the cranial nerves, including identification of their origin, course, nuclei, associated foramina, functional components, and clinical correlations using anatomical models and dissected cadaveric specimens.	C	Chair-Side Teaching	OSPE/OSCE
Physiology	CN V	Examine the trigeminal nerve.	P	Chair-Side Teaching	OSPE/OSCE
	CN VII	Examine the facial nerve.	P	Chair-Side Teaching	OSPE/OSCE
	CN IX, X, XI, XII	Examine IX, X, XI, & XII Nerves	P	Chair-Side Teaching	OSPE/OSCE
	Motor System	Demonstrate the plantar reflex.	P	Chair-Side Teaching	OSPE/OSCE
		Demonstrate deep tendon reflex.	P	Chair-Side Teaching	OSPE/OSCE

### Module VII Introduction

Module VII introduces students to the structural, developmental, and functional aspects of the alveolo-cemental complex, a critical component of the tooth-supporting apparatus. As part of the integrated BDS curriculum, this module focuses on the biological foundation

of the periodontium, particularly the alveolar bone and cementum, and their role in anchoring teeth and maintaining oral function and health.

The module explores the histological features, composition, and development of alveolar bone and cementum, highlighting their dynamic nature and continuous remodeling in response to physiological forces such as mastication and tooth eruption. Students gain insight into the cellular and molecular mechanisms underlying bone formation, resorption, and cementogenesis, establishing a link between basic science and clinical applications in periodontology and orthodontics.

A key emphasis is placed on the relationship between alveolar bone, cementum, and the periodontal ligament, enabling learners to understand how these structures work cohesively to support teeth under functional loads. The module also introduces early concepts of periodontal health and disease, including the biological basis of periodontal breakdown, bone loss, and attachment changes, fostering an appreciation for preventive and therapeutic approaches in dental care.

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
<b>Module VII: Alveolo-cemental Complex I</b>					
Oral Biology & Tooth Morphology	Periodontium Overview	Define the alveolo-cemental complex	C	Lecture	MCQs
		Explain its role in dental support.	C	Lecture	MCQs/Viva
	Components of Periodontium	Identify its components (cementum, PDL, alveolar bone, and gingiva) alongside their diagrammatic	C	SGD	MCQs/OSCE

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		arrangement around the tooth.			
	Cementum	Define cementum	C	Lecture	MCQs
		Explain its biochemical properties.	C	Lecture	MCQs
		Differentiate between different types of cementum according to their properties.	C	Lecture	MCQs
	Cementogenesis	Describe the process of cementogenesis	C	Lecture	MCQs/Viva
		Explain molecular factors associated with cementogenesis	C	Lecture	MCQs
	Age-related changes of cementum	Explain the age-related changes of cementum	C	Lecture	MCQs/Viva
	CEJ	Describe the cements enamel junction (CEJ) and attachment	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		of cementum onto dentin.			
	Cellular vs Acellular Cementum	Differentiate between the structure of cellular and acellular cementum	C	Lecture	MCQs
	Alveolar Bone Structure and Function	Describe the structure and functions of the alveolar bone.	C	Lecture	MCQs
		Elaborate on its changes with age and its clinical considerations	C	Lecture	MCQs
	Bone Repair and Remodeling in the Extraction Socket	Outline the chronological stages of healing in an Extraction Socket, from the formation of the blood clot to the final replacement by lamellar bone.	C	Lecture	MCQs/Viva
	Development of PDL	Discuss the development of the Periodontal Ligament (PDL)	C	SGD	MCQs/Viva

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
	PDL Structure & Function	List the structure and function of the periodontal ligament.	C	Lecture	MCQs/Viva
	PDL cellular component	Describe the cellular component of PDL	C	Lecture	MCQs
	PDL Fiber Bundles	Describe the principal fiber bundles of PDL.	C	Lecture	MCQs
	Functional Adaptation of the Periodontal Ligament	Describe the adaptation of the periodontal ligament to the functional demands.	C	Lecture	MCQs/Viva
	Blood and Nerve Supply of PDL	Describe the blood supply and nerve supply of PDL	C	Lecture	MCQs/Viva
	PDL remodeling and regeneration	Describe the mechanisms of PDL cell recruitment during tissue turnover and repair.	C	Lecture	MCQs
	Gingival Histology	Describe the histological aspects of the gingiva.	C	Lecture	MCQs

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
	Gingival Fibers	Enumerate gingival fibers & their functions.	C	Lecture	MCQs/Viva
	Gingival Blood and Nerve Supply	Tabulate the blood and nerve supply of the gingiva.	C	Lecture	MCQs/Viva
	Gingival Epithelium	Describe the structural and functional characteristics of different areas of the gingival epithelium.	C	Lecture	MCQs/Viva
	Dentogingival Junction	Describe gingival sulcus	C	SGD	MCQs/Viva
		Explain the development and structure of the dentogingival junction (DEJ)	C	Lecture	MCQs
	Healing and Regeneration of the DEJ	Explain the histological mechanisms of repair at the DEJ	C	Lecture	MCQs
	Mucogingival junction.	Explain the structure of the mucogingival junction.	C	Lecture	MCQs
	Tooth Eruption Phases: Pre-	Describe the eruption and	C	Lecture	MCQs

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
	eruptive Tooth Movement	phases of tooth movement.			
		Elaborate pre-eruptive tooth movement.	C	Lecture	MCQs
	Eruptive Tooth Movement Mechanisms	Discuss the mechanism and factors responsible for eruptive tooth movement.	C	Lecture	MCQs
	Post-eruptive Tooth Movements	Describe the types of movement a tooth makes post- eruption to maintain its functional position in the jaw in terms of mechanism and significance.	C	Lecture	MCQs
	Tooth Shedding	Discuss histology and causes of tooth shedding.	C	Lecture	MCQs
Pathology & Microbiology	Acute Inflammation in Dental Conditions	Define acute inflammation and its pathological basis relevant to dental conditions.	C	Lecture	MCQs/Viva

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
	Stimuli of Acute Inflammation in Oral Health	Enlist stimuli for acute inflammation, including microbes, trauma, and chemical irritants relevant to oral infections.	C	Lecture	MCQs
	Chemical Mediators of Acute Inflammation in Dentistry	Classify chemical mediators of acute inflammation	C	Lecture	MCQs
		Explain their role in dental diseases such as dental abscess formation.	C	Lecture	MCQs
	Vascular and Cellular Events in Acute Inflammation	Explain vascular and cellular events in acute inflammation and its relation to dental conditions like pulpitis and periodontitis.	C	SGD	MCQs/Viva
	Systemic Effects of Acute Inflammation	Describe systemic effects of acute inflammation, such as fever	C	Lecture	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		and leukocytosis, and their impact on dental treatment.			
	Microbes Causing Dental Infections	Explain the role of microbes causing acute inflammation in dental infections, such as Streptococcus mutans and Porphyromonas gingivalis.	C	Lecture	MCQs/Viva
	Morphological Patterns of Acute Inflammation in Oral Diseases	Analyze morphological patterns of acute inflammation, such as purulent or fibrinous types, in oral diseases.	C	Lecture	MCQs/Viva
	Chronic Inflammation and Its Oral/Systemic Significance	Define chronic inflammation alongside its significance in persistent oral and systemic conditions.	C	Lecture	MCQs
	Chronic Inflammatory	Identify chronic inflammatory cells, such as macrophages	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
	Cells and Mediators	and lymphocytes, and mediators like TNF-a and IL-1.			
	Pathogenesis of Porphyromonas and Fusobacterium	Discuss Porphyromonas and Fusobacterium with their pathogenesis.	C	Lecture	MCQs
Periodontology	Periodontal Disease Terminology	Define key terminologies related to periodontal diseases: Gingivitis, periodontitis, periodontal pockets, clinical attachment level, and periodontal bone loss.	C	Lecture	MCQs/Viva
	Periodontal Disease	Classify Periodontal Diseases	C	Lecture	MCQs/Viva
	Healthy Microbial Composition and Periodontal Homeostasis	Identify the microbial composition of healthy gingival and periodontal tissues.	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
	Pathogenic Bacterial Species in Periodontal Disease	Enlist key red complex bacterial species involved in periodontal disease (e.g., Porphyromonas gingivalis, Tannerella forsythia, Treponema denticola).	C	Lecture	MCQs
	Plaque Biofilm Formation and Role in Disease	Define Plaque biofilm	C	Lecture	MCQs/Viva
		Explain the process of formation of biofilm	C	Lecture	MCQs/Viva
	Plaque Biofilm Formation and Role in Disease	Describe dental plaque biofilm as the major factor contributing to the development of periodontal disease, and its relationship with host, genetic, and local predisposing factors in exacerbating periodontal conditions.	C	Lecture	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
	Plaque Visualization, Disclosure, and Mechanical Removal	Explain the adherent nature of dental plaque.	C	Lecture	MCQs/Viva
		Describe the importance of plaque disclosure with justification for the need for mechanical plaque removal by both the patient and oral health professionals.	C	Lecture	MCQs/Viva
	Dental Calculus Formation, Composition, and Role in Disease	Explain the role of dental calculus in periodontal disease.	C	Lecture	MCQs/Viva
		Differentiate between supragingival and subgingival calculus.	C	Lecture	MCQs/Viva
		Describe the formation, mineralization, and microbial	C	Lecture	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		composition of calculus.			
		Explain the processes of calculus acting as a plaque-retentive surface contributing to periodontal disease progression.	C	Lecture	MCQs/Viva
	Other Predisposing Factors for Plaque Formation	List other predisposing factors (other than calculus) that predispose to plaque formation and consequent periodontal disease, like gingivitis.	C	Lecture	MCQs/Viva
	Scurvy and Vitamin C Role in Periodontal Health	Describe the etiology and pathogenesis of scurvy with emphasis on the biochemical role of Vitamin C in collagen synthesis and its clinical implications on	C	Lecture	MCQs/Viva

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
		periodontal tissue integrity.			
	Plaque removal techniques	List methods of plaque removal techniques	C	Lecture	MCQs/Viva
Dental Radiology	Role of Radiology in Periodontal Disease	Define the role of radiology in diagnosing and assessing periodontal diseases.	C	Lecture	MCQs/Viva
		Explain the radiological features of healthy periodontium.	C	SGD	MCQs/Viva
	Interpretation of Radiographic Signs in Periodontal Disease	Interpret key radiographic signs of periodontal disease, including crestal bone loss, widening of the periodontal ligament space, and calculus deposits.	C	Lecture	MCQs/Viva
Community & Preventive Dentistry	Periodontal Indices	Define indices	C	Lecture	MCQs/Viva

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		Explain the key periodontal indices used in epidemiological studies (Gingival Index, Plaque Index, OHI-S, CPI, CPITN).	C	SDG	MCQs/Viva
	Periodontal Conditions	Differentiate between various periodontal conditions based on pathophysiology and clinical signs.	C	SGD	MCQs/Viva
	Disease Progression	Describe the stages and progression of gingivitis and periodontitis.	C	Lecture	MCQs
	Measurement Methods in Periodontal Health	Explain the principles and methodology for measuring gingivitis and periodontitis.	C	Lecture	MCQs
		Interpret findings using standard indices.	C	SGD	MCQs
	CPITN and Treatment	Perform the Community Periodontal	P	Demonstration	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
	Needs Assessment	Index of Treatment Needs (CPITN) to assess periodontal status and identify treatment needs.			
		Interpret the Community Periodontal Index of Treatment Needs (CPITN) to assess periodontal status and identify treatment needs.	C	Demonstration	MCQs
	Oral Health Assessment and Risk Evaluation	Conduct a dietary history for caries risk assessment	C	Chairside Teaching	OSPE/OSCE
		Demonstrate use of indices (Gingival Index, Plaque Index, CPI, CAL) in oral health surveys.	P	Demonstration	OSPE/OSCE

### Clinical Practicum

<b>Subject</b>	<b>Topic</b>	<b>Learning Objective</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
Pathology & Microbiology	Histological Identification	Identify histological slides of acute, chronic & granulomatous inflammation.	C	Demonstration	OSCE/OSPE
Periodontology	Brushing and Flossing Techniques	Demonstrate plaque removal techniques, including proper brushing and flossing.	P	Demonstration	OSCE/OSPE
Dental Radiology	Normal Periodontal Structures on Radiographs	Identify normal periodontal structures on radiographs (OPG and periapical).	C	SGD	OSCE/OSPE
	Alveolar Bone Observation and Level Assessment	Observe alveolar bone and assess bone levels.	C	Demonstration	OSCE/OSPE
	Periodontal Ligament	Identify the periodontal ligament (PDL) space on radiographs	C	SGD	OSCE/OSPE
	Lamina Dura Identification	Identify the lamina dura on radiographs.	C	SGD	OSCE/OSPE
	Cemento-enamel Junction Recognition	Recognize the cemento-enamel junction (CEJ) on radiographs	C	SGD	OSCE/OSPE
	Cortical vs. Cancellous	Differentiate between cortical and	C	SGD	OSCE/OSPE

	Bone Differentiation	cancellous bone on radiographs.			
Oral Biology & Tooth Morphology	Cementoblast	Differentiation of cementoblasts from ectomesenchymal cells & the fragmentation of Hertwig's epithelial root sheath.	C	SGD	OSCE/OS PE
	CEJ	Draw labelled types of cemento enamel junction	C	Tutorial	OSCE/OS PE
	Cellular Cementum	Draw labelled cellular cementum	C	Tutorial	OSCE/OS PE
	Alveolar & Bundle Bone	Draw labelled the alveolar and bundle bone	C	Tutorial	OSCE/OS PE
	PDL cross-section	Draw a labelled periodontal ligament in a cross-section between teeth	C	Tutorial	OSCE/OS PE
	Principal fibers group of PDL	Draw a labelled arrangement of the principal fiber group within the periodontium.	C	Tutorial	OSCE/OS PE

	Gingival group of fibers	Draw labelled the gingival group of fibers (gingival ligament).	C	Tutorial	OSCE/OSPE
	Gingiva & its Junctions	Draw labelled anatomical zones of the gingiva: mucocutaneous junction, mucogingival junction, & dentogingival junction.	C	Tutorial	OSCE/OSPE

### ISLAMIYAT / ETHICS / PAKISTAN STUDIES

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
Islamiyat: Faith	Tawheed	Describe the Unity of Allah in being	C	Lecture	MCQs
		Describe the Unity of Allah in attributes.	C	SGD	MCQs
		Describe the concept of Shirk.	C	Lecture	MCQs
		Discuss the impact of Tawheed on human life	C	Reflection	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
	Prophethood	Explain the Significance of Risalat	C	Lecture	MCQs
		Identify Prophets as role models.	C	Lecture	MCQs
		Recognize the finality of Prophethood - Prophet Muhammad (PBUH)	C	Lecture	MCQs
	Belief in the Hereafter	Appraise continuity of life beyond the material world	C	Lecture	MCQs
		<p>Discuss the following concept:</p> <ul style="list-style-type: none"> <li>• Concept of Doomsday and its various stages</li> <li>• Concept of Day of Judgment and accountability in the Hereafter</li> <li>• Concept of "Meezan."</li> </ul>	C	SGD	MCQs

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
	Divine Revelations	Explain the divine decree in sending the Holy Books	C	SGD	MCQs
		Identify the Holy Quran as the only preserved & authenticated divine revelation to date.	C	Lecture	MCQs
		Interpret the Quran as Furqan	C	Lecture	MCQs
	Angels	Discuss belief in angels and their significance	C	Lecture	MCQs
		Describe the universal role of angels (their specific duties)	C	Lecture	MCQs
	Qadr	Identify Taqdeer as Knowledge of Allah	C	Lecture	MCQs
		Explain the concept of Faith in Good and Evil	C	Lecture	MCQs
Islamiyat: Worship	Prayer	Recognize the importance of physical purity (Taharah)	C	Lecture	MCQs
		Discuss the philosophy of prayer and its role in the	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		purification of the soul.			
		Recognize the importance of prayer in building personal character - sense of duty, patience, perseverance, punctuality, and self/social discipline.	C	Lecture	MCQs
		Identify the conditions in which relaxation in prayer is allowed, e.g., during operation, travelling, etc.	C	Lecture	MCQs
	Zakat	Identify the obligatory importance of Zakat and other items as outlined under the title of 'Infaq-feesabilillah.'	C	Lecture	MCQs
		Categorize the people who can be the beneficiaries of Zakat	C	Lecture	MCQs
		<p>Discuss the following:</p> <ul style="list-style-type: none"> <li>• Role of zakat in the eradication of</li> </ul>	C	SGD	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		<p>greed and love of the material world</p> <ul style="list-style-type: none"> <li>Effect of Zakat and sadaqat in the circulation of wealth and alleviation of poverty</li> </ul>			
		Explain the essence of zakat and sadaqat in building just communities	C	Lecture	MCQs
		Describe the role of the state in the collection and disbursement of zakat.	C	Lecture	MCQs
	Fasting	Discuss the importance and significance of fasting	C	Lecture	MCQs
		Relate the Holy Quran and the month of Ramadan	C	Lecture	MCQs
		Discuss the role of fasting in building personal qualities like self-control, piety, and a soft corner for the poor and needy.	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		Identify the applications of "Taqwa" through fasting	C	Lecture	MCQs
	Pilgrimage	Discuss the importance and significance of Hajj	C	Lecture	MCQs
		Identify the conditions in which Hajj becomes an obligation	C	Lecture	MCQs
		Discuss the role of manasik-e-hajj in producing discipline and complete submission.	C	SGD	MCQs
		Recognize the importance of Hajj in uniting the ummah	C	Lecture	MCQs
		Explain the concept of Sacrifice for Allah subhan wa taala	C	Lecture	MCQs
Islamiyat: Specific Quranic Commandments	Importance of the protection of Human life	Explain the following concepts: i. Concept of the sanctity of human life in the Quran and Sunnah	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		ii. Importance and significance of a single human being even during war  iii. Concept of punishment in regard to the killing of a human being, voluntarily or involuntarily			
	Jihad	Discuss the following:  i. Concept of Jihad and its significance (hikmat)  ii. Different forms of Jihad and their importance  iii. Principles and preparation of Jihad  iv. Divine reward of Jihad	C	Lecture	MCQs
	Heirship/Inheritance (Virasat)	Discuss the following:  i. Heirship and division of wealth in accordance with divine teachings  ii. Heirs and their shares	C	SGD	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		iii. Legal aspect of Virasat (Hud-e-Ilahi)			
	Amar-bil-marroof-wa-Nahi-anil-munkar	<ul style="list-style-type: none"> <li>i. Explain the following concepts:</li> <li>ii. Differentiation between Maroof and Munkar</li> <li>iii. Importance and significance (effects of avoiding this principle)</li> <li>iv. Necessary conditions of both amar-bil-marroof and nahi-anil-munkar</li> <li>v. The different stages and the necessary prerequisites</li> </ul>	C	SGD	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
	Hadood-e Illahee and taazeerat	<p>Discuss the following:</p> <ul style="list-style-type: none"> <li>i. Meaning and various types of hadood-e-Illahee</li> <li>ii. Authority for fixation of limit (hudd)</li> <li>iii. Criteria and permissible relaxation in fixing the limits</li> <li>iv. Difference between 'Hadood', 'Qisas', and 'Tazeerat'. Punishments which are left to the court of law</li> <li>v. Benefits for the good of the community</li> </ul>	C	SGD	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
	Justice (Adal-o-insaf)	Discuss the following: i. Justice of Allah subhan wa taala ii. Importance of justice for the survival of the community iii. Need for justice to prevail irrespective of religion iv. Divine reward for fair justice	C	SGD	MCQs
	Business (Bay-o-tijarat)	Discuss the following: I. Importance of fair business and its necessary constituents ii. Permissible and impermissible conditions of businesses iii. Concept of loan in businesses	C	SGD	MCQs
	Interest (Riba or Sudi karobar)	Discuss the following: i. Meaning of Riba or interest and its different forms ii. Impact of Riba on a society in general	C	SGD	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		iii. Divine declaration and its punishment both in this world and the Hereafter			
	Nikah-o-talaq	<p>Discuss the following:</p> <ul style="list-style-type: none"> <li>i. Basic rulings regarding marriage and divorce</li> <li>ii. Importance of Nikah and its constituents</li> <li>iii. Conditions of Nikah and various forms of prohibited/impermissible nikah</li> <li>iv. Misconception of dowry</li> <li>v. Talaq and its various forms</li> <li>vi. Meaning of Khula and its conditions</li> </ul>	C	SGD	MCQs
Islamic Studies & Pakistan Studies	Islamiyat	Discuss the basic principles of Islam.	C	Lecture	MCQs
		Explain the concept of the Islamic state.	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		Explain the Quran as a guide for modern society and scientific development.	C	Lecture	MCQs
		Describe the life of the Holy Prophet, Peace be upon him, as an example to follow.	C	Lecture	MCQs
		Explain ethics from an Islamic perspective.	C	SGD	MCQs
		Describe the rights of the individual in Islam.	C	Lecture	MCQs
		Describe the rights of women and children in Islam.	C	Lecture	MCQs
		Explain the contribution of Islamic scholars to science and medicine.	C	Lecture	MCQs
		Discuss Islam in terms of modern scientific development	C	Lecture	MCQs
		Explain the concept of Rizk-e-Hilal.	C	Lecture	MCQs

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
		Explain the concept of Hukook-ul-Ibad.	C	Lecture	MCQs
Pakistan Studies		Describe the salient features of the Pakistan movement.	C	Lecture	MCQs
		Explain the basis for the creation of Pakistan.	C	Lecture	MCQs
		Discuss a brief account of the history of Pakistan.	C	Lecture	MCQs
		Explain the ethnic and cultural distribution of the population of Pakistan.	C	Lecture	MCQs
		Describe the Provinces and resources available in Pakistan.	C	Lecture	MCQs
		Explain the current problems faced by Pakistan.	C	Lecture	MCQs
		Describe the social, economic, and health problems of the rural population of Pakistan.	C	Lecture	MCQs

<b>Subject</b>	<b>Key Focus Area</b>	<b>Learning Objectives</b>	<b>Domain</b>	<b>Teaching Strategy</b>	<b>Assessment Tool</b>
Civics	Civics-Meaning & Nature	Define civics	C	Lecture	MCQs
		Describe the importance of civics in improving citizenship	C	Lecture	MCQs
		Illustrate the scope of civics.	C	SGD	MCQs
	Significance and Utility	Examine the significance of civics	C	Lecture	MCQs
		Explain how civics is important to know the problems of daily life	C	Lecture	MCQs
		Evaluate how civics can improve the sense of love and respect for human relationships.	C	Lecture	MCQs
		Discuss that studying civics can develop a sense of gratitude	C	Lecture	MCQs
		Compare civics with political science, history, economics, sociology, and ethics.	C	Lecture	MCQs
	Harmonic Relationship	Describe the term harmonic relationship	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		Explain the harmonic relationship among different members of society. (Women, children, and senior citizens)	C	Lecture	MCQs
	Individual and state	Define the term state	C	Lecture	MCQs
		Explain the relation between an individual and a state	C	Lecture	MCQs
		Describe the importance of an individual in a state	C	Lecture	MCQs
		List the responsibilities of an individual in a state	C	Lecture	MCQs
	Family	Identify the basic unit of social institution. Discuss and characterize the different types of families.	C	Lecture	MCQs
		Explain the importance of the basic unit of social institutions in the development of a state.	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		List the responsibilities of the family in general	C	SGD	MCQs
		Analyze your role for the betterment of the family. Compare and contrast the impact of the deterioration of the family in Western society and give examples.	C	Lecture	MCQs
	Community	Define community	C	Lecture	MCQs
		Explain the nature and significance of community	C	Lecture	MCQs
		Discuss the role of a family in the community	C	Lecture	MCQs
		Analyze the role of an individual for the betterment of the community	C	Lecture	MCQs
	Society	Define society	C	Lecture	MCQs
		Elaborate on the relation between an individual and society, and society and state.	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		Analyze the role of an individual for the betterment of society	C	Lecture	MCQs
	Nation, Nationality	Define the terms nation, nationality, and ummah, nation and nationality	C	Lecture	MCQs
		Distinguish between nation and ummah, analyze the value, behavior, and the pattern of society based on religion.	C	Lecture	MCQs
		Evaluate the characteristics of society developed by religions	C	Lecture	MCQs
	Origin and elements of the State	Trace the origin of the state with reference to the theories of Divine Origin, Force, and Social Contract (Hobbs, Locke, Rousseau)	C	Lecture	MCQs
		Describe the elements of a state (sovereignty, population, territory, Government)	C	Lecture	MCQs

Subject	Key Focus Area	Learning Objectives	Domain	Teaching Strategy	Assessment Tool
		Compare the role of state, society, and government	C	Lecture	MCQs
	Functions of the state. (Defense, law and order, welfare, etc.)	Describe the functions of the state	C	Lecture	MCQs
		Describe the factors that are necessary for the proper functioning of the state.	C	Lecture	MCQs
		Analyze the situation when a state does not function properly	C	Lecture	MCQs
		Analyze how a welfare state guarantees equity and justice on the issues of gender, religion, and social classes	C	Lecture	MCQs
	Sovereignty	Define the concept of sovereignty in the West	C	Lecture	MCQs
		Discuss different kinds of sovereignty.	C	Lecture	MCQs
		Analyze Austin's concept of sovereignty critically.	C	Lecture	MCQs

## **Assessment Framework (Years 1 & 2)**

Assessment in BDS Years 1 and 2 is conducted within an **integrated, competency-based framework** that supports horizontal and vertical integration across modules. A **programmatic approach** is adopted, combining continuous formative assessment with structured summative evaluations to ensure progressive development of knowledge, psychomotor skills, and professional attitudes.

Formative assessments are conducted throughout modules to provide feedback and guide learning, while summative assessments are used for certification and progression. All assessments are **blueprinted against learning objectives**, ensuring alignment with curricular outcomes and UHS guidelines.

## **Summative Assessment Tools**

Summative assessment is conducted at the end of modules, blocks, and professional examinations using the following standardized tools:

- **MCQs (One Best Answer):**  
Designed to assess integrated knowledge, understanding, and application through clinically oriented scenarios.
- **Viva Voce (Structured Oral Examination):**  
Used to evaluate depth of understanding, reasoning ability, and communication skills in a structured and objective manner.
- **OSPE/OSCE (Objective Structured Practical/Clinical Examination):**  
Station-based assessment to evaluate practical skills, procedural competencies, identification tasks, and early clinical reasoning.

These tools ensure a **balanced evaluation across cognitive and psychomotor domains**, in line with integrated curriculum requirements.

## **Quality Assurance & Standardization**

To maintain the reliability and validity of the assessment:

- All examinations are **blueprinted and moderated**
- Standard setting methods (e.g., Angoff, borderline regression) are applied where appropriate

- Structured checklists and rating scales are used in OSPE/OSCE and viva
- Regular **item analysis and post-exam review** are conducted
- Feedback is provided to support continuous improvement

Drafted by:

1. Dr. Zubia Waqar

Assistant Professor, Department of Dental Education

2. Dr. Ghazala Naveed

Demonstrator, Department of Dental Education