UNIVERSITY MEDICAL
& DENTAL COLLEGE

STUDY GUIDE

BLOCK 1

THEORY		
GENERAL ANATOMY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
F1-A-001	Define the various branches of Anatomy.	Introduction to Human Anatomy: Definitions, Terminology, and Planes
	Describe the anatomical position, anatomical planes of the body, and anatomical terms related to position, movement, and laterality.	
F1-A-002	Classify bones based on region, size and shape providing examples of each from the head and neck	Osteology
	Discuss the structural characteristics of compact and spongy bones	
	Describe the structure of an adult long bone. Define ossification and rule of ossification. Describe the blood supply of various types of long bones	
F1-A-003	Describe the structural classification of Joints (fibrous, cartilaginous and synovial) along with their sub-classifications with examples of each Enlist the general characteristics of synovial joints Enlist the factors stabilizing a synovial joint Describe Hilton's Law	Joints
F1-A-004	Discuss and differentiate the gross features of hyaline, elastic and fibrocartilage	Cartilage
HISTOLOGY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
	List the membranous and non-membranous organelles of the cell, describe their structure, and correlate each with its function	

F1-A-005	Describe the structure of different types of cell junctions	Cell
F1-A-006	Classify and exemplify the epithelia with their histological structure, locations, and functions	Epithelia
	Describe apical specializations of epithelia (microvilli, stereocilia and cilia) and the basement membrane.	
	Classify and exemplify the exocrine glands on the basis of the shape of secretory portions and ducts, mode of secretion, and type of secretion	
	List the cells of connective tissue with their functions.	
	Describe the composition of the ground substance and the types and structure of fibers in connective tissue.	
	Classify connective tissue and describe its functions and provide relevant examples.	
EMBRYOLOGY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
F1-A-008	Briefly describe mitosis and meiosis.	Cell Division and Gametogenesis
	Describe oogenesis, spermatogenesis, spermiogenesis, and embryological basis of teratoma.	
F1-A-009	Define fertilization, phases of fertilization, capacitation and acrosomal reaction.	Fertilization and Early Development
	Explain outcomes of fertilization.	
	Describe cleavage, morula, blastocyst formation, and implantation.	
F1-A-010	Describe embryonic disc, amniotic cavity, yolk sac, and gastrulation.	Formation of the Embryonic Disc and Germ Layers
	Explain gastrulation and derivatives of the three germ layers.	
	Explain derivatives of ectoderm, mesoderm, and endoderm.	
PHYSIOLOGY		

CODE	SPECIFIC LEARNING OUTCOMES	TOPIC
F1-P-001	Define homeostasis and explain its importance in maintaining the internal environment.	Homeostasis : Control of Internal Environment
	Differentiate between extracellular and intracellular Fluids (with special emphasis on comparing the concentration of sodium, potassium, and calcium ions)	
F1-P-002	Explain the principles of positive, negative, and feed-forward control mechanisms with examples.	Control Systems of the Body
F1-P-003	Describe the functions of cell organelles, including nucleus, endoplasmic reticulum, Golgi apparatus, lysosomes, peroxisomes, mitochondria, and ribosomes.	Cell and its Organelles and their Functions
	Differentiate between the functions of smooth and rough endoplasmic reticulum	
F1-P-004	Enumerate the components and functions of the cytoskeleton	Cell Structure and Membrane Organization
	Describe the structure of the cell membrane and fluid mosaic model.	
F1-P-005	Explain the mechanisms of endocytosis and exocytosis, including pinocytosis and phagocytosis.	Functional Systems of Cell
F1-P-006	Describe the mechanisms of simple diffusion, facilitated diffusion, osmosis, and active transport, and ion channels	Transport of Substance through Cell Membrane
	Compare features of simple and facilitated diffusion with examples	
	Describe primary and secondary active transport with examples	
F1-P-007	Enlist the composition of blood, its cellular elements, and plasma. (Expanded with hematocrit, PCV, plasma proteins).	Composition and Properties of Blood
F1-P-008	Explain the structure, morphology, and lifespan of red blood cells, including factors affecting RBC production and destruction.	Red Blood Cells

F1-P-009	Classify anemia; describe mechanisms of iron deficiency anemia, hemolytic anemia, and megaloblastic anemia at a basic level.	Anemias and Polycythemias
	Define sickle cell anemia	
	Discuss the effects of anemia on circulation	
	Define and enlist types of polycythemias	
	Discuss the effects of polycythemias on circulation	
F1-P-010	Explain erythropoiesis and regulation by erythropoietin.	

	Enumerate and elaborate role of factors/nutrients that are required and regulate erythropoiesis	Erythropoiesis and Its Regulation
F1-P-011	Define blood indices mentioned as: MCV (mean corpuscular volume), MCH (mean corpuscular hemoglobin), and MCHC (mean corpuscular hemoglobin concentration). Give their normal values & enumerate the conditions in which these values are disturbed	Blood Indices and Diagnostic Interpretation
BIOCHEMISTRY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
	Define and classify carbohydrates.	
	Draw the straight chain and pyranose form of D-glucose.	
	Define and quote suitable examples of the followings: • Aldo-keto isomers • D & L isomers (Enantiomers) • Epimers • Alpha and beta Anomers	
	Define and quote suitable examples of: • Reducing sugars • Non-reducing sugars	

F1-B-001	Give sources, structure and importance of glucose, galactose, fructose and ribose. Give normal fasting blood sugar level. Enumerate types of Diabetes mellitus and give cause of hyperglycemia in each type.	Carbohydrates
	Describe the formation, hydrolysis, naming and types of glycosidic bond (N and O -glycosidic bonds). Give importance of glycosidic bond.	
	Enumerate sources, linkages and building blocks of maltose, iso-maltose, lactose, lactulose and sucrose. Give importance of maltose, iso-maltose, lactose, lactulose and sucrose.	
	Give significance of oligosaccharides in cell membrane.	
	Give sources, structure and importance of dextrins and dextrans.	

	Enlist sources of starch. Elaborate the structure of starch. Give importance of starch in human diet.	
	Elaborate the structure of glycogen.	
	Give importance of glycogen in human body.	
	Give structure and sources of cellulose.	
	Appraise the role of dietary fiber in health and disease.	
	Elaborate the structure and enlist the functions of Glycosaminoglycans (GAGs).	
	Define glycemic index.	
	Evaluate the effect of various dietary carbohydrates on blood sugar level (BSL) and appraise their clinical significance.	
F1-B-002	Define lipids and give their Classification along with biological importance of main classes	Lipids
F1-B-003	Define vitamins and classify vitamins according to their solubility	Vitamins

F1-B-004	Describe the biochemical structures of cell membranes	Cell
	Explain biochemical compartmentalization.	
F1-B-005	Describe receptors and signal transduction pathways (Gs, Gq).	Signal Transduction Pathways
ORAL BIOLOGY & TOOTH MORPHOLOGY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
F1-OB-001	Describe the oral tissues including oral mucosa, salivary glands, bones of the jaws, temporomandibular joint, enamel, dentin, cementum, and periodontal ligament.	Structure of Oral Tissues (A Brief Introduction)
F1-OB-002	Describe the structure, types, and functions of the cytoskeleton, including microfilaments, intermediate filaments, and microtubules, within oral tissues.	Cytoskeleton
F1-OB-003	Describe intercellular junctions, including tight junctions, adherens junctions, desmosomes, gap junctions, and the role of desmosomes and hemidesmosomes in oral epithelium.	Cell Junctions

F1-OB-004	Describe the structure, secretory functions, and role of fibroblasts in the maintenance of the extracellular matrix in oral tissues	Fibroblast
	Describe briefly collagen synthesis and assembly highlighting its importance in oral connective tissue.	
F1-OB-005	Name the three major functions of the human dentition	Introduction and Nomenclature of dentition
	Describe various ways of classifying human dentition.	
	Define the three dentition periods (deciduous, mixed, permanent). Identify each period's approximate time intervals, initiation, and termination events	
	Differentiate primary vs permanent dentition, including timing.	
	Describe the dental Formula for permanent and Deciduous dentition	

	Define "succedaneous" and identify succedaneous teeth	
	Describe the eruption pattern of primary and permanent dentition	
	Demonstrate understanding of various dental numbering systems (e.g., universal, FDI, Palmer).	

PATHOLOGY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
F1-Pa-001	Define the terms: pathology, etiology & pathogenesis	Introduction
F1-Pa-002	Define cell injury. Differentiate between reversible and irreversible cell injury. Discuss mechanism of cell injury	Cell Injury
F1-Pa-003	Define necrosis with examples; classify; describe briefly morphological features of coagulative, liquefactive, caseous, and fat necrosis. give their pathway.	Cell Death
	Define apoptosis with examples; describe mechanisms and morphological features. give their pathway.	

COMMUNITY & PREVENTIVE DENTISTRY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
F1-CD-001	Define dental public health and describe its scope and importance.	Introduction to Dental Public Health
F1-CD-002	Describe the dimensions of health (physical, mental, social, etc.) and differentiate between illness and disease.	Concepts of Health and Disease

F1-CD-003	Differentiate between clinical dentistry and public health dentistry.	Public Health vs Clinical Practice
F1-CD-004	Describe criteria that make a disease important from a public health perspective.	Disease Importance in Public Health
F1-CD-005	Explain levels of prevention (primordial, primary, secondary, tertiary) with relevant dental examples.	Levels of Prevention
F1-CD-006	Define and explain the principles of health promotion and disease prevention strategies at individual and community levels.	Health Promotion Principles
F1-CD-007	Apply principles of health promotion and health education to oral and dental health contexts.	Health Education and Promotion
F1-CD-008	Describe methods of health education and communication in community dentistry; explain their importance and application.	Health Education and Communication
F1-CD-009	Describe school oral health programs and preventive strategies at the community level.	School and Community-Based Programs

PHARMACOLOGY & THERAPEUTICS		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
F1-PH-001	Define pharmacology along with major branches and explain its scope, importance, and applications in dentistry and medicine.	General Pharmacology

	Describe sources of drugs and active principles.	
	Enumerate advantages and disadvantages of various routes of administration.	

F1-PH-002	Define Pharmacokinetics. Briefly explain Mechanisms of Drugs Transport/ Permeation Sources of Drugs/ Active Principles Drugs Enumerate advantages and disadvantages of various Routes of drug Administration	Pharmacokinetics & Drug Transport/ Permeation
F1-PH-003	Define drug absorption & Bioavailability and factors affecting them. Define and explain Distribution and Volume of Distribution Define and explain Redistribution and Plasma Protein Binding	Drug Absorption & Bioavailability
F1-PH-004	Explain the concept of Metabolism & Biotransformation Describe the clinical significance of enzyme induction and enzyme inhibition with their examples	Drug Metabolism & Bio transformation
F1-PH-005	Define drug excretion. Enlist routes & processes of drug excretion through the kidneys Describe factors affecting glomerular filtration & tubular reabsorption Describe the Clinical Significance of Glomerular Filtration, Active Tubular Secretion and Passive Tubular	Drug excretion & its clinical significance of glomerular filtration
F1-PH-006	Describe Reabsorption of Drugs Explain steady state plasma concentration	Drug Reabsorption
F1-PH-007	Define & Explain Elimination and Orders of Elimination - First & Zero Order Kinetics with examples Order Kinetics	Drug Elimination
F1-PH-008	Define, explain & calculate maintenance dose and loading dose using appropriate formula Maintenance dose	Drug Maintenance

PRACTICALS / LAB WORK		
HISTOLOGY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
F1-A-011	Draw and label light microscopic diagram of epithelia	Epithelium
F1-A-012	Draw and label light microscopic diagram of different types of Connective Tissue	Connective Tissue

ORAL BIOLOGY & TOOTH MORPHOLOGY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
F1-OB-006	Identify, draw, and label structures of the tooth on models.	Structures of Tooth
F1-OB-007	Draw & label the diagram of cytoskeletal elements.	Cytoskeleton
F1-OB-008	Draw & label the diagram of tight junctions, desmosomes, hemidesmosomes, and gap junctions.	Junctions
PATHOLOGY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
F1-Pa-004	Identify necrosis.	Necrosis

THEORY		
GROSS ANATOMY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
CF1-A-001	Describe the gross anatomy of the skull, its features, foramina, and applied aspects relevant to head and neck anatomy.	Skull
	Describe the features and structures of different views of skull (Anterior, Posterior, Superior, Inferior, Lateral)	
	Discuss the sutures and fontanelles of skull, their age changes and clinical significance.	
CF1-A-002	Describe the bony features of mandible.	Mandible
CF1-A-003	Enlist names of the cranial nerves.	Cranial Nerves
EMBRYOLOGY		

CODE	SPECIFIC LEARNING OUTCOMES	TOPIC
CF1-A-004	Describe neurulation, formation of the neural tube, and migration of neural crest cells.	Neurulation and Early Organogenesis
	Enlist derivatives of neural crest cells.	
	Describe development of the head and neck region, including contributions of pharyngeal arches, pouches, and cranial nerves.	
	Explain development of the skull and meninges (including craniosynostosis correlation), and vasculogenesis (basic).	
CF1-A-005	Discuss growth and differentiation of the embryonic disc, trophoblast development and anomalies (situs inversus, sirenomelia, holoprosencephaly).	Advanced Development and Anomalies
	Describe the embryological basis of hydatidiform mole and its pathological significance.	
	Describe common chromosomal anomalies related to early embryonic development.	

HISTOLOGY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
CF1-A-006	Describe the microscopic and ultramicroscopic structure of all types of cartilages	Cartilages
	Draw and label light microscopic diagram of different types of cartilages	
CF1-A-007	List the bone cells and their origin along with their functions	Bones
	Describe the composition of bone matrix (organic, inorganic)	
	Describe the histology of compact and spongy bone	

CF1-A-008	Describe the microscopic structure and ultramicroscopic structure of skeletal, cardiac, and smooth muscles	Muscles
CF1-A-009	Describe the layers and microscopic structure of the epidermis and dermis of the skin.	Skin
BIOCHEMISTRY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
CF1-B-001	Differentiate between anabolism and catabolism, and list the metabolic pathways associated with each process.	Overview of Metabolism
CF1-B-002	Explain metabolism: glycolysis and TCA cycle (steps, regulation, energetics).	Carbohydrate Metabolism
	Differentiate aerobic and anaerobic glycolysis.	
	Describe the transport systems for glucose entry into cells, including sodium- and ATP-independent (GLUTs) and sodium- and ATP-dependent cotransport.	
CF1-B-003	Define amino acids and classify standard amino acids according to side chain and nutritional importance.	Amino Acids: Structure, Classification, and Properties
CF1-B-004	Explain the levels of protein organization (primary, secondary, tertiary, and quaternary structures) and their relevance to protein function.	

	Define conjugated proteins and provide suitable examples of conjugated proteins in the human body (lipoproteins, glycoproteins, nucleoproteins, chromoproteins, and metalloproteins).	Protein Structure and Function
	Elaborate the role of chaperones in protein folding.	
	Differentiate between denaturation and coagulation.	
	Define limiting amino acids and provide suitable examples of limiting amino acids.	

	Understand the nutritional importance of proteins and correlate this information to protein energy malnutrition.	
	Compare and contrast the salient features of kwashiorkor and marasmus.	
CF1-B-005	Explain enzyme structure, classification with examples, properties, mechanisms of action, kinetics, regulation, and inhibitors.	Enzymes: Structure, Classification, Mechanism, and Regulation
	Add diagnostic and therapeutic roles of enzymes (ALT, AST, CK-MB, ALP, LDH).	
CF1-B-006	Describe vitamins (B1, B2, B3, B5, B7), their active forms, sources, RDA, biochemical roles, and deficiency manifestations.	Vitamins
ORAL BIOLOGY & TOOTH MORPHOLOGY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
CF1-OB-001	Describe the primary epithelial band and explain its role in the initiation of tooth development.	Early Tooth Development
	Explain the mechanisms involved in initiation of tooth	
	Describe the process of regionalization of the oral epithelium and its significance in tooth development.	
	Explain the instructive signals for patterning and odontogenic potential	
CF1-OB-002	Explain the hard tissue formation through histodifferentiation	Tooth Development

	Explain nerve and vascular contributions to tooth development during early developmental stages.	
	Describe root development, Hertwig's epithelial root sheath, and supporting tissues.	

CF1-OB-003	Describe the embryonic development of the face, palate & tongue, contributions of key structures (lateral lingual swellings, tuberculum impar, and copula), muscle derivation, and sensory/motor innervation and Developmental Defects associated with it like Ankyloglossia.	Formation of the Face, Palate and Tongue
CF1-OB-004	Describe the role of Meckel's cartilage in mandibular development and the process of intramembranous ossification in forming the mandible and maxilla.	Development of the Mandible and Maxilla
	Define jaw size anomalies and their embryological basis and clinical impact (Micrognathia and Macrognathia).	
CF1-OB-005	Describe basic developmental anomalies relevant to craniofacial region (e.g., cleft palate, anomalies of tooth number and size).	Craniofacial anomalies
GENERAL PATHOLOGY & MICROBIOLOGY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
CF1-Pa-001	Define genetic disorders and their causes.	Genetic Disorders: Introduction and causes
CF1-Pa-002	Describe types of mutations (point, insertions, deletions).	Types of Mutations
CF1-Pa-003	Explain Mendelian principles applied to autosomal and X-linked disorders.	Mendel principles and genetic disorders
CF1-Pa-004	Describe genetic testing methods: PCR, sequencing, karyotyping, biochemical tests, prenatal screening.	Genetic testing
ORAL PATHOLOGY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
CF1-OP-001	Discuss the clinical presentation of numerical and structural chromosomal abnormalities	Chromosomal abnormalities

PRACTICALS / LAB WORK		
GROSS ANATOMY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
CF1-A-010	Demonstrate the ability to accurately orient a dry human skull in normal verticals, occipitalis, frontalis, lateralis, and basalis views; and identify key anatomical and surface landmarks, sutures, and foramina with their content relevant to each view	Skull
	Identify and describe the anatomical features, boundaries, and foramina of the anterior, middle, and posterior cranial fossae, including the grooves of the dural venous sinuses	
	Identify and enlist all the foramina of the skull along with their neurovascular contents	
CF1-A-011	Identify and locate the major anatomical landmarks, foramina (with their contents), and surface features of the mandible; articulate it the skull	Mandible
HISTOLOGY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
CF1-A-012	Draw and label light microscopic diagram of compact and spongy bones	Bones
CF1-A-013	Draw and label light microscopic diagram of cartilage	Cartilage
CF1-A-014	Draw and label light microscopic diagram of muscle	Muscle
CF1-A-015	Draw and label light microscopic diagram of thick and thin skin	Skin
ORAL BIOLOGY & TOOTH MORPHOLOGY		
CODE	SPECIFIC LEARNING OUTCOMES	**TOPIC**

CF1-OB-006	Identify congenital defects (cleft lip/palate, tongue anomalies).	Development of Human embryo with special
		emphasis on tooth-related structures.
CF1-OB-007	Draw and label stages of tooth development and root formation.	Tooth & Root Development

THEORY		
BIOCHEMISTRY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
Car1-B-001	Explain cariogenic potential of carbohydrates.	Biochemical Role of carbohydrates in Dental Caries
Car1-B-002	Explain biochemical mechanism of fluoride in disrupting bacterial glycolysis and acid production.	Fluoride's Biochemical Mechanism
ORAL BIOLOGY & TOOTH MORPHOLOGY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
Car1-OB-001	Describe physical and chemical properties of enamel; explain their role in caries resistance and susceptibility.	Enamel
	Describe structural organization of enamel; identify enamel on radiographs.	
	Explain differentiation and life cycle of ameloblasts	
	Describe amelogenesis stages (pre-secretory, secretory, maturation),	

	Tom's process, and pH regulation.	
	Describe enamel proteins; explain incremental lines, Hunter-Schreger bands, tufts, lamellae, spindles, and gnarled enamel.	
	Explain fluoride effects, enamel etching, age changes and repair	
Car1-OB-002	Describe the anatomical surfaces and land marks of both anterior and posterior teeth, including the roots, using standardized dental terminology.	Tooth Morphology
	Identify and name tooth surfaces and thirds of tooth surfaces from diagrams or descriptions	
	Differentiate between the crown surfaces of teeth by matching them with their correct general shape (triangular, trapezoidal, or rhomboidal), or by relating the shape to the specific function of the	
	tooth.	
	Identify and name line and point angles, embrasures and curves based on diagrams or descriptions.	
	Define elevations and depressions on the tooth surface.	
	Describe lobes, contact points, embrasures, cervical line, pits, and fissures and relate to caries susceptibility.	
	Describe the components, boundaries and functions of interproximal space and embrasures	
ORAL PATHOLOGY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
Car1-OP-001	Describe etiology and pathogenesis of enamel hypoplasia.	Enamel Developmental Anomalies
	Explain Amelogenesis imperfecta (types, clinical and radiological features).	

Car1-OP-002	Describe etiology and pathogenesis of dental caries.	Microbiology and Pathogenesis of Caries
	Describe the microbiological aspect of caries; the role and characteristics of cariogenic bacteria.	
	Define plaque and stages of plaque development	
	Describe the changes that develop in enamel of erupted teeth in association with microorganisms.	
	Describe histopathological changes in enamel during dental caries, with emphasis on microbial invasion.	
OPERATIVE DENTISTRY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
Car1-OD-001	Describe the anatomy of pits and fissures, explain their role in caries susceptibility, and outline preventive strategies such as sealant application and fluoride use.	Pit and Fissure Caries
Car1-OD-002	Describe etiology, risk factors, and clinical features of smooth surface caries; explain role of fluoride in prevention.	Smooth Surface Caries
Car1-OD-003	Describe etiology, clinical features, and progression of root caries.	Root Caries
Car1-OD-004	Differentiate active caries based on clinical features; explain clinical significance; outline management strategies. identify the factors that promote caries arrest.	Active and Arrested Caries
Car1-OD-005	Differentiate arrested caries; describe biological processes and contributing factors.	
COMMUNITY & PREVENTIVE DENTISTRY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
Car1-CD-001	Explain the role of diet in dental caries, including the Stephen curve, cariogenic potential of sugars, and dietary modification strategies.	Diet and Dental Caries

Car1-CD-002	Describe the role of dental biofilm in demineralization and remineralization; explain oral hygiene measures and Keyes' triad in caries prevention.	Dental Biofilm and Caries Prevention
Car1-CD-003	Explain and apply the principles of dental caries prevention in individual and community settings.	Principles of Caries Prevention
Car1-CD-004	Explain the role of systemic and topical fluoride in the prevention of dental caries; apply knowledge of community-based preventive measures (e.g., water fluoridation, school programs).	Fluoride and Community-Based Caries Prevention
Car1-CD-005	Describe correct toothbrushing and flossing techniques in relation to caries prevention.	Oral Hygiene Practices and Caries Prevention
BEHAVIORAL SCIENCES		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
Car1-BhS-001	Explain the bio-psycho-social model and its relevance to holistic dental care.	Introduction to Behavioral Sciences
Car1-BhS-002	Describe how psychology, sociology, and anthropology contribute to understanding oral health behavior.	Determinants of Oral Health Behavior
Car1-BhS-003	Differentiate between normal and abnormal behavior and discuss their implications for dental care.	Understanding Human Behavior
Car1-BhS-004	Recognize the influence of emotions and behavior on patient-dentist interactions and oral health outcomes.	Emotional and Behavioral Factors in Dentistry
Car1-BhS-005	Demonstrate effective communication and interpersonal skills in clinical and community dental settings.	Communication Skills
Car1-BhS-006	Apply principles of empathy and emotional intelligence in role play.	Emotional Intelligence

Car1-BhS-007	Describe ethical principles, professional roles, and responsibilities of a dentist.	Professional Ethics and Responsibilities

PRACTICALS / LAB WORK		
ORAL BIOLOGY & TOOTH MORPHOLOGY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
Car1-OB-003	Identify major morphological features of teeth — including the lobes, contact areas, embrasures, height of contour, and the cervical and gingival lines — using models, and anatomical specimens.	Tooth Morphology and Structural Features
	Locate pits, fissures, and different types of embrasures on teeth through direct inspection of specimens/typodont models/clinical images.	
Car1-OB-004	Draw and label lifecycle of ameloblast	Enamel
	Draw and label Secretory stage ameloblast	
	Draw and label Maturation stage ameloblast	
	Draw and label different histological/organizational features of the enamel (enamel rods, striae of Retzius, Hunter-Schreger bands, gnarled enamel, DEJ, enamel tufts, lamellae, spindles, & neonatal lines.)	
ORAL PATHOLOGY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
Car1-OP-003	Observe prepared slides of plaque samples.	Microscopic Analysis of Plaque

Car1-OP-004	Identify amelogenesis imperfecta and fluorosis on e-slides.	Radiographic Identification of Tooth Structures and Developmental Anomalies
OPERATIVE DENTISTRY		
CODE	**SPECIFIC LEARNING OUTCOMES**	**TOPIC**
Car1-OD-006	Identify fluoride gel and demonstrate application procedure.	Prevention of Dental Caries
	Identify pits, fissures, smooth surface, and root caries on models, or images	
	Differentiate active versus arrested caries on prepared slides or images	