

**SHAHEED ZULFIQAR ALI BHUTTO MEDICAL
UNIVERSITY**

INTEGRATED CURRICULUM

for

BDS

Curriculum Committee

Curriculum Committee for the development of Modular System at undergraduate level of all Medical and Dental Colleges affiliated with Shaheed Zulfiqar Ali Bhutto Medical University consists of following members:

- Brig. (R)Manzoor Ahmad Chairman Rawal Institute of Health Sciences
- Prof. Zahoor Rana Vice Chairman Shaheed Zulfiqar Ali Bhutto Medical University
- Prof. Haroon Shahid Qazi Secretary Islamabad Medical and Dental College
- Prof. Anser Maqsood Member Shaheed Zulfiqar Ali Bhutto Medical University
- Prof. Rehmah Sarfraz Member Islamabad Medical and Dental College
- Prof. Saima Azam Member Islamabad Medical and Dental College
- Prof. Hamid Member Shaheed Zulfiqar Ali Bhutto Medical University
- Dr. Khalid M. Siddiqi Member Islamabad Medical and Dental College
- Dr. Rai Tariq Member Rawal Institute of Health Sciences
- Prof. Asma Irfan Member Islamabad Medical and Dental College
- Prof. Samina Anjum Member Rawal Institute of Health Sciences
- Dr. Sadaf Jaffar Member Islamabad Medical and Dental College
- Dr. Nabeela Abbasi Member Rawal Institute of Health Sciences
- Dr. Maham Niazi Member Islamabad Medical and Dental College
- Dr. Fouzia Sultana Member Shaheed Zulfiqar Ali Bhutto Medical University
- Dr. Zainab Abdullah Member Shaheed Zulfiqar Ali Bhutto Medical University

Modular Curriculum Development Committee

The Integrated modules for 1st year BDS class have been developed by the following faculty members:

DEPARTMENT OF ANATOMY

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|-----------------------|-----------|--------------------------------------|
| 1. Dr. Rehmah Sarfraz | Professor | Islamabad Medical and Dental College |
| 2. Dr. Zarmina Saga | Prof/HoD | Rawal Institute of Health Sciences |
| 3. Dr. Samina Anjum | | Rawal Institute of Health Sciences |

DEPARTMENT OF PHYSIOLOGY

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|---------------------|-----------|--------------------------------------|
| 1. Prof. Asma Irfan | Professor | Islamabad Medical and Dental College |
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DEPARTMENT OF BIOCHEMISTRY

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| 1. Dr. Nasir | | Rawal Institute of Health Sciences |
| 2. Dr. Sadaf Jaffar | | Islamabad Medical and Dental College |

DEPARTMENT OF ORAL BIOLOGY

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|-----------------------|-----|--------------------------------------|
| 1. Dr. Nabeela Abbasi | HoD | Rawal Institute of Health Sciences |
| 2. Dr. Maham Niazi | HoD | Islamabad Medical and Dental College |

SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

CURRICULUM FRAMEWORK: BDS 1ST YEAR

Year	Block-I 12 weeks		Exam	Block-II 12 weeks		Exam	Block-III 12 weeks		Exam
	Module 1	Module 2		Module 3	Module 4		Module 5	Module 6	
1 st Year BDS	Foundation 6 weeks	Craniofacial-I Hematology 6 weeks	Block I	Cranio- facial-II 6weeks	GIT & Respiratio n 6 weeks	Block II	Neuro- science 6 weeks	Genetics 6 weeks	Block III

BLOCK - I

12 WEEKS

Main Content Areas

ANATOMY

General Anatomy

- Anatomical positions, planes of body & Anatomical terms
- Bones (markings and general features, classification, blood and nerve supply)
- Joints (general features, classification)
- Muscles (skeletal muscle features & classification according to morphology and action)

General Histology

- Surface modifications of cell (cilia, microvilli, stereocilia)
- Epithelium
- Glands (Classification, serous, mucous)
- Connective tissue (components of CT, Classification, types of adipose tissue)
- Cartilage
- Bone (Compact & Spongy)
- Muscular tissue (Muscular, Cardiac & Smooth muscles) Cytoskeleton, cell junctions

General Embryology

- Cell division (Mitosis & Meiosis)
- Cell Cycle
- Gametogenesis (Oogenesis & spermatogenesis)
- 1st week (ovarian cycle, menstrual cycle, fertilization, blastocyst formation)
- 2nd week (trophoblast formation, embryoblast formation, abnormal implantation)
- 3rd week (gastrulation, notochord formation, villi formation)

- Embryonic period- 3rd to 8th week (derivatives of ectoderm, mesoderm and endoderm, neurulation, NTDs, somite formation, blood vessels)

Gross Anatomy:

Osteology of Head & Neck

- Skull -Bony Landmarks Only (cranial vault, norms, cranial cavity, bony orbit & structures passing through orbit)
- Differences between neonatal and adult skull
- Skull foramina and structures passing through them
- Boundaries of temporal fossa and its content
- Boundaries of infratemporal fossa, its communications and contents
- Pterygopalatine fossa boundaries, communications and content
- Mandible with attachments & age-related changes of mandible
- Cervical vertebrae bony features; attachments of C1 & C2 only
- Atlanto-occipital & atlanto-axial joints
- Hyoid bone
- Radiographs of normal skull
- Differences of imaging techniques-Radiographs, USG, CT, MRI, PET, EEG

PHYSIOLOGY

CELL PHYSIOLOGY

- Cell membrane
- Organelles
- Functional system of cell

TRANSPORT, NERVE AND MUSCLE

- Transport of ions and molecules
- Structure and functions of Nerve
- Resting Membrane Potential

- Action potential
- Synapse and its properties
- Physiological anatomy of skeletal and smooth muscles
- Neuromuscular transmission
- Common diseases
- Muscle contraction
- Rigor Mortis

BLOOD PHYSIOLOGY

- RBCs and disorders
- WBCs and disorders
- Immunity
- Hemostasis
- Blood Groups
- Clotting cascade

BIOCHEMISTRY

- Introduction/ Cell biochemistry
- Physiochemical aspect
- Lab techniques
- Blood

ORAL BIOLOGY

- Introduction/ Structure of oral tissues
- Cytoskeleton
- Bone
- Tooth development
- Development of Maxilla and Mandible
- Introduction and Nomenclature of Tooth Morphology
- Anatomic and Physiological considerations of form and function

- Tooth Numbering system
- Tooth morphology of Anterior Dentition (central Incisor, Lateral Incisor & Canine)

Junior Operative

- Classify dental caries according to “GV Black’s classification”
- Demonstrate understanding of principles of cavity preparation
- Demonstrate understanding of walls and angles of a cavity

Junior Prosthodontics

- Know the manipulation of various impression materials for making study casts
- Identify different types of prefabricated impression trays
- Make a plaster slab and gypsum cast from prefabricated mold
- Identify maxillary and mandibular landmarks on partially dentate casts
- Take alginate impression on model and pour the cast with base

EXAM BLOCK I

BLOCK - II

12 weeks

MAIN CONTENT AREAS

ANATOMY

General Anatomy

- Circulatory system (Classification, anastomosis, portal system)

Histology

Lymphoid organs

- Lymph node
- Spleen
- Thymus
- Palatine tonsil

Circulatory system

- Artery
- Vein
- Capillaries

Upper GIT

- Lip
- Cheek
- Tongue
- Esophagus

Upper respiratory system

- Respiratory epithelium
- Olfactory epithelium

- Larynx
- Traches

Embryology

Development of head & neck

- Pharyngeal apparatus
- Development of tongue
- Development of face
- Development of palate
- All relevant congenital anomalies

Gross Anatomy

Head & Neck + Applied aspects

- Scalp (layers, neurovascular supply, applied aspects)
- Face (muscles of facial expression, neurovascular supply, applied aspects-Danger area, trigeminal neuralgia)
- Oral cavity
- Tongue
- Palate (hard & soft)
- Pharynx
- Waldeyer's lymphatic ring
- Palatine tonsil
- Larynx
- Eye (contents of orbit-eyeball, eyelid, lacrimal apparatus, extraocular muscles/extrinsic muscles)
- Ear
- Nose & paranasal sinuses
- Neck
- Fascia (superficial and deep, deep fascia attachments and divisions, contents, fascial spaces)
- Triangles of neck (location, boundaries, and their contents)

- Suprahyoid & infrahyoid muscles
- Vessels of neck (CCA, ECA, vertebral artery, IJV, EJV)
- Cervical plexus
- Cervical Sympathetic chain and cervical ganglions
- Root of neck (scalene muscles, subclavian artery)
- Lymphatic drainage of head and neck
- Extracranial course of all cranial nerves
- Cranial nerve testing of 3,4,6,7,9 10,11 & 12
- Surface Anatomy
- Facial artery
- CCA
- ECA
- IJV
- EJV

PHYSIOLOGY

GASTRO INTESTINAL TRACT

- Enteric nervous system
- Mechanism of chewing & swallowing & related disorders
- Motor functions of stomach and disorders
- Functions of small Intestine and disorders
- Functions of large Intestine and disorders
- Liver and its functions

RESPIRATION

- Mechanics of respiration
- Pulmonary volumes and capacities
- Gas exchange and Transport
- Regulation
- Pathophysiology

CARDIOVASCULAR SYSTEM

- Cardiac cycle
- ECG (Normal)
- Classification and Functions of Arteries and Veins
- Arterial Pressure and its Regulation
- Control and Regulation of Blood flow
- Shock
- Coronary circulation (Inc. Angina Pectoris and Myocardial Infarction)
- Cardiac output and Venous return

Renal Physiology

- Functional anatomy of nephrons
- Process of urine formation
- Renal regulation of blood pressure

BIOCHEMISTRY

- Carbohydrate chemistry
- Protein chemistry
- Lipid chemistry
- Gastro Intestinal tract
- Minerals

ORAL BIOLOGY

- Temporomandibular Joint
- Occlusion
- Salivary glands
- Oral mucosa
- Enamel
- Morphology of Maxillary and Mandibular premolars

Junior Operative

- Execute all the steps of class V cavity preparation on plaster model
- Identify walls & angles of class V cavity preparation
- Execute all the steps of class III cavity preparation on plaster model
- Identify walls & angles of class III cavity preparation

Junior Prosthodontics

- Classify the partially dentate arches according to Kennedy's classification
- Manipulate and identify stages after mixing heat curing/self-curing acrylic resins
- Identify different dental waxes and manipulate modelling wax for construction of partial denture
- Fabricate a "C" clasp from stainless steel wire (0.9 mm) on given cast

EXAM BLOCK II

BLOCK-III

12 weeks

MAIN CONTENT AREAS

ANATOMY

General Anatomy

Nervous system

- Neurons (structure & classification)
- Central Nervous System
- Peripheral Nervous System
- Spinal Nerve
- Receptors (classification)
- Autonomic Nervous System
- Ganglia (sensory & autonomic)

Histology

Nervous system

- Neurons (structure & classification)
- Central Nervous System
- Peripheral Nervous System
- Spinal Nerve
- Receptors (classification)
- Autonomic Nervous System
- Ganglia (sensory & autonomic)

Endocrine system

- Hypophysis

- Adrenal gland
- Thyroid gland
- Parathyroid gland
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Embryology

CNS

- **Neurulation**
- Brain vesicle (formation and derivatives)
- Spinal cord and neural tube defects
- Brain (Rhombencephalon, Mesencephalon and Prosencephalon) along with clinical correlates

Endocrinology

- Thyroid gland
- Parathyroid gland
- Pituitary gland

Genetics

- Chromosomal abnormalities (Numerical & Structural)
- Teratogens (principles, types, teratogenic agents)
- Prenatal diagnosis (overview)

Gross Anatomy

Neuroanatomy

- Cranial fossae
- Meninges
- Dural venous sinuses
- Spinal cord (Applied aspects: UMNL, LMNL, hemiplegia, paraplegia, quadriplegia, hypotonia, hypertonia)
- Brain stem
- Cerebellum

- Cerebrum {lobes, sulci gyri, gray & white matter, cortical areas, internal capsule (location, parts & fibers), thalamus, hypothalamus}
- Base of brain including circle of Willis
- Basal ganglia (location, classification)
- Limbic system (components, location)
- Ventricular system (3rd, 4th, lateral and terminal ventricles)
- CSF
- Cranial nerves (nuclei and intracranial course)
- Blood supply of brain and spinal cord

Endocrinology

(Gross Anatomy + applied aspects)

- Thyroid gland
- Parathyroid gland

PHYSIOLOGY

Endocrinology

- Function and abnormalities of
 - Pituitary hormone
 - Growth hormone
 - Thyroid hormone
 - Pancreas
 - Adrenals (Aldosterone and Cortisol)
 - Parathyroid hormone

CNS and Special Senses

- Organization of Nervous system
- Classification of nerve fibers
- Types and functions of Sensory Receptors
- Function of spinal cord (Reflexes, UMN, LMN)

- Sensory Nervous System (Pathways, Sensory Cortex and Pain)
- Motor Nervous System (Pathways and Motor Cortex)
- Basal Ganglia: Functions and abnormalities
- Cerebellum: Functions and abnormalities
- CSF: Functions and abnormalities
- Autonomic Nervous System
- Epilepsy and Sleep

BIOCHEMISTRY

- Enzymes
- Vitamins
- Nucleotide chemistry
- Over view of Metabolism of
- Carbohydrates, Proteins, Lipids & Nucleic acids
- Genetics
- Vitamins
- Enzymes
- Nucleotide chemistry
- Genetics

ORAL BIOLOGY

- Periodontium (Cementum & PDL)
- Dentin pulp complex
- Tooth eruption and shedding
- Healing and Repair
- Deciduous dentition and pulp cavities
- Morphology of permanent molars
- Dental anomalies

Junior Operative

- Execute all the steps of class I cavity preparation on plaster model
- Identify walls & angles of class I cavity preparation
- Execute all the steps of class I compound cavity preparation on plaster model
- Identify walls & angles of class I compound cavity preparation
- Execute all the steps of class II cavity preparation on plaster model
- Identify walls & angles of class II cavity preparation
- Demonstrate understanding of walls & angles of class II cavity preparation

Junior Prosthodontics

- Mount the cast on plane line articulator
- Arrangement of artificial teeth
- Form plaster molds in dental flask and perform dewaxing
- Perform packing and curing of heat polymerizing resin, followed by finishing and polishing of partial denture
- Know the steps of casting process and identify materials used during the process

Exam BLOCK III

SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY
BDS 1st Professional Examination
Assessment Grid for Class of 2020

70% Component from Prof Annual Exam: Theory and Practical: 140 + 140 30% Component from Internal Assessment: Theory and Practical 60 + 60 Marks Theory: 600 Marks Practical: 600 Total Marks: 1200											
MODULE/BLOCK		BLOCK – I			BLOCK – II			BLOCK – III			
		Module-1	Module-2		Module-3	Module-4		Module-5	Module-6		
		Foundation	Craniofacial-I/ Hematology		Craniofacial II	GIT & Respiration		Neuroscience	Genetics		
Professional Examination	Theory Marks	100	100		100	100		100	100		
			200			200			200		
	Practical Marks (OSPE)	200			200			200			
	Internal Assessment-IA (30%)	Theory: 60		Practical: 60	Theory: 60		Practical: 60	Theory: 60		Practical: 60	
	Subject wise distribution	Subjects	MCQs #	OSPE Stations #		MCQs #	OSPE Stations #		MCQs #	OSPE Stations #	
		Anatomy	30	4		35	5		30	4	
		Physiology	30	5		30	4		34	5	
		Biochemistry	25	4		25	4		22	4	
	Oral Biology	35	5		30	5		34	5		
	Pre-clinical Prosthodontics	10	1		10	1		10	1		
	Pre-clinical Operative	10	1		10	1		10	1		
	Total:		1 mark each	20 (7 marks each)		1 mark each	20 (7 marks each)		1 mark each	20 (7 marks each)	
	Theory Marks (70%)		140			140			140		
	Practical Marks (OSPE) (70%)		20 x 7 = 140			20 x 7 = 140			20 x 7 = 140		
	Theory:	140	60 (IA)	200	140	60 (IA)	200	140	60 (IA)	200	
	OSPE:	140	60 (IA)	200	140	60 (IA)	200	140	60 (IA)	200	
	Total Marks	400		400			400				

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BDS 1st Professional Examination
Internal Assessment Grid for Class of 2020

30% Component of Internal Assessment (IA): Theory and Practical 60 + 60

Marks Theory each Block: 60 Marks Practical (OSPE) each Block: 60

Total Marks: 120

THEORY

Internal Assessment	BLOCK-I				BLOCK-II				BLOCK-III					
	Module 1 Foundation	Module 2 Craniofacial- I/ Hematology	SGDs	End of Block-I (EOB) Exam	Module 3 Cranio- facial-II	Module 4 GIT & Respiration	SGDs	End of Block-II (EOB) Exam	Module 5 Neurosciences	Module 6 Genetics	SGDs	End of Block-III (EOB) Exam		
	End of Module 1 (EOM) Exam	End of Module 2 (EOM) Exam	SGDs		End of Module 3 (EOM) Exam	End of Module 4 (EOM) Exam	SGDs		End of Module 5 (EOM) Exam	End of Module 6 (EOM) Exam	SGDs			
	10	10	10	30	10	10	10	30	10	10	10	30		
10 + 10 + 10 = 30				30	10 + 10 + 10 = 30				30	10 + 10 + 10 = 30				30
Total	30 + 30 = 60				30 + 30 = 60				30 + 30 = 60					

PRACTICAL (OSPE)

Internal Assessment	BLOCK-I		BLOCK-II		BLOCK-III	
	Module 1 Foundation	Module 2 Craniofacial- I/ Hematology	Module 3 Craniofacial- II	Module 4 GIT & Respiration	Module 5 Neurosciences	Module 6 Genetics
	End of Block-I (EOB) Exam		End of Block-II (EOB) Exam		End of Block-III (EOB) Exam	
	40		40		40	
Practicals all subject	20		20		20	
Total	40 + 20 = 60		40 + 20 = 60		40 + 20 = 60	