



***SHAHEED ZULFIQAR ALI BHUTTO
MEDICAL UNIVERSITY
INTEGRATED CURRICULUM***

for

First Year BDS



Dedication

Dedicated to all faculty Members of Curriculum Committee whose persistent efforts in the field of medical education will always be reminisced.

Preface

The Shaheed Zulfiqar Ali Bhutto Medical University (SZABMU), a public sector federal University, was established in the premises of postgraduate medical institute, Pakistan Institute of Medical Sciences, Islamabad by an ordinance of national assembly on 21 March, 2013.

Four medical colleges 1- School of Dentistry is constituent college others affiliated are 2- Rawal Institute of Health Sciences 3- Islamabad Medical & Dental College and 4- HBS Medical & Dental College are attached with the university.

Since its inception the university has made an impact in the field of healthcare, undergraduate, postgraduate medical education and research pertaining to grave health problems faced by our country.

In order to meet the standards of the World Federation of Medical Education a paradigm shift has ensued in the field of medical education. The standards provide a template for medical schools. This led to developing the curriculum as per WFME standards in congruence with the cultural, regional and demographic facets of the country.

Department of medical education of SZABMU started functioning in 2014. DME is 'headed by Dean and has various co-opted members including Dr. Fouzia Sultana and Dr. Zainab Abdullah who worked diligently and integrated the undergraduate curriculum in 2017. It was also made possible by the conscientious efforts of different curriculum committees who clipped it according to the requirement of the medical Colleges. The final draft of the curriculum is an attribute to all those who remained involved in the planning, development and evaluation of the curriculum.

Special appreciations for Prof. M Luqman for his infinite efforts in making this a reality.

I am very thankful to DME who spent their precious hours in typing, editing, reviewing, correcting and giving final shape to the draft which is available now in its best possible construct. I wish success and prosperity to all everyone associated with this prestigious institution in the years to come.

Prof . Tanwir Khaliq

Vice Chancellor SZABMU

ACKNOWLEDGEMENTS

We would like to express our gratitude and appreciation to all those who gave us the opportunity to complete the curriculum.

Department of Medical Education is very grateful to the Worthy Vice Chancellor Prof. Tanwir Khaliq for his vision in initiating the integrated curriculum under the umbrella of Shaheed Zulfiqar Ali Bhutto Medical University in all affiliated Dental colleges. Our special gratitude to the entire curriculum committee for their support and hard work.

We would also like to thank Prof Anser Maxood, Prof Haroon Qazi, Brig Manzoor and Prof Arshad Malik for his endless support and effort in guiding the team to achieve the goal .

Assistant Professor DME SZABMU

Dr. Zainab Abdullah

Dr. Fouzia Sultana

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:

- Prof. Anser Maxood Chairman Shaheed Zulfiqar Ali Bhutto Medical University
- Prof. Zahoor Rana Vice Chairman Shaheed Zulfiqar Ali Bhutto Medical University
- Prof. Haroon Shahid Qazi Secretary Islamabad Medical and Dental College
- Brig. (R)Manzoor Ahmad Member Rawal Institute of Health Sciences
- Prof. Arshad Malik Member HBS Dental College
- Prof. Saad Asad Member Rawal Institute of Health Science
- Prof. Tayyaba Member Islamabad Medical and Dental College
- Dr. Zainab Abdullah Member Shaheed Zulfiqar Ali Bhutto Medical University
- Dr. Fouzia Sultana Member Shaheed Zulfiqar Ali Bhutto Medical University
- Prof. Rehmah Sarfaraz Member Islamabad Medical and Dental College
- Prof. Saima Azam Member Islamabad Medical and Dental College
- Dr. Khalid M. Siddiqi Member Islamabad Medical and Dental College
- Prof. Farmanullah Member Federal Medical and Dental College

Modular Curriculum Development Committee

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

DEPARTMENT OF ANATOMY

1. Dr. Rehmah Sarfraz Islamabad Medical and Dental College
2. Dr. Zarmina Saga Rawal Institute of Health Sciences
3. Dr. Shazia Muazam HBS Dental College
4. Dr. Saima Mumtaz Federal Medical and Dental College

DEPARTMENT OF PHYSIOLOGY

1. Prof. Asma Irfan Islamabad Medical and Dental College
2. Prof. Anjum Syed Rawal Institute of Health Sciences
3. Dr. Tahira Saleem HBS Dental College
4. Prof. Farmanullah Federal Medical and Dental College

DEPARTMENT OF BIOCHEMISTRY

1. Dr. Nasir Mehmood Rawal Institute of Health Sciences
2. Dr. Sadaf Jaffar Islamabad Medical and Dental College
3. Dr. Nusrat Ali HBS Dental College
4. Dr. Attiya Zaman Federal Medical and Dental College

DEPARTMENT OF ORAL BIOLOGY

1. Dr. Nabeela Abbasi Rawal Institute of Health Sciences
2. Dr. Maham Niazi Islamabad Medical and Dental College
3. Dr. Aleena HBS 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	
1st Year BDS	Foundation 6 weeks	Craniofacial- I Hematology 6 weeks	Block I	Craniofacial - II 6weeks	GIT & Respiration II 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, norma, 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 of tooth.

- 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

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			
Theory Marks		100	100	100	100	100	100			
Practical Marks (OSPE)		200		200		200				
Internal		Theory: 60			Theory: 60			Theory: 60		
Assessment-IA (30%)		Practical: 60			Practical: 60			Practical: 60		
Subject wise distribution	Subjects	OSPE Stations		OSPE Stations		OSPE Stations		OSPE Stations		
		#	#	#	#	#	#	#		
	Anatomy	4	4	35	5	30	4	4		
	Physiology	5	5	30	4	34	5	5		
	Biochemistry	4	4	25	4	22	4	4		
	Oral Biology	5	5	30	5	34	5	5		
	Pre-clinical	1	1	10	1	10	1	1		
Prosthodontics										
Pre-clinical	10	1	10	1	10	1	1			
Operative										
Total:		1 mark each	20 (7 marks each)	1 mark each	20 (7 marks each)	1 mark each	20 (7 marks each)	20 (7 marks each)		
Theory Marks (70%)		140		140		140		140		
Practical Marks (OSPE) (70%)		20 x 7 = 140		20 x 7 = 140		20 x 7 = 140		20 x 7 = 140		
Theory:		140	60 (IA)	200	60 (IA)	200	60 (IA)	200	60 (IA)	200
OSPE:		140	60 (IA)	200	60 (IA)	200	60 (IA)	200	60 (IA)	200
Total Marks			400		400		400		400	400

SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

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		BLOCK-II				BLOCK-III							
Internal Assessment	BLOCK-I	Module 1 Foundation	Module 2 Cranio-facial- 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		
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 Cranio-facial- I/ Hematology	Module 3 Cranio-facial- 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	



