



GANDHARA UNIVERSITY SARDAR BEGUM DENTAL COLLEGE



FIRST YEAR BDS 2025
BLOCK – I (Module I & II)

**DEPARTMENT OF MEDICAL EDUCATION
GHANDHARA UNIVERSITY PESHAWAR**

FROM THE DESK OF PRINCIPAL

Health is a fast-evolving field and with new technologies taking over the traditionally man-dominated fields like radiology and robotic surgical suites assisted by Artificial Intelligence and learning are taking new dimensions with the help of Augmented Reality, we are indeed living in challenging times. Today's student of Medicine and Dentistry will be in the field a decade from now, up against a disease burden that is as varied as the next strain of the Covid-19 Virus and as complicated as the genetic characteristic of Oral Cancer, the largest cancer amongst both genders in Pakistan and at the same time as unpredictable as the recent Covid-19 Pandemic. It is therefore imperative that our curricula of the Medical and Dental Colleges be in tandem with the changing times with the ability to evolve with time, measuring up to the challenges thrown at the field of healing from the Ever-evolving diseases.

These Student Guidebooks are reviewed every year with the same concept in mind that our future Physician and Dental Surgeon be ready for the challenges that lie ahead.

In the end, I give you the same prayer as is mentioned in the Quran.



O ALLAH, INCREASE US
IN KNOWLEDGE!

Prof. Shaheed Iqbal
BDS, MDS
Oral & Maxillofacial
Surgery Principal Sardar
Begum Dental College
Gandhara University,
Peshawar.

Welcome

We extend a warm and enthusiastic welcome as you embark on the First year of your BDS journey! This is an exceptional time for each and every one of you, as it represents the culmination of years of hard work, dedication, and passion for dentistry.

This first year will present you with a multitude of challenges, but it is through these challenges that you will grow and thrive. You will encounter a diverse range of dental cases, each presenting its own unique complexities and intricacies. Embrace these cases with confidence, as they will test your diagnostic abilities, treatment planning skills, and critical thinking capabilities.

In addition to refining your clinical skills, this year will also provide you with invaluable experiences in patient management. You will have the opportunity to engage with patients from all walks of life, ensuring their comfort, providing empathetic care, and delivering comprehensive treatment. Patient management skills are essential to becoming a well-rounded dental professional, and this year will be instrumental in developing these crucial abilities.

While your studies and clinical practice will demand your utmost attention, it is vital to prioritize well-being. Take time for self-care, maintain a healthy work life balance and seek support when needed. Your physical and mental wellbeing are integral to your success as a dental professional

Our mission is to provide all educational opportunities to our students. Therefore, on completion of the BDS program graduate will possess an appropriate foundation of knowledge, skills, and attitudes to be well prepared to practice safely and effectively

As a director DME I will be meeting with the facilitators to receive the feedback and will try to resolve any difficulties or problems faced during the block. Please do not hesitate to contact DME for any academic help. I wish you an enjoyable and learning experience with block 1.

Director DME: Dr. Marina Khan



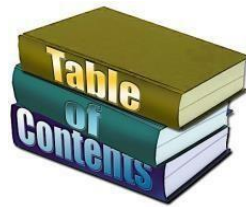


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MODULE TEAM

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LIST OF ABBREVIATIONS

<u>IC</u>	Integrated Curriculum
<u>DME</u>	Department of Medical Education
<u>ANAT</u>	Anatomy
<u>PHY</u>	Physiology
<u>BIO</u>	Biochemistry
<u>ORAL BIO</u>	Oral Biology
<u>HISTO</u>	Histology
<u>EMB</u>	Embryology
<u>LGIS</u>	Large Group Interactive Session
<u>SGD</u>	Small Group Discussion
<u>SDL</u>	Self-Directed Learning
<u>MCQ</u>	Multiple Choice Question
<u>SAQ</u>	Short Answer Question
<u>OSPE</u>	Objective Structured Practical Exam

STUDY GUIDE:

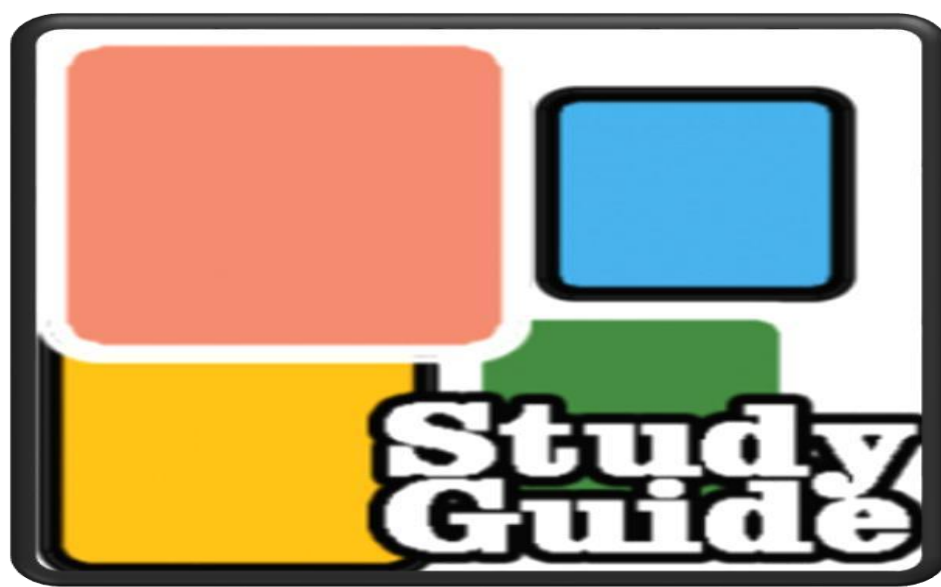
This study guidebook was designed by combining the efforts of all topics throughout the year to give dentistry students at SBDC a resource material that highlights significant components of the curriculum. By providing students control over their learning, the study guide aims to promote self-regulated lifelong learning.

In regard to the course content, the study guide provides an overview of the anticipated course outcomes and objectives. The assessment approach is also customized to the intuitional strategy.

A successful curriculum has a significant impact on the final product, as well as on society as a whole. This study guide was carefully designed with the PMDC curriculum and rules in mind, and Gandhara University stakeholders and faculty members worked hard to personalize it to the needs of students. They are further working to build, implement, and exercise a well-built curriculum in light of changing demographic needs and disease prevalence in our society. Throughout the construction of the study guide, students' feedback was received and included.

Curriculum is a living, dynamic entity that is constantly changing. With each passing day, we hope to improve it. This selfless effort on the part of the entire faculty serves as a beacon for our wonderful students.

Each module in this block has been created to cater the gap between basic and clinical subjects through pre-clinical learning. The block is divided into two modules in which the students are exposed to a variety of basic and clinical subjects. The integrated curriculum is enforced through interactive lectures, small group discussion, community outreach programs along with rotations at preclinical laboratory. The course content pertinent to each module will be addressed in problem-based scenarios and student will work collaboratively towards its solution.



AIMS OF THE STUDY GUIDE

- Inform students how student learning program of the BLOCK-wise module has been organized
- Help students organize and manage their studies throughout the module
- Guide students on assessment methods, rules, and regulations
- Communicates information on organization and management of the module. This will help the student to contact the right person in case of difficulty.
- Defines the objectives which are expected to be achieved at the end of the module.
- Identifies the learning strategies such as lectures, small group teachings, clinical skills and demonstration, tutorial that will be implemented to achieve the module objectives.
- Provides a list of learning resources such as books, computer assisted learning programs, web- links, and journals, for students to consult in order to maximize their learning.
- Highlights information on the contribution of continuous and block examinations on the student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's achievement of objectives.
- Focuses on information pertaining to examination policy, rules, and regulations.

It is an aid to:



ORGANIZATION OF MODULAR CURRICULUM

FIRST 1ST YEAR BDS

<u>Block-1</u>		<u>Exam Block 1</u>	<u>Block-2</u>		<u>Exam Block 2</u>	<u>Block-3</u>		<u>Exam Block 3</u>	<u>Final Exam</u>
<u>Module 1</u> Foundation	<u>Module 2</u> Hematology and Cranio-facial I		<u>Module 3</u> Cranio-facial II	<u>Module 4</u> GIT & Respiration		<u>Module 5</u> Neuroscience	<u>Module 6</u> Genetics		

INTRODUCTION TO BLOCK 1:

This block is designed to provide a conceptual understanding of the Basic Sciences underlying dentistry. The module has the subjects correlated with each other in a way that will help the students to understand them better and then apply them in their clinical years ahead.

This block will cover two modules (foundation & craniofacial (1)).

In foundation module it will cover basic knowledge related to human body. It also draws heavily upon their anatomy and physio chemical aspect. This module also gives a prologue on the development and morphology of dentition. It provides integration of core concepts that underlie the foundation of basic sciences and their use in clinical medicine. This module has been designed to introduce the students to the basics of health sciences. The course covers the molecular level of cell Biology

In Craniofacial (I) it will emphasize upon two main aspects:

- Craniofacial
- Hematology and Immunology

Craniofacial I provide a conceptual understanding of the basic sciences underlying craniofacial region and its applied aspects on other related subjects. It draws heavily upon the Craniofacial Anatomy and Morphology which would be its major portion and this will provide basis for all dental sciences subjects, understanding, its pathologies and treatment guidelines. Craniofacial I provide integration of core concepts that will set basis for all dental sciences subjects and defines its use in clinical dentistry.

In Hematology and Immunology, the maximum load of content is from Physiology and Biochemistry. This module aims to provide the basic understanding of hematopoiesis and hemostasis at the molecular level and its Histology. It will deal with the basic pathophysiological and pharmacological aspects of infections and chemotherapeutic agents and integrate it with clinical sciences. The module will give the 1st year medical students, an opportunity to know the presentations and principles of management of common hematological, immunological, inflammatory and neoplastic disorders. Overall, it will provide the students with the necessary factual knowledge and stimulate them to apply this in the interpretation of the disease.

Integrated curriculum begins with the assumption that learning is an active, integrated and constructive process influenced by social and contextual factors. The faculty is trained in a manner about how to present the course material so the student not only gain knowledge of the discipline but also become self-directed learner.

Through group and individual work, you will develop problem solving skills to apply your medical knowledge to practical situations. This, supplemented by lectures, and practical classes, is a significant component of the course this will eventually lead to develop critical thinking for integration and application of basic knowledge for clinical application. The subjects of the module are Anatomy, Physiology, Biochemistry and Oral Biology which will be taught in lectures, SGDs, Practical, SDL & DSL

LEARNING METHODOLOGIES

The following teaching / learning methods are used to promote better understanding:

- Large Group Interactive Lectures
- Small Group Discussion
- Practical
- Skills session
- E-Learning
- Self-Directed Learning

LARGE GROUP INTERACTIVE LECTURES (LGIS)



In large group, the lecturer introduces a topic or common clinical conditions and explains the underlying phenomena through questions, pictures, videos of patients'

SMALL GROUP DISCUSSIONS (SGDs):

This format helps students to clarify concepts acquire skills or attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics. Students exchange opinions and apply knowledge gained from lectures, tutorials and self-study. The facilitator role is to ask probing questions, summarize, or rephrase to help clarify concepts



PRACTICAL



Basic science practical related to anatomy, biochemistry physiology and oral biology are scheduled for student learning.

CASE- BASED DISCUSSIONS

Case-Based Discussion is a strategy in which learning is focused around a clinical scenario. List of questions is developed regarding the case under discussion and students are encouraged to discuss their ideas and answer the questions applying relevant basic or clinical knowledge acquired during the course. Usually, common clinical cases are selected for discussions.



CLINICAL ROTATIONS

Students are assigned 2 months of rotation in department of Oral & Maxillofacial Surgery, Prosthodontics, Operative Dentistry, Orthodontics and Pedodontics. Students are directed to observe patients in orientation week and then perform clinical procedure under supervision of seniors. Students are encouraged to assist



SELF DIRECTED LEARNING SDL:

Students assume responsibilities of their own learning through individual study, sharing and discussing with peers, seeking information from Learning Resource Center, teachers, and resource persons within and outside the college. Students can utilize the time within the college scheduled hours of self-study.



E-LEARNING:

E-Learning is a strategy by which learning occurs through the utilization of electronic media, typically the Internet. The basic aspects of medical professionalism and ethics will be addressed through an e-learning course.



RULES AND REGULATIONS

We will be making the journey through BLOCK 10 in 12 weeks. Therefore, this course includes an intensive coursework load. Class attendance and participation are extremely important to your learning and are considered in the evaluation of your course grade. If there is anything that the module team can do to assist you during the course, please feel free to contact them. Attendance will be monitored during the different teaching activities. If your attendance is less than 75%, you will not be allowed to sit for both block and annual examination.

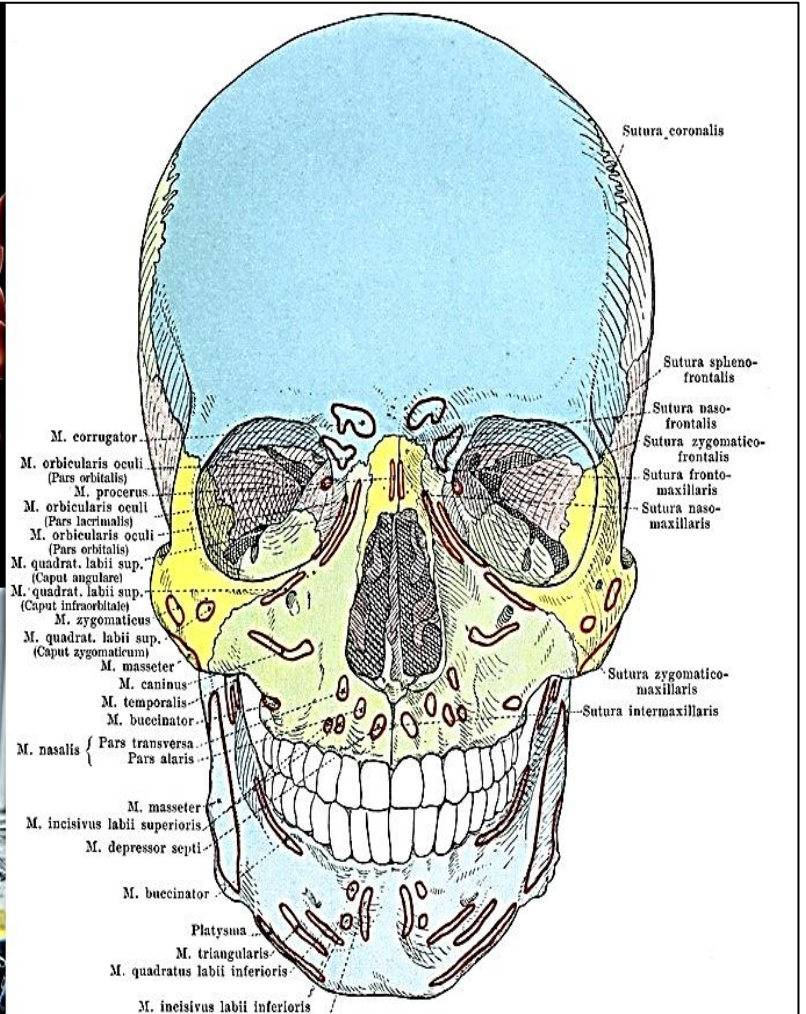
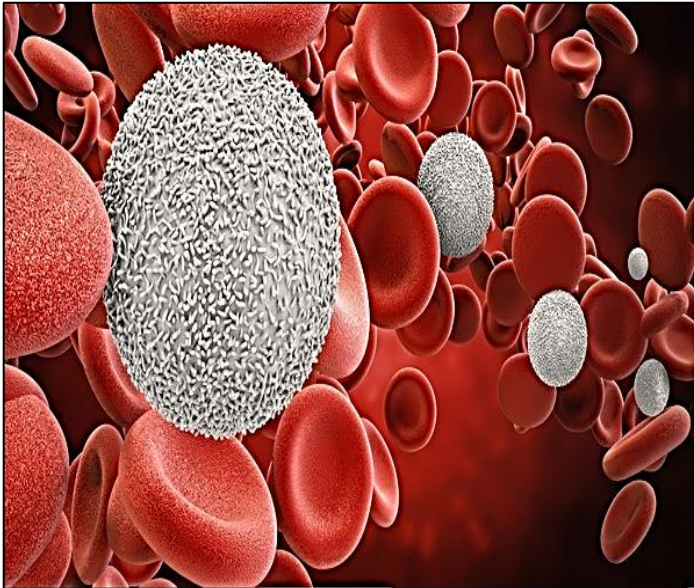


All examinations must be taken on the date scheduled. No student will be allowed to enter the examination area after the examination starts. There will be a block exam at the end of each block and each block will cover two modules. There will be a total of 3 block examination and the 20% weightage of these block exam will be added to the 80 % of the annual professional exam as an internal assessment.



MODULE – 01

FOUNDATION



OUTCOME

GENERAL OUTCOME

By end of this module the students of final year BDS will be able to

KNOWLEDGE:



- ❖ Familiarize with the BDS system-based curriculum
- ❖ Recognize the role of different disciplines in studying human body and its diseases.
- ❖ Describe the structure, function and biochemical composition of cell.
- ❖ Describe the cell division, its types and genetic material along with its clinical correlation.
- ❖ Describe the basic organization of human body.
- ❖ Explain the maintenance of homeostatic mechanism.
- ❖ Describe the various stages of pre-embryonic human development and correlate them with various malformations.
- ❖ Describe the importance of buffer and PH system.
- ❖ Introduction about oral anatomy and tissues in oral biology
- ❖ Importance of research.
- ❖ Discuss the role of different disciplines in studying craniofacial basic and applied anatomy / morphology.
- ❖ Describe the structure, function and biochemical composition of a hematopoietic cell and immune cell.
- ❖ Describe different defense mechanisms, its types and components.
- ❖ Explain the maintenance of homeostatic mechanism.
- ❖ Describe the various stages of human development and correlate them with craniofacial abnormalities and blood disorders.
- ❖ describe the various cellular and non-cellular components of blood and immune system in relation to its Histology, Physiology and Biochemistry.
- ❖ Describe structure, synthesis and degradation of Hemoglobin.
- ❖ Describe the regulatory mechanisms of normal hemostasis and coagulation
- ❖ Describe the conditions associated with dysfunction of cellular and non-cellular components of human body related to immunology and hematology.
- ❖ Describe the basic characteristics of craniofacial anatomy and oral biology.
- ❖ Discuss the structure, functions and biochemical aspects of the Lymph reticular system.
- ❖ Explain the principles and clinical significance of ABO/RH blood grouping system

ATTITUDE:

By the end of the block the students will be able to:



- Follow the basic ward protocols
- Participate in class and practical work efficiently
- Maintain discipline of the college.
- Follow the norms of the college properly.
- Communicate effectively in a team with colleagues and teachers.
- Demonstrate professionalism and ethical values in dealing with patients, cadavers, colleagues, and teachers.
- Communicate effectively in a team with colleagues and teachers.
- Demonstrate the ability to reflect on the performance.

LEARNING OBJECTIVES & COURSE CONTENTS

At the end of the teaching session the student of 1st year BDS will be able to achieve the following objectives:

GENERAL ANATOMY		
S.No	TOPICS	LEARNING OBJECTIVES
1	Introduction to general Anatomy & its branches	<ol style="list-style-type: none"> 1) Describe general terms relevant to human body. 2) Discuss sub disciplines of anatomy and clinical anatomy
2	Terminology of direction & movement	<ol style="list-style-type: none"> 1. Describe the different anatomical positions. 2. Describe different anatomical planes and movements.
3	Skin/Integumentary system and Fascia	<ol style="list-style-type: none"> 1. Explain epidermis, dermis, hypodermis, and other structure of integumentary system. 2. Enlist difference between thick and thin skin. 3. Location of thick and thin skin. Enlist Functions of skin. 4. Describe superficial fascia and deep fascia in detail.
4	Gross features & muscles attached to the mandible (muscles of mastication)	<ul style="list-style-type: none"> • Describe gross features of mandible. • Enumerate muscles of mastication. • Discuss origin, insertion & action of muscles of mastication.

EMBRYOLOGY LECTURES

S.NO	TOPICS	LEARNING OBJECTIVES
1	Introduction to Embryology	<ol style="list-style-type: none"> 1. Describe history & importance of Embryology. 2. Describe different terms of Embryology.
2	Mitosis and Meiosis	<ol style="list-style-type: none"> 1. Define mitosis & 2. Describe steps of mitosis Define Meiosis. 3. and differentiate between 1st meiotic division and 2nd meiotic division 4. Justify the significance and results of meiosis. 5. Difference between mitosis and meiosis.
3	Oogenesis/ Spermiogenesis	<ol style="list-style-type: none"> 1. Define gametogenesis. Compare the male and female gametes 2. Define oogenesis and describe the process of oogenesis. 3. Differentiate between primary and secondary oocytes. 4. Describe the sequence events of spermatogenesis in the male. 5. List the steps in Spermiogenesis. Differentiate between spermatogenesis & Spermiogenesis. 6. Discuss the importance of mitosis & meiosis in gametogenesis.
4	Transport of gametes and fertilization	<ol style="list-style-type: none"> 1. Describe transportation of gametes (sperm and ovum). 2. Describe fertilization. 3. Cleavage of zygote and blastocyst formation. 4. Clinical correlation of fertilization.
5	Female reproductive cycles	<ol style="list-style-type: none"> 1. Describe ovarian cycle. 2. Explain the process of follicular development and ovulation. 3. Correlate it with the phases of menstrual cycle.
6	1 st week of development	<ul style="list-style-type: none"> • Summary of events of 1st week of development.
7	2 nd week of development	<ol style="list-style-type: none"> 1. Explain the formation of outer and inner cell masses. 2. Discuss (trophoblast). 3. Discuss the development of bilaminar germ disc with formation of Epiblast and hypoblast, their cavities 4. Enumerate the normal & abnormal sites for implantation (ectopic pregnancy)
8	3 rd week of development	<ol style="list-style-type: none"> 1. Discuss the development of primitive streak, notochord, and neural tube 2. Discuss related congenital anomalies 3. (Sacrococcygeal Teratoma) NTDs defects

9	Three germinal layers	<ul style="list-style-type: none"> • Discuss the derivatives of three germinal layers. • Briefly describe the formation of somite's
10	4 th - 8 th week of development	<ul style="list-style-type: none"> • Explain Organo-genetic period with the process of folding
11	Fetal Period	<ul style="list-style-type: none"> • Define the fetal period, important changes that occur during fetal period. • Discuss the factors affecting fetal period. • Enlist the causes of fetal loss.
12	Fetal Membrane	<ul style="list-style-type: none"> • Enlist the development of different types of fetal membranes, chorion, amnion, yolk sac and allantois. • Describe the formation and function of amniotic fluid. • Correlate the formation and circulation of amniotic fluid with oligo-hydramnios, poly-hydramnios and amniotic bands.
13	Development of an integumentary system	<ul style="list-style-type: none"> • Discuss development of epidermis & dermis. • Discuss development of appendages of skin.
14	Placenta/Multiple Pregnancy	<ul style="list-style-type: none"> • Discuss the development of placental (fetal [art and maternal part) • Discuss the structure, circulation and function of full term placenta. • Discuss decidua and decidual reaction • Describe the features of umbilical cord • Define multiple pregnancies • Enlist the different types of multiple pregnancies • Differences between the mono and dizygotic twins • Describe about conjoined twins and its different types
15	Birth Defects	<ul style="list-style-type: none"> • Enlist the birth defects • Differentiate between different types of congenital abnormalities (malformation, disruption, deformation syndrome) • Enumerate the causes of birth defects • Classify teratogens and outline their effects on pregnancy (Infectious, chemical, physical, hormones)

HISTOLOGY LECTURES

S.NO	TOPICS	LEARNING OBJECTIVES
1	Introduction to histology	<ol style="list-style-type: none"> 1. General features of different types of tissue. 2. Organization of cell to tissue than to organ and system. 3. Introducing different important Stains.
2	Cell and its organelles	<ol style="list-style-type: none"> 1. Describe structure of cell and its organelles. 2. Enlist functions of cell and its organelles.
3	Cytoskeleton with apical features of cell	<ol style="list-style-type: none"> 1. Describe ultrastructure of cytoskeleton & cell polarity 2. Explain apical, lateral, and basal domain.
4	Cell junctions	<ol style="list-style-type: none"> 1. Define cell junctions. 2. Describe different types of cell junctions with examples & functions
5	Epithelium	<ol style="list-style-type: none"> 1. Define epithelium. Classification of epithelium. 2. Explanation of different types of epitheliums with examples & functions
6	Classification of Glandular epithelium	<ul style="list-style-type: none"> • Differentiate between different types of exocrine glands (classification with example)
7	Integumentary System	<ul style="list-style-type: none"> • Define the term integumentary system. • Discuss the functions of the skin. • Differentiate between epidermis and dermis. • Discuss the significance of tension lines. • Discuss the main determinant of skin color. • Identify the appendages of the skin • Differentiate between superficial and deep facia
7	Connective tissue	<ol style="list-style-type: none"> 1. Define connective tissue 2. Classify connective tissue 3. Describe in detail the different components of connective tissue 4. Enlist examples and functions of connective tissue
8	Loose connective tissue Dense connective tissue	<ol style="list-style-type: none"> 1. Define loose connective tissue. 2. Describe in detail different components of loose connective tissue. 3. Enlist examples and functions of loose connective tissue. <ol style="list-style-type: none"> 1. Define dense connective tissue. 2. Describe in detail different components of dense connective tissue. 3. Enlist examples and functions of dense connective tissue.

ANATOMY SGD

S.No	TOPICS	LEARNING OBJECTIVES
SGD1	Anatomical planes and positions	<ul style="list-style-type: none"> • Demonstrate anatomical terms, position, movements and planes. • Describe standard anatomical position and its application.
SGD2	Skull anatomy	<ul style="list-style-type: none"> • Discuss skull (introduction)
SGD3	Norma verticalis	<ul style="list-style-type: none"> • Discuss Norma verticalis
SGD4	Norma frontalis	<ul style="list-style-type: none"> • Discuss frontal view of the skull
SGD5	Norma lateralis	<ul style="list-style-type: none"> • Discuss lateral view of the skull

HISTOLOGY PRACTICALS

S.No	TOPIC	LEARNING OBJECTIVES
1	Microscope/Stains And slides of cell	<ol style="list-style-type: none"> 1. Identify different parts of microscope 2. Identify Different stains
2	Epithelium	<ul style="list-style-type: none"> • Identify the Slide of simple epithelium, stratified epithelium, transitional epithelium, and pseudostratified epithelium.
3	Integumentary system	<ul style="list-style-type: none"> • Identify the Slides of integumentary system, thick skin, and thin skin
4	Loose connective tissue/	<ul style="list-style-type: none"> • Identify the Slides of loose connective tissue
5	Dense connective tissue	<ul style="list-style-type: none"> • Identify the Slides of dense regular and dense irregular connective tissue

PHYSIOLOGY LECTURES

S.NO	TOPICS	LEARNING OBJECTIVES
1	Introduction to physiology/ hemostasis	<ul style="list-style-type: none"> Define Physiology and its importance. Define homeostasis. Describe the Homeostatic mechanism of major functional systems.
2	Control system of the body	<ul style="list-style-type: none"> Define control system of the body and its importance in hemostasis along with examples
3	Organization & cell membrane function	<ul style="list-style-type: none"> Describe structure of cell. Names of different organelles Characteristics of cell
4	Function of organelles	<ul style="list-style-type: none"> Describe the structure and functions of various cell organelles (Endoplasmic reticulum, Golgi apparatus, lysosomes, peroxisomes, mitochondria).
5	Cytoskeleton & gap junction	<ul style="list-style-type: none"> Discuss Cytoskeleton & gap junction
6	Ingestion by the cell	<ul style="list-style-type: none"> Discuss Ingestion by the cell
7	Membrane Proteins and Channels	<ul style="list-style-type: none"> Discuss Membrane Proteins and Channels
8	Passive Transport	<ul style="list-style-type: none"> Describe movements of cells in the body, its types and mechanism. Describe membrane transport mechanism types and effects.
9	Active Transport	<ul style="list-style-type: none"> Describe movements of cells in the body, its types and mechanism. Describe membrane transport mechanism types and effects.
10	Resting Membrane potential & Action Potential	<ul style="list-style-type: none"> Define membrane potential Describe ionic conc. Enlist the differences across cell membrane. Explain the Nernst equation. Explain origin of normal resting membrane potential
11	Structure & properties of skeletal muscles	<ul style="list-style-type: none"> Discuss Structure & properties of skeletal muscles
12	Excitation Contraction Coupling (neuromuscular junction)	<ul style="list-style-type: none"> Discuss the Excitation contraction and coupling of skeletal muscles
13	Mechanics of skeletal muscles contraction	<ul style="list-style-type: none"> Discuss the mechanism of skeletal muscle contraction
14	Nerve & transmission of impulse in nerve	<ul style="list-style-type: none"> Discuss Nerve & transmission of impulse in nerve
15	Introduction to smooth muscle	<ul style="list-style-type: none"> Discuss Introduction to smooth muscle
16	Humoral and nervous control of smooth muscle	<ul style="list-style-type: none"> Discuss Humoral and nervous control of smooth muscle
17	Role of Ca ⁺ in smooth muscle	<ul style="list-style-type: none"> Discuss the electrical activity in smooth muscles

18	Difference between smooth muscle and skeletal muscle	<ul style="list-style-type: none"> • Enlist and discuss Difference between smooth muscle and skeletal muscle
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SGD PHYSIOLOGY

S.NO	TOPIC	TOPIC DETAILS
1	Intra & extra cellular composition	<ul style="list-style-type: none"> • Discuss the composition of Intra & extra cellular environment
2	Organelles functions	<ul style="list-style-type: none"> • Enlist the functions of cell organelles • Discuss the functions of organelles
3	Cell membrane proteins	<ul style="list-style-type: none"> • Discuss the importance of cell membrane protein
4	Energetics of skeletal muscles	<ul style="list-style-type: none"> • Discuss the Energetics of skeletal muscles
5	Whole muscle contraction	<ul style="list-style-type: none"> • Discuss the characteristics of Whole muscle contraction. • Discuss the mechanism of whole muscle contraction

PHYSIOLOGY PRACTICALS

S.NO	TOPICS	LEARNING OBJECTIVES
1.	Parts of compound microscope.	<ul style="list-style-type: none"> Identify different parts of compound microscope
2.	Hemocytometer	<ul style="list-style-type: none"> Perform the procedure of hemocytometer
3.	Red Blood Cells	<ul style="list-style-type: none"> Identify and describe the equipment needed for doing RBC count. Describe the composition & function of each constituent of Heyem's solution Perform the RBC count. Calculate the RBC count by using the relevant equation and express the result in mm³ of blood. Enlist the common causes of alteration in RBC count. (Causes of High and Low RBC Counts)
4.	Platelet's count	<ul style="list-style-type: none"> Identify and describe the equipment needed for doing platelet count. Describe the composition & function of each constituent of Rees-Ecker's solution. Perform & Calculate the platelet count by using the relevant equation and express the result in mm³ of blood. Give the normal value of platelet count. Enlist the conditions that alter platelet count.
5.	leucocytes count or white blood cells count.	<ul style="list-style-type: none"> Identify and describe the equipment needed for doing DLC. Prepare a good smear for performing DLC. Describe the composition and function of each constituent of Leishman's stain. Identify the different types of leukocytes Perform the Differential Leukocyte count. Enumerate the common causes of increase or decrease in percentage of different leukocytes

BIOCHEMISTRY LECTURES

S.NO	TOPIC	LEARNING OBJECTIVES
1	Cell	<ul style="list-style-type: none"> Explain the bio-chemical composition of cell organelles and cytoplasm. Describe the chemical structure of mitochondrial membrane Explain the biochemical importance of mitochondrial membrane Describe biochemical structure of nuclear membrane and its function
2	PH Buffers	<ul style="list-style-type: none"> Define PH Define buffer and its role in maintenance of body PH Define adsorption and how it occurs. Explain ion exchange resin. Define hemolysis & cremation. Explain movement of materials across cell membrane (osmosis, active transport, passive transport, diffusion) Explain membrane transport Discuss passive diffusion, active transport and facilitated transport via a channel or carrier Define surface tension & its units Describe the importance of surface tension in biological system Describe the differences between fluidity & viscosity. Describe the factors affecting viscosity
3	Carbohydrates	<ul style="list-style-type: none"> Define the biochemical function, classification,

		<ul style="list-style-type: none">• Structure and functions of monosaccharides and their derivatives• Describe the Disaccharides• Enlist the importance & examples of• Oligosaccharides & their combination with other macromolecules• Polysaccharides & their important examples and biochemical role
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BIOCHEMISTRY PRACTICALS

S.NO	TOPIC	LEARNING OBJECTIVES
1	Introduction to lab safety procedures & protocol	<ul style="list-style-type: none">• Discuss Introduction to lab safety procedures & protocol
2	Solution preparation / normality	<ul style="list-style-type: none">• Identify the various type of solutions.• Define normality
3	Preparation of 100ml of 0.1 N solution of HCL	<ul style="list-style-type: none">• Prepare 100ml of 0.1 N solution of HCL
4	Detection of Glucose	<ul style="list-style-type: none">• Detect and identify Glucose, Fructose, Galactose maltose, lactose, sucrose & starch in each solution
5	Starch	<ul style="list-style-type: none">• Detection of Starch from a given solution

BIOCHEMISTRY SGDS

S.NO	TOPIC	LEARNING OBJECTIVES
1	cell	<ul style="list-style-type: none">• Discuss cell
2	Surface tension and viscosity	<ul style="list-style-type: none">• Discuss surface tension and viscosity
3	Carbohydrates Introduction	<ul style="list-style-type: none">• Discuss clinically significant carbohydrates
4	Carbohydrates Analysis	<ul style="list-style-type: none">• Discuss carbohydrate analysis
5	Stereoisomerism in Carbohydrates	<ul style="list-style-type: none">• Discuss Stereoisomerism in Carbohydrates

ORAL BIOLOGY LECTURES

S.NO	TOPICS	LEARNING OBJECTIVES
1	Introduction to Tooth morphology / Different numbering systems	<ul style="list-style-type: none"> • Dental arches • Enlist the Types of teeth in deciduous and permanent dentitions • Explain the Surface of teeth, division of teeth • Line angels and point angels in anterior and posterior teeth • Enlist the types of dentition, dentition periods • Resorption • Dental formula • Anatomical crown and root • Clinical crown and root • Enlist the Types of ridges • Crown elevations and depression • Inclined planes, contact areas and embrasures • Explain the Curve of spee, curve of Wilson, sphere of Monsoon
2	Human Dentition	<ul style="list-style-type: none"> • Define human Dentition • Describe formation of permanent dentition • Enumerate the Difference between primary and permanent dentition
3	Dental structures	<ul style="list-style-type: none"> • Define dental structures
4	Different tooth numbering system	<ul style="list-style-type: none"> • Define universal numbering system • Define Palmars notation • Define Federation dentaire internationale • Describe Numbering system in deciduous dentition • Describe numbering systems in permanent dentition • Differentiation between the three numbering systems in both dentition
5	Different crown surfaces & forms	<ul style="list-style-type: none"> • Enumerate different crown surfaces & forms
6	Lobe, height of contour, root surface & forms	<ul style="list-style-type: none"> • Define lobe • Define Height of contour • Define root surface & forms
7	development of tooth (bud stage)	<ul style="list-style-type: none"> • Describe primary epithelial band: • Dental lamina, vestibular lamina • Define bud stage • Describe dental papilla and folical • Describe breakup of dental lamina and crown pattern determination • Describe nerve and vascular supply during early development
8	development of tooth (cap stage)	<ul style="list-style-type: none"> • Define the cap stage of development of tooth development
9	Early bell stage	<ul style="list-style-type: none"> • Discuss early bell stage
10	Physiological stages of tooth development	<ul style="list-style-type: none"> • Enlist the stages of tooth development
11	Development of maxilla	<ul style="list-style-type: none"> • Describe development of maxilla
12	Development of mandible	<ul style="list-style-type: none"> • Describe the development of mandible
13	development of tooth (root stage)	<ul style="list-style-type: none"> • Describe formation of hard tissue • Describe root formation • Describe root eruption • Describe formation of supporting tissues
14	Advanced Bell	<ul style="list-style-type: none"> • Discuss advance bell stage

	Stage	
15	Physiological stages of tooth development	<ul style="list-style-type: none"> • Explain physiological stages of tooth development

ORAL BIOLOGY SGD		
S.NO	TOPICS	LEARNING OBJECTIVES
SGD1	Tooth structure and supporting tissue	<ul style="list-style-type: none"> • Discuss tooth structures and supporting tissues
SGD2	line angels & point angels	<ul style="list-style-type: none"> • Discuss line angels and point angels
SGD3	Crown surface elevations & depression	<ul style="list-style-type: none"> • Discuss crown surface elevation & depression
SGD4	General occlusal curvatures and axial position	<ul style="list-style-type: none"> • Discuss general occlusal curvatures and axial positions
SGD5	Anatomical and physiological consideration of form and function	<ul style="list-style-type: none"> • Discuss anatomical and physiological consideration of form and function

ORAL BIOLOGY PRACTICAL

S.NO	TOPICS	LEARNING OBJECTIVES
P1	Model study/Terminologies of tooth	<ul style="list-style-type: none"> Study terminologies of tooth on models
P2	Landmarks of tooth/model study	<ul style="list-style-type: none"> Study different landmarks
P3	Coloring of landmarks on model	<ul style="list-style-type: none"> Perform Coloring of landmarks on model
P4	Identification of morphology on models	<ul style="list-style-type: none"> Identification of morphology on models
P5	Model Study /tooth morphology	<ul style="list-style-type: none"> Study tooth models

BEHAVIOURAL SCIENCES LECTURES

S.NO	TOPICS	TOPIC DETAILS	LEARNING OUTCOMES
1.	Introduction to behavioral sciences	<ul style="list-style-type: none"> Define behavioral science. Discuss its scope & application to medical & dental students. 	<ul style="list-style-type: none"> At the end of this lecture the students will be able to discuss behavioral sciences & its importance in the field of dentistry

RIPPLE LECTURE

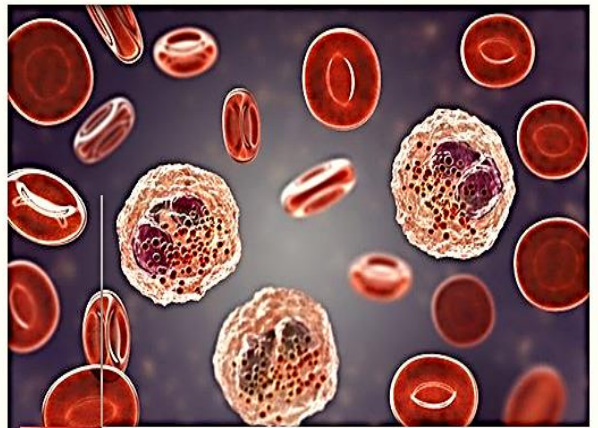
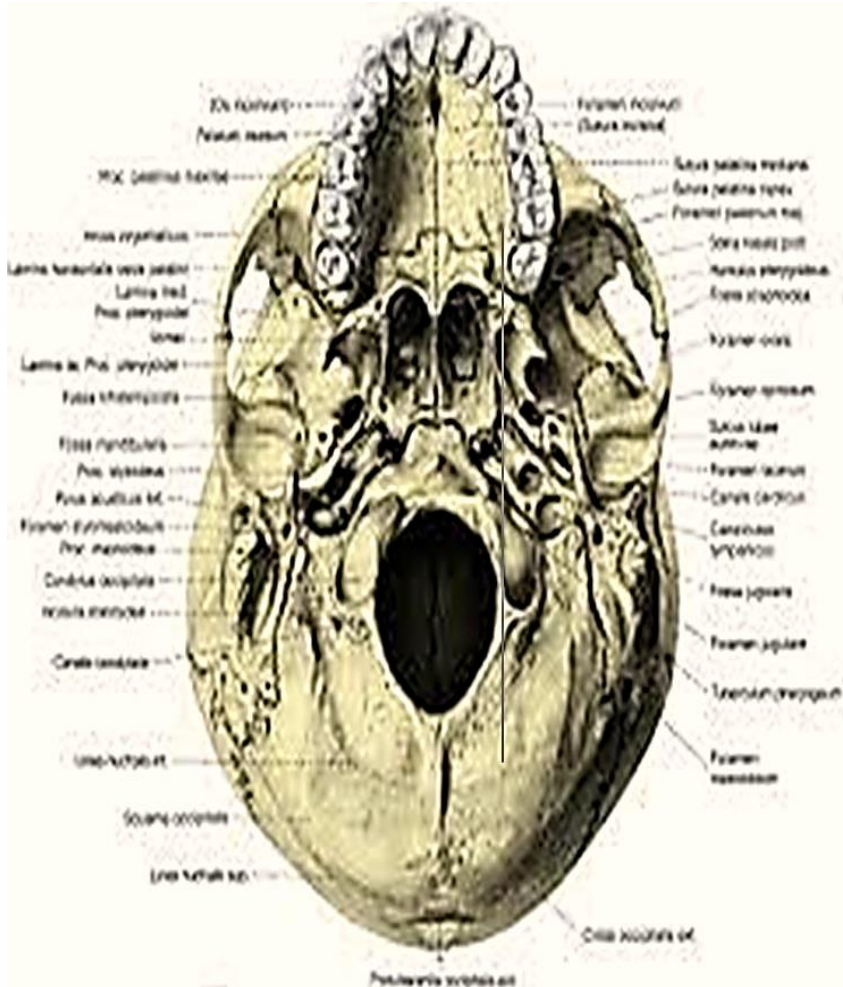
S.NO	TOPICS	TOPIC DETAILS
1.	Reflection	<ul style="list-style-type: none"> Define reflection. Discuss different components of reflection
2.	Introduction to research	<ul style="list-style-type: none"> Discuss research & its components.

IT SKILL LECTURES

S.NO	TOPICS	TOPIC DETAILS
1.	Learning managemе systems	<ul style="list-style-type: none"> Explain LMS

MODULE - 02

CRANIOFACIAL(I) & HEMATOLOGY



OUTCOME

GENERAL OUTCOME

By end of this module the students of final year BDS will be able to

KNOWLEDGE:



- ❖ Familiarize with the BDS system-based curriculum
- ❖ Recognize the role of different disciplines in studying human body and its diseases.
- ❖ Describe the structure, function and biochemical composition of cell.
- ❖ Describe the cell division, its types and genetic material along with its clinical correlation.
- ❖ Describe the basic organization of human body.
- ❖ Explain the maintenance of homeostatic mechanism.
- ❖ Describe the various stages of pre-embryonic human development and correlate them with various malformations.
- ❖ Describe the importance of buffer and PH system.
- ❖ Introduction about oral anatomy and tissues in oral biology
- ❖ Importance of research.
- ❖ Discuss the role of different disciplines in studying craniofacial basic and applied anatomy / morphology.
- ❖ Describe the structure, function and biochemical composition of a hematopoietic cell and immune cell.
- ❖ Describe different defense mechanisms, its types and components.
- ❖ Explain the maintenance of homeostatic mechanism.
- ❖ Describe the various stages of human development and correlate them with craniofacial abnormalities and blood disorders.
- ❖ describe the various cellular and non-cellular components of blood and immune system in relation to its Histology, Physiology and Biochemistry.
- ❖ Describe structure, synthesis and degradation of Hemoglobin.
- ❖ Describe the regulatory mechanisms of normal hemostasis and coagulation
- ❖ Describe the conditions associated with dysfunction of cellular and non-cellular components of human body related to immunology and hematology.
- ❖ Describe the basic characteristics of craniofacial anatomy and oral biology.
- ❖ Discuss the structure, functions and biochemical aspects of the Lymph reticular system.
- ❖ Explain the principles and clinical significance of ABO/RH blood grouping system

LEARNING OBJECTIVES & COURSE CONTENTS

At the end of the teaching session the student of 1st year BDS will be able to achieve the following objectives:

GENERAL ANATOMY		
S.No	TOPICS	LEARNING OBJECTIVES
1	Bone Joints	<ul style="list-style-type: none"> Describe features of adult bone Compare various types of bone with regard to their development, shape, histological features and blood supply. Relate the following: - Structure of different types of joints with their movements General features of synovial joints with their locations
2	Muscles	<ul style="list-style-type: none"> Classify muscles according to their macroscopic and microscopic structures and functions
3	Skull and cranial cavity	<ul style="list-style-type: none"> Discuss skull Discuss the cranial cavity
4	anatomical landmarks of skull Difference between adult and neonatal skull	<ul style="list-style-type: none"> Discuss anatomical landmarks. Difference between adult and neonatal skull
5.	Skull (Temporal, infratemporal fossae)	<ul style="list-style-type: none"> Discuss the contents, boundaries Relations and bones contributing to it.
6.	Skull (Pterygopalatine fossa)	<ul style="list-style-type: none"> Discuss the contents and boundaries, relations and the bones contributing to it.
7.	Scalp	<ul style="list-style-type: none"> Discuss scalp, layers of scalp, arterial, venous, nerve supply and muscles of the scalp
8.	Muscles of facial expression and mastication	<ul style="list-style-type: none"> Enlist muscles of facial expression and mastication, its origin, insertion, action, and nerve supply
9.	Cervical vertebrae	<ul style="list-style-type: none"> Enlist cervical vertebrae Discuss anatomy of cervical vertebrae.

HISTOLOGY LECTURES

S.No	TOPICS	LEARNING OBJECTIVES
1	Muscles	<ul style="list-style-type: none"> Describe the structure, function and histological appearance of Muscle
2	Cartilage	<ul style="list-style-type: none"> Describe the microscopic anatomy of cartilage (elastic, fibrous, hyaline) under the microscope.
3	Thymus	<ul style="list-style-type: none"> Describe the structure, function and histological appearance of thymus.
4	Tonsil	<ul style="list-style-type: none"> Define locations of tonsils. Describe histological features of tonsils. Enlist functions of tonsils.
5.	Lymph nodes	<ul style="list-style-type: none"> Describe the structure and function of lymph nodes. Understand the immune system and lymphoid tissue. Differentiate between central lymphoid organs and peripheral lymphoid organs
6.	Spleen	<ul style="list-style-type: none"> Enlist histological features of the spleen. Enumerate Functions of the spleen. Enlist the causes of splenic injuries.

HISTOLOGY PRACTICALS

S.No	TOPICS	LEARNING OBJECTIVES
P1	Cartilage	<ul style="list-style-type: none"> Enumerate types of cartilage. Enlist the differences between hyaline, elastic & fibrous cartilage on the basis of microscopic features.
P2	Thymus	<ul style="list-style-type: none"> Identify and describe the microscopic anatomy of thymus, bone under microscope
P3	Tonsil	<ul style="list-style-type: none"> Identify and describe the microscopic anatomy of tonsil under microscope
P4	Lymph node	<ul style="list-style-type: none"> Identify and describe the microscopic anatomy of lymph node under microscope
P5	Spleen	<ul style="list-style-type: none"> Identify and describe the microscopic anatomy of spleen under microscope

EMBRYOLOGY LECTURES

S.No	TOPICS	LEARNING OBJECTIVES
P1	Development of lymphatic system & clinical correlations	<ul style="list-style-type: none"> Discuss development of various lymphoid organs (lymph node, spleen, thymus)

ANATOMY SGD

S.No	TOPICS	LEARNING OBJECTIVES
1	Vault of skull (superior and inferior view) Lateral view of skull	<ul style="list-style-type: none"> Discuss Vault of the skull Discuss bones contributing, sutures / fontanelle, importance of granular foveolae and superior sagittal sinus grooves
2	Base of skull (superior and inferior view)	<ul style="list-style-type: none"> Discuss base of the skull & cranial fossae Discuss bones contributing to it, various foramen and its contents, How it is divided into 3 parts?
3	Skull (anterior and occipital view)	<ul style="list-style-type: none"> Discuss anterior view of the skull. Discuss occipital view of skull? Discuss the bones contributing to the skull Discuss the Foramen, contents & Anatomical landmarks
4	Mandible and age-related changes of mandible	<ul style="list-style-type: none"> Discuss the mandible Discuss the Anterior and posterior views Discuss Foramen, contents, Muscles attachments & age-related changes
5.	Cervical vertebrae and radiographs of normal skull and imaging techniques.	<ul style="list-style-type: none"> Discuss cervical vertebrae Discuss typical and atypical vertebrae Discuss Structure, foramen, and contents Discuss Atlanto axial joints and its importance

PHYSIOLOGY LECTURES

S.NO	TOPICS	LEARNING OBJECTIVES
1	Introduction to Blood (Composition and functions of blood)	<ul style="list-style-type: none"> Describe the composition and functions of blood (WBCs, RBCs, Platelets), Define Hematocrit
2	Erythropoiesis	<ul style="list-style-type: none"> Discuss the different stages of RBCs formation Illustrate the stages of RBC development from pluripotent hematopoietic stem cells to a mature RBC List factors necessary for erythropoiesis Discuss the significance of Reticulocyte count
3	HB	<ul style="list-style-type: none"> Describe steps of Hb synthesis. Define abnormal Hb
4	Anemia	<ul style="list-style-type: none"> Define anemia Explain classification of anemia Describe diagnoses of anemia by red cell indices Define hemolysis Describe the various red cell indices Describe the effects of anemia on functions of circulatory system / human body
5	White Blood Cells I & II	<ul style="list-style-type: none"> Classify white blood cells Describe the structure, function, life span and normal count of White Blood Cells Describe the stages of differentiation of white blood cells (leukopoiesis) Describe the characteristics of WBCs (phagocytosis / chemotaxis, diapedesis)
6	Inflammation	<ul style="list-style-type: none"> Define inflammation Describe characteristics of inflammation (hallmark of inflammation) Describe the causes, sequence of events and cardinal signs of inflammation
7	Immunity	<ul style="list-style-type: none"> Define and classify immunity Define antigen Define pathogen Enlist the tissues that contribute to immunity and explain their function Describe the functions of immune system Describe the structure and function of lymphatic system
8	T cells (Cell – mediated immunity)	<ul style="list-style-type: none"> Describe the role of T lymphocytes in immunity Describe cell mediated and humoral immunity Explain how helper T cells regulate the immune system Explain the function of cytotoxic T cells Describe the role of helper T cells

9	Antibodies & Complement system.	<ul style="list-style-type: none"> • Define antibodies, its structure, • Explain the development against antigen, Explain antigen antibody complexes • Enlist examples of various conditions where they are formed, role of vaccines. • Describe the complement system • Explain the complement system elicits the inflammatory response, lyses foreign cells, and increases phagocytosis • Describe the two pathways that activate the complement system compare Classic and alternate pathways of complement activation
10	Allergy	<ul style="list-style-type: none"> • Define Allergy and allergen • Define and classify the hypersensitivity reaction. • Describe the pathophysiology of allergy and hypersensitivity • Compare the immediate and delayed hypersensitivity reactions • List the diseases associated with hypersensitivity reactions
11	Blood groups/RH transfusion	<ul style="list-style-type: none"> • Describe different types of blood groups • Describe the genotype-phenotype relationships in blood groups. • Interpret the plausible blood groups (A-B-O) in children of parents with known blood groups. • Describe the role of agglutinogens and agglutinins in blood grouping • Describe the antigens and antibodies of the O-A-B blood types/ • Interpret the types of agglutinins present in individuals with a specific blood group, Describe the process of agglutination, rule for transfusion • Describe the antigens and antibodies of the Rh system • Enlist the manifestations of transfusion reaction
12	Hemostasis	<ul style="list-style-type: none"> • Define Hemostasis. • Delineate the process of hemostasis that restricts blood loss when vessels are damaged. • Describe the role of platelets in hemostasis • Outline the sequence of processes involved in hemostasis.
13	Platelet plug formation	<ul style="list-style-type: none"> • Define platelet plug formation • Explain the formation, clinical significance and effects on body on platelet plug formation
14	Coagulation	<ul style="list-style-type: none"> • Enlist the clotting factors. • Explain the role of calcium in coagulation. • Explain how clotting is prevented in the normal vascular system • Outline the sequence of processes during blood coagulation • Describe with the help of a flow diagram (or draw) intrinsic pathway of coagulation cascade • Describe with the help of a flow diagram (or draw) extrinsic pathway of coagulation cascade • Explain how the mechanism of clot dissolution.
15	Conditions & causes of excessive bleeding disorders	<ul style="list-style-type: none"> • Discuss the causes & different types of excessive bleeding disorders.

PHYSIOLOGY SGD

S.No	TOPICS	LEARNING OBJECTIVES
1	Polycythemia	<ul style="list-style-type: none">• Define and classify polycythemia Differentiate between primary and secondary Polycythemia
2	Leukopenia/ Leukemia/ Leukocytosis	<ul style="list-style-type: none">• Define Leukopenia, Leukocytosis and Leukemia
3	Reticuloendothelial system	<ul style="list-style-type: none">• Define Reticuloendothelial system.• Enlist the functions of Reticuloendothelial system.• Discuss the role of Reticuloendothelial system in imunity.
4	Transfusion reactions / organ transplant	<ul style="list-style-type: none">• Discuss transfusion reactions and organ transplant.• Explain the criteria for transplant, donor, recipient, role of immune system in transplant, different types of transplant.
5	Blood coagulation test	<ul style="list-style-type: none">• Describe the blood coagulation test

PHYSIOLOGY PRACTICALS

S.No	TOPICS	LEARNING OBJECTIVES
1	Hematocrit (micro & macro)	<ul style="list-style-type: none">• Demonstrate peripheral blood smear
2	DLC	<ul style="list-style-type: none">• Demonstrate & perform DLC.
3	Bleeding Time/Clotting Time	<ul style="list-style-type: none">• Identify and describe the equipment needed for doing BT & CT• Define bleeding time and clotting time.• Determine bleeding time by Duke's method.• Determine clotting time by capillary tube method.• List the precautions taken for determination of BT and CT.• Know the normal values of bleeding time and clotting time.• Name the conditions in which bleeding time and clotting time are prolonged.
4	Blood Grouping	<ul style="list-style-type: none">• Determine the O-A-B and Rh blood group in the given sample
5	Blood indexes	<ul style="list-style-type: none">• Perform blood indexes.

BIOCHEMISTRY LECTURES

S.No	TOPICS	LEARNING OBJECTIVES
1	Aminoacids & Protein - I	<ul style="list-style-type: none"> • Explain the Structure and function
2	Chemistry of Hemoglobin (structure & function)	<ul style="list-style-type: none"> • Explain the Structure and function of hemoglobin. • Define Porphyrins • Describe Chemistry of Porphyrins
3	Synthesis of Hemoglobin	<ul style="list-style-type: none"> • Explain synthesis of hemoglobin • Enlist the types, metabolic causes and clinical presentation of different types of Porphyria
4	Normal and abnormal types of hemoglobin	<ul style="list-style-type: none"> • Describe abnormalities of iron metabolism, Discuss anemia • Discuss 2,3 BPG
5	Hemoglobinopathies, Thalassemia	<ul style="list-style-type: none"> • Define Hemoglobinopathies and enlist the variants of hemoglobin • Describe causes of Hemoglobinopathies • Describe two major categories of hemoglobinopathies • Describe the amino acid substitution in sickle cell disease. • Define and Classify thalassemia • Explain the genetic defects in α and β thalassemia. • Enlist the clinical features of α and β thalassemia
6.	Immuno-globulins and heme degradation	<ul style="list-style-type: none"> • Define immunoglobulins • Classify immunoglobulins • Describe the chemistry and structure of immunoglobulins. • Discuss heme degradation.
7.	Plasma proteins	<ul style="list-style-type: none"> • Discuss plasma proteins, examples, significance

BIOCHEMISTRY LECTURES

S.No	TOPICS	LEARNING OBJECTIVES
1	Porphyria & Porphyrins	<ul style="list-style-type: none"> • Define is porphyria? • Enlist the Types, causes & clinical correlation of porphyria & porphyrins
2	Disorders of Hb	<ul style="list-style-type: none"> • Discuss abnormal hemoglobin. • Enlist the Causes, fate of abnormal hemoglobin & clinical correlation of hemoglobin synthesis
3	Jaundice	<ul style="list-style-type: none"> • Discuss Jaundice, • Enlist the types, causes of physiological and pathological jaundice
4.	Plasma proteins	<ul style="list-style-type: none"> • Define plasma proteins, • Enlist the examples and significance of plasma proteins

BIOCHEMISTRY PRACTICALS

S.No	TOPICS	LEARNING OBJECTIVES
1	Detection of albumin in urine	<ul style="list-style-type: none"> • Perform Detection of albumin in urine
2	Detection of globulin In urine	<ul style="list-style-type: none"> • Perform Detection of globulin In urine
3	Detection of gelatin	<ul style="list-style-type: none"> • Perform Detection of gelatin

4.	Detection of peptones	<ul style="list-style-type: none"> Perform Detection of peptones
5.	Detection of casein & lactalbumin	<ul style="list-style-type: none"> Perform Detection of casein & lactalbumin

ORAL BIOLOGY LECTURES

S.No	TOPICS	LEARNING OBJECTIVES
1	Maxillary Central Incisors	<ul style="list-style-type: none"> Explain the morphology of labial, lingual, mesial, distal and incisal aspects of crown of maxillary central incisors Explain morphology of root of both incisors Explain variations and anomalies associated with maxillary central incisors
2	Maxillary Lateral Incisors	<ul style="list-style-type: none"> Explain the morphology of labial, lingual, mesial, distal and incisal aspects of crown of maxillary central incisors Explain morphology of root of both incisors Explain variations and anomalies associated with maxillary lateral incisors
3	Mandibular Central Incisors	<ul style="list-style-type: none"> Explain the morphology of labial, lingual, mesial, distal and incisal aspects of crown of mandibular central incisors Explain morphology of root of both incisors Explain variations and anomalies associated with mandibular central incisors
4.	Mandibular Lateral Incisors	<ul style="list-style-type: none"> Explain the morphology of labial, lingual, mesial, distal and incisal aspects of crown of mandibular central incisors Explain morphology of root of both incisors Explain variations and anomalies associated with mandibular lateral incisors
5.	Permanent maxillary canines	<ul style="list-style-type: none"> Explain the morphology of labial, lingual, mesial, distal and incisal aspects of crown of maxillary canine Explain morphology of root of both incisors Explain variations and anomalies associated with maxillary canines
6.	Permanent mandibular canines	<ul style="list-style-type: none"> Explain the morphology of labial, lingual, mesial, distal and incisal aspects of crown of maxillary canine. Explain morphology of root of both incisors Explain variations and anomalies associated with mandibular canines
7.	Bone I (Introduction)	<ul style="list-style-type: none"> Definition of bone, Explain the composition and histology of bone,
8.	Bone II (Cells)	<ul style="list-style-type: none"> Enlist & Explain the types, origin, structure, formation, functions and mechanism of action of bone cells
9.	Bone III and IV (Formation)	<ul style="list-style-type: none"> Explain intramembranous endochondral and sutural bone formation
10	Bone V (Resorption)	<ul style="list-style-type: none"> Explain bone resorption, Explain structure of osteoclast, Enlist the sequence of events of bone resorption
11	Bone VI (Remodeling)	<ul style="list-style-type: none"> Define bone remodeling Enlist events of bone remodeling Explain the role of cytokines in bone remodeling Explain the functions of bone remodeling Explain the bone turn over maker
12	Bone (Clinical and therapeutic considerations)	<ul style="list-style-type: none"> Explain the therapeutic / clinical consideration related to bone

ORAL BIOLOGY SGD

S.No	TOPICS	LEARNING OBJECTIVES
1	Cartilages associated with maxilla and mandible.	<ul style="list-style-type: none">• Discuss the parts of mandible & maxilla associated with development.
2	Differences between incisors	<ul style="list-style-type: none">• Discuss the differences between mandibular & maxillary incisors.
3	Bone Composition	<ul style="list-style-type: none">• Discuss composition of the Bone
4.	Bone	<ul style="list-style-type: none">• Discuss Bone remodeling.
5.	Difference between mandibular and maxillary canines	<ul style="list-style-type: none">• Discuss the differences between mandibular & maxillary Canines.

ORAL BIOLOGY PRACTICAL

S.No	TOPICS	LEARNING OBJECTIVES
1	Intercellular junction - I	<ul style="list-style-type: none">• Describe Intercellular junction
2	Intercellular junction - II	<ul style="list-style-type: none">• Describe Intercellular junction
3	Tooth morphology	<ul style="list-style-type: none">• Identification of differences between anterior & posterior teeth
4.	Types of bone pattern	<ul style="list-style-type: none">• Discuss Types of bone pattern
5.	Healing of bone	<ul style="list-style-type: none">• Discuss Healing of bone

MEDICAL EDUCATION (RIPPLE)

S.No	TOPICS	LEARNING OBJECTIVES
1	Mentoring	<ul style="list-style-type: none">• Define mentoring.• Define mentor & mentee.• Explain mentorship program
2	Research (study types)	<ul style="list-style-type: none">• Define research.• Enlist study design.• Enlist the study types



ASSESSMENT METHODS FOR BLOCK EXAM:

Evaluation is a continuous process comprising of block examination and annual university examination. Students will be evaluated throughout the year. The internal assessment will contribute towards the final examination scores. Multiple examination methods including MCQs, SAQs, OSPE and viva will be used. In line with PMC stipulation, the pass/fail marks for the test and examination will be 50%.

There will be a block exam at the end of each block.

Theory (knowledge):

MCQs (Multiple Choice Questions) and SAQs (Short Answer Questions) are used to assess the theory part for the block exam.

MCQ:

A MCQ has a statement or clinical scenario followed by four options (likely answers).

After reading the statement/scenario student select ONE, the most appropriate answer/response from the given list of options.

Correct answer carries one mark, and incorrect 'zero mark'. There is NO negative marking.

SAQ:

SAQ are open ended questions that requires students to create an answer. They are commonly used in examinations to access the basic knowledge and understanding of a topic.

OSPE:

Objective Structured Practical Examination (See the proposed plan of OSPE)

It may comprise between 12- 25 stations.

The content may assess application of knowledge, or practical skills.

Student will complete task in define time at one given station.

All the students are assessed on the same content by the same examiner in the same allocated time.

A structured examination will have observed, unobserved, interactive and rest stations.

OBSERVED AND INTERACTIVE STATIONS:

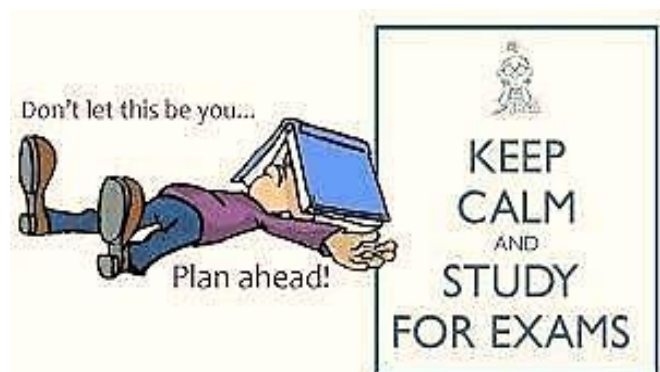
They will be assessed by internal or external examiners through the task or viva.

UNOBSERVED STATION:

It will be static station in which students will have to answer the questions related to the given pictures, models or specimens on the provided response sheet.

REST STATION:

It is a station where no task is given, and during this time student can organize his/her thoughts.



1st Year BDS ASSESSMENT FOR BLOCK EXAM

FIRST YEAR BDS BLOCK THEORY FORMAT

<u>CLASS</u> <u>ROLL NO</u>	<u>BLOCK – (---)</u>			<u>TOTAL</u>
	<u>MCQs</u>	<u>SAQs</u>	<u>TOTAL</u>	<u>PERCENTAGE</u>
	28	12	40	5%
	28 MCQs each subject	4 SAQs out of which One is optional i.e., to be attempted 3 SAQs. Each SAQ carries 4 marks. 3 x 4 = 12		MARKS OBTAINED / 40 X 5

FIRST YEAR BDS END OF SESSION THEORY FORMAT

<u>CLASS ROLL NO</u>	<u>BLOCK I</u>	<u>BLOCK II</u>	<u>BLOCK III</u>	<u>ASSIGNMENTS</u>	<u>ATTENDANCE</u>	<u>TOTAL</u>
	5%	5%	5%	3%	2%	20%
				<p>1 Assignment per subject each block</p> <p>1 mark per Assignment</p> <p><u>SCORING</u></p> <p>Assignment submitted on time = 01</p> <p>Late submission / Not Submitted = 0</p>	<p>Obtained Attendance % /100 x 2</p>	

FIRST YEAR BDS BLOCK PRACTICAL FORMAT

<u>CLASS ROLL NO</u>	<u>BLOCK (-----)</u>					<u>TOTAL</u>
	<u>DISTRIBUTION</u>					5%
	<u>OSPE</u>	<u>VIVA</u>	<u>PRACTICAL LOGBOOK</u>	<u>SGD LOGBOOK</u>	<u>TOTAL</u>	OBTAINED MARKS / 40 x 5 = ____%
	<p>5 OSPE STATIONS (4 MARKS EACH)</p> <p>= 20 MARKS</p>	<p>3 VIVA STATIONS (5 MARKS EACH)</p> <p>= 15 MARKS</p>	<p>2.5 MARKS</p> <p>Complete & timely signed = 2.5</p> <p>Complete but late submission = 1.5</p> <p>Incomplete logbook = 1</p> <p>No logbook = 0</p>	<p>2.5 MARKS</p> <p>Complete & timely signed = 2.5</p> <p>Complete but late submission = 1.5</p> <p>Incomplete logbook = 1</p> <p>No logbook = 0</p>	<p>40 TOTAL MARKS</p>	

FIRST YEAR BDS END OF SESSION PRACTICAL FORMAT

<u>CLASS</u> <u>ROLL</u> <u>NO</u>	<u>BLOCK</u> <u>I</u>	<u>BLOCK II</u>	<u>BLOCK</u> <u>III</u>	<u>BEHAVIOUR</u>	<u>ATTENDANCE</u>	<u>TOTAL</u>
	5%	5%	5%	3%	2%	20%
				<p>No misbehave or written warning = 3</p> <p>Written warning given to student = 0</p>	<p>Obtained Attendance % /100 x 2</p>	

FIRST YEAR BDS FINAL PROF FORMAT (800 MARKS)

<u>CLASS</u> <u>ROLL</u> <u>NO</u>	<u>THEORY (400 MARKS)</u>				<u>PRACTICAL (400 MARKS)</u>				<u>TOTAL</u>
	<u>MCQs</u>	<u>SAQs</u>	<u>I.A</u>	<u>TOTAL</u>	<u>OSPE</u>	<u>VIVA</u>	<u>I.A</u>	<u>TOTAL</u>	<u>GRAND</u> <u>TOTAL</u>
	30	50	20	<u>100</u>	40	40	20	100	200
	30 MCQs each subject	7 SAQs out of which TWO will be optional i.e., to be attempted 5 SAQs. Each SAQ carries 10 marks. 5 x 10 = 50			10 OSPE Stations 4 marks each	20 MARKS INTERNAL 20 MARKS EXTERNAL			

LEARNING RESOURCES

SUBJECT	RESOURCES
<u>ANATOMY</u>	<p>A. <u>GROSS ANATOMY</u></p> <ol style="list-style-type: none"> 1. General Anatomy B.D.Chaurasia 2. Snell Anatomy 1,2,3 <p>B. <u>HISTOLOGY</u></p> <ol style="list-style-type: none"> 1. Medical histology by Liaq Hussain <p>C. <u>EMBRYOLOGY</u></p> <ol style="list-style-type: none"> 1. Keith L. Moore. The Developing Human <p>Langman's Medical Embryology</p>
<u>BIOCHEMISTRY</u>	<p>A. <u>TEXTBOOKS</u></p> <ol style="list-style-type: none"> 1. Harper's Illustrated Biochemistry 2. Lehninger Principle of Biochemistry <p>Biochemistry by Devlin</p>
<u>PHYSIOLOGY</u>	<p>A. <u>TEXTBOOKS</u></p> <ol style="list-style-type: none"> 1. Textbook of Medical Physiology by Guyton and Hall 2. Ganong 'S Review of Medical Physiology 3. Human Physiology by Lauralee Sherwood 4. Berne & Levy Physiology 5. Best & Taylor Physiological Basis of Medical Practice <p>B. <u>REFERENCE BOOKS</u></p> <ol style="list-style-type: none"> 1. Guyton & Hall Physiological Review 2. Essentials of Medical Physiology by Jaypee 3. Textbook of Medical Physiology by InduKhurana 4. Short Textbook Of Physiology by Mrthur NMS Physiology
<u>ORALBIOLOGY</u>	<p>A. <u>TEXTBOOKS</u></p> <ol style="list-style-type: none"> 1.Oral Histology by Ten Cates 2.Oral Histology and embryology by Orbans. <p>B. <u>REFERENCE BOOKS:</u></p> <ol style="list-style-type: none"> 1.Oral anatomy, histology, Embryology (Book by BJ Moxham, BKB Berkowitz) 2.Illustrated Dental Embryology, Histology and Anatomy Margaret J 3.Essentials of oral biology, Oral Anatomy, Histology, Physiology and Embryology by Maji Jose.
Behavioral Science	<ol style="list-style-type: none"> 1. A New Intellectual Framework for Psychiatry – group of 12 A. 2. ER Kandel – AMERICAN JOURNAL OF PSYCHIATRY, 1998– ajp.psychiatryonline.org 3. The Hierarchy of the Sciences? – group of 3 A >> 4. RW Maris, Al Berman, MM Silverman – 2000 5. Textbook of Biological Psychiatry 6. J Panksepp – 2003 7. Challenging “Resistance to Change” – group of 2 A EB Dent, SG Goldberg – JOURNAL OF APPLIED BEHAVIOURAL SCIENCES, 1999 – anomaly.

OTHER LEARNING RESOURCES

<u>Hands-on Activities/ Practical</u>	Students will be involved in Practical sessions and hands-on activities that link with the foundation module to enhance the learning.
<u>Labs</u>	Utilize the lab to relate the knowledge to the specimens and models available.
<u>Skill Labs</u>	A skills lab provides the simulators to learn the basic skills and procedures. This helps build the confidence to approach the patients.
<u>Videos</u>	Video familiarize the student with the procedures and protocols to assist patients.
<u>Computer Lab/CDs/DVDs /Internet Resources</u>	To increase the knowledge students should utilize the available internet resources and CDs/DVDs. This will be an additional advantage to increase learning.
<u>SDL</u>	SDL is scheduled to search for information to solve cases, read through different resources and discuss among the peers and with the faculty to clarify the concepts.