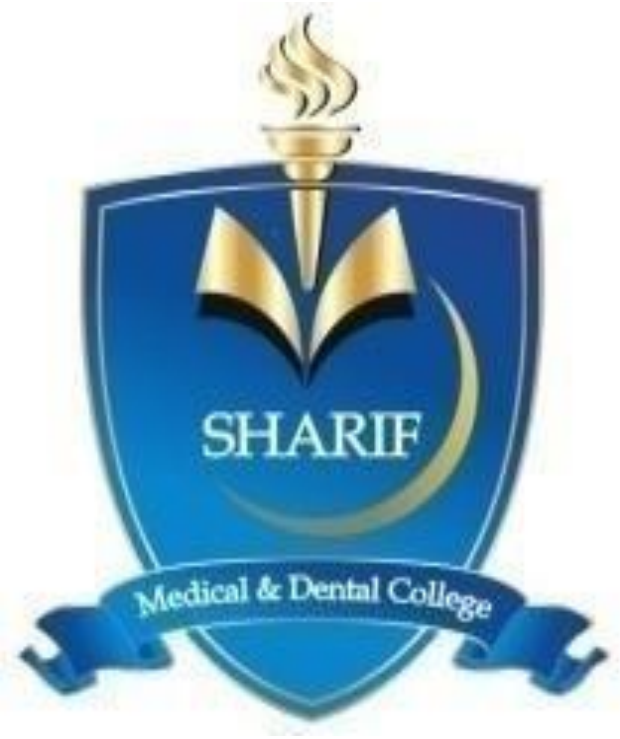
Department of Anatomy



Study Guide
1st Year BDS

Sharif Medical & Dental College, Lahore

PREFACE

Study guides are aimed at helping students fully comprehend their curriculum and its objectives. While text books are widely regarded as the most important learning resource, they require augmentation by facilitation and practical guidance. With a well-designed study guide, a student would have acquaintance with the goals of learning the curriculum and assessment modalities. In short, the student shall have insight into the entire timeline of the academic year.

As advised by UHS, the annual academic schedule is followed at SMDC. The students of MBBS are taught anatomy for the first two years of their degree course, while BDS students study anatomy during their first year. For MBBS students, Gross Anatomy, General Anatomy, Histology, and Embryology are covered in two years, with the regions divided between them. The Anatomy Department has created a course plan that fits our institution's vision and the UHS guidelines. This study guide includes a comprehensive list of the sections taught in our department, the time allocated for each of them, and the teaching techniques employed such as small group discussions, lectures, practicals and demonstrations on bones, dissected specimens, and models. Schedule of the assessments planned for the entire year has also been highlighted along with the marks distribution for the professional examinations. A list of reference books and reading material is also included at the end of the guide. We hope that this guide helps provide the students with valuable guidance.

Prof. Dr. Nausheen Raza
MBBS, M. Phil
Professor & HOD of Anatomy Department
SMDC, Lahore
Date: 26-02-2021

VISION & MISSION OF UHS

Qualitative and Quantitative Revolution in Medical Education and Research through Evolution and there by improve Health Care delivery to Populace.

UHS shall be innovative global center of excellence in learning and research, supporting a community of scholars and professionals committed to serving society, promoting the development of students to reach their true potential in becoming competent, ethical, caring, and inquiring health professionals for the benefit of the country and the wider world.

MISSION OF SMDC

Sharif Medical & Dental College is dedicated to best serve the nation through preservation and dissemination of advanced knowledge and educating the students by latest trends in learning and research reaching levels pars excellence.

The Institution is committed to provide standardized quality medical education to its students by inculcating professional knowledge, skills and responsibilities in them with the aim of:

- Preparing them as modern physicians having initiative to act as future leaders in their respective fields and becoming lifelong learners.
- Encouraging the spirit of critical thinking through research and publication.
- Building up an understanding of the ethical values compatible with our religion, culture and social norms.
- Developing a sense of being responsible citizens of the society possessing professional competence and instilling in them the values of hard work and dedication thus preparing them to be accountable to the stakeholders and the state.

The Institution is devoted to keep abreast its faculty with the latest trends in Medical Education encompassing teaching/learning methodologies, assessment tools, research opportunities and professionalism to facilitate their professional development, competencies and commitment towards continues learning.

Our patient-centered mission is achieved by outstanding medical care & services in professional practice with due emphasis and focus on our local health needs.

Our mission further elaborate upon establishing academic and research facilities in areas of local demand under global gold standards and leading advancement in research, education & patient care.

VISION OF SMDC

To be recognized for the provision of a safe and functional environment conducive to collaborative teaching & learning, comfortable working atmosphere, and conducting world class research through professionalism and excellence.

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PLANNED TEACHING ACTIVITIES FOR 1ST YEAR BDS
DEPARTMENT OF ANATOMY

In the BDS course program, PMC has assigned 350 hours to the subject of Anatomy. To help students make the most of their day, these hours are distributed among numerous modes of information transfer. These MITs are intended to assist students to correlate normal anatomical structures to their clinical importance macroscopically, microscopically, and developmentally, since the study of anatomy is divided in sections of gross anatomy, histology, general anatomy, and embryology.

Lectures

The total number of hours allotted for lectures has been divided across the general anatomy, embryology, neuroanatomy and histology sections, totaling 72 hours. The Professor, Associate Professors, and Assistant Professors will deliver these lectures. The students are directed to take notes during the lectures and are encouraged to participate actively. The lecturer will list the objectives of the lecture at the start so that the students can know how to focus study from the recommended books.

Practical classes

The 1st year BDS class of 50 students is divided into 2 batches of 25 students each. Each batch has one practical class every week, focused on histology. The class is 2 hours long and the students are taught one component of normal human histology each week. The class is conducted by a demonstrator under the supervision of a senior instructor. The students are given an introduction about the tissue under study and are then instructed to observe the slides under a microscope. The attendance of the day is marked after a student correctly draws the slide on his/her practical notebook and gets it checked by the instructor.

Small-Group Discussions (SGDs)

SGDs are scheduled four times a week and consist of various activities such as dissection, demonstrations of dissected specimens and models, presentations, assignments, and classes of gross anatomy. These are conducted in 2 batches and each is assigned a demonstrator. All 2 batches are supervised by an Assistant Professor or Associate Professor. The students are directed to dissect cadavers and observe the dissected specimens to grasp the knowledge of the normal gross anatomy structures, bones, and radiology.

Self-directed learning

In the self-directed learning time, scheduled once a week, the students are divided into 2batches and allocated a classroom or library where they can catch up on assignments and ask for their teacher’s assistance if required. This encourages group study practices as well.

TRAINING PROGRAM FOR DEPARTMENT OF ANATOMY 1ST YEAR BDS CLASS

General Anatomy

Starting this undergraduate degree program, a medical student is thrust into a world of complex terminologies and concepts; general anatomy is taught from the beginning of the session to familiarize them with basic medical terms.

Schedule of General Anatomy Lectures 1st year BDS (Session 2020-2021)

Sr. No	Topic Lecture
1.	Brief History and Different Disciplines of Anatomy, Descriptive terms
2.	Body Organization, Skin
3.	Appendages of Skin
4.	Cartilage
5.	Cartilage
6.	Muscles – I
7.	Muscle – II
8.	Tendon, Bursae, Aponeurosis, Fascia, Ligaments
9.	Bones I - Classification
10.	Bones II – Parts of Bones & General Features
11.	Bones III - Blood Supply + Clinical Correlates
12.	Joint – I
13.	Joint – II
14.	Joint – III
15.	Nervous System – I
16.	Nervous System – II
17.	Autonomic Nervous System
18	Autonomic Nervous System
19.	Cardio Vascular System – I
20.	Cardio Vascular System – II
21.	Lymphatic System
22.	**Test**

Facilitator:

Dr. Waqas Iqbal Butt

Schedule of General Embryology Lectures 1st year BDS (Session 2020-2021)

Sr. No	Topic Lecture
1.	Cell Division – Mitosis, Meiosis
2.	Female Reproductive Cycle
3.	Embryological Terms + Gametogenesis
4.	Gametogenesis
5.	Fertilization
6.	Cleavage, Blastocyst + Implantation
7.	Bilaminar Germ Disc
8.	Gastrulation
9.	Allantois, Notocord
10.	Neurulation
11.	Somites
12.	Intraembryonic Coelom
13.	Chorionic Villi, Folding of Embryo
14.	Derivatives of 3 Germ Layers, Estimation of Fetal Age
15.	Placenta I
16.	Placenta II
17.	Placental Malformations
18.	Placental Circulation
19.	Fetal Membranes
20.	Multiple Pregnancies
21.	Perinatology
22.	Teratogenesis & Genetic Abnormalities
23.	**Test**

Facilitator:

Prof. Dr. Nausheen Raza

Dr. Nadia Ahmad

Schedule of Special Embryology Lectures BDS 1st Year (Session 2020-2021)

Sr. No	Lecture Topics
1.	Pharyngeal Arches, Pharyngeal pouches
2.	Thyroid gland, Thymus, Parathyroid
3.	Tongue & salivary glands
4.	Face
5.	Nasal cavities & Para nasal sinuses
6.	Palate
7.	Tooth, Congenital Anomalies
8.	Larynx, trachea
9.	Esophagus, Lungs
10.	Spinal cord
11.	CNS, Hind brain
12.	Mid brain
13.	Fore brain
14.	ANS,PNS
15.	Eye
16.	Ear
17.	Skull
18.	**Test Special Embryology**

Facilitator:

Dr. Ammara Ghafoor

Schedule of Histology Lectures BDS 1st Year (Session 2020-2021)

Sr. No	Lecture Topics
1.	Introduction, Cell
2.	Cell organelles
3.	Cell organelles
4.	Nucleus
5.	Epithelium-I
6.	Epithelium-II
7.	Glands
8.	Connective Tissue Proper –I
9.	Connective Tissue Proper –II
10.	Cartilage
11.	Bone
12.	Muscle-I
13.	Muscle-II
14.	Nervous Tissue-I
15.	Nervous Tissue-II
16.	Nervous System
17.	Circulatory system-I
18.	Circulatory system-II
19.	Lymphatics-I
20.	Lymphatics-II
21.	Lymphatics-III
22.	Respiratory system-I
23.	Respiratory system-II
24.	Integumentary system-I
25.	Integumentary system-II
26.	Gastrointestinal system
27.	Gastrointestinal system
28.	Endocrine System
29.	Endocrine System
30.	Special Senses
31.	**Test I** Cell & Epithelium, Gland
32.	**Test II** Nervous System, Connective Tissue Cartilage, Bone, Muscle
33.	**Test III** Skin, Mammary Gland, Circulatory & Lymphatic & Respiratory Systems
34.	**Test IV** GIT+ Endocrine+ Special senses

Facilitators:

Prof. Tasneem A. Raza, Dr. Ammara Ghafoor

Schedule of Neuroanatomy Lectures 1st Year BDS Classes (Session 2020-2021)

Sr. No	Topic Lecture
1.	Receptors, Effectors
2.	Nerve Fiber & Classification
3.	Typical Spinal Nerve, Reflex arc, Brain Barriers
4.	Spinal Cord I, Ascending tracts
5.	Spinal Cord I, Descending tracts
6.	Clinical Correlates Spinal Cord
7.	Special Sensory Pathways
8.	Autonomic nervous system
9.	Autonomic nervous system
10.	**Test**

Facilitators:

Dr. Waqas Iqbal Butt

Gross Anatomy

Head & Neck Teaching Schedule for 1st Year BDS (Session 2020-2021)

Sr. No	Topic
1.	Term of position and movements, Fascia
2.	Vessels, Muscles
3.	Nerves
4.	Bones & Joints
5.	Introduction to skull, Sex differences, Anatomical position, Norma verticalis, Norma occipitalis
6.	Norma lateralis
7.	Norma frontalis & Temporal Fossa, infratemporal fossa and name of contents
8.	Scalp and its blood, lymphatic & nerve supply
9.	Muscle of face, Eyelid
10.	Nerve supply, Blood supply & lymphatic drainage of face, Venous
11.	Parotid gland & its nerve supply
12.	Otic ganglion
13.	Common carotid & External carotid artery, Carotid Sheath
14.	Mandible
15.	**1st Substage (Viva)**
16.	Muscles of mastication & Mandibular nerve
17.	Temporomandibular joint
18.	Temporomandibular joint & Clinical correlates
19.	Cranial Cavity
20.	Cranial Cavity
21.	Pterygopalatine fossa and Ganglion
22.	Maxillary Artery & Nerve
23.	Meninges
24.	Dural venous sinuses, Subarachnoid Granulations, Subarachnoid cisterns, Emissary vein
25.	Hypophysiscerebri
26.	**2nd Substage (Written + OSPE)**
27.	Bony orbit & its content
28.	Eye ball, 2nd Cranial nerve
29.	Extraocular muscles
30.	Ophthalmic nerve & vessels
31.	3rd, 4th& 6th Cranial nerves
32.	Lacrimal apparatus, Ciliary ganglion
33.	Deep cervical fascia& its layers
34.	Sternocleidomastoid & triangles of neck
35.	Triangles of neck& II Cranial Nerve
36.	**3rd Substage (Viva)**
37.	Cervical vertebrae & their joints

38.	Hyoid bone, Supra & infrahyoid muscles
39.	Prevertebral muscles & Scalene muscles, vertebral artery
40.	Cervical plexus & Cervical Sympathetic Trunk
41.	Norma Basalis
42.	Norma Basalis
43.	Thyroid, Parathyroid gland, Thymus
44.	Subclavian artery and internal carotid artery
45.	Nasal cavity, Nasal septum
46.	1st Cranial Nerve, Paranasal sinuses
47.	Venous and lymphatic drainage of the neck
48.	Submandibular & sublingual gland
49.	Submandibular ganglion
50.	Oral cavity
51.	soft palate and its muscles
52.	**4thSubstage(Written + OSPE)**
53.	Pharynx
54.	Pharynx, 9th Cranial nerve and styloid apparatus
55.	Larynx
56.	Larynx
57.	Tongue& 10th,12th Cranial nerves
58.	External ear, Auditory tube, Tympanic membrane
59.	Middle ear
60.	Internal ear and 8th Cranial nerve
61.	7th Cranial nerve& its lesion
62.	**(OSPE)**
63.	**5thSubstage (Viva + OSPE)**
64.	Radiology, Surface Anatomy
65.	**Viva+ OSPE**
66.	**Written Stage**

Facilitator:

Batch A: Dr. Ummara Sabir

Batch B: Dr. Khadija Haroon

Brain Teaching Schedule for 1st Year BDS (Session 2020-2021)

Sr. No	Topic
1.	Introduction to Brain and Spinal Cord
2.	Spinal Cord ascending tracts
3.	Spinal Cord ascending tracts
4.	Spinal Cord descending tracts
5.	Spinal Cord descending tracts
6.	Blood supply of spinal cord
7.	Clinical correlates of Spinal cord
8.	Clinical correlates of spinal cord
9.	Medulla Oblongata+ Clinical Correlates
10.	Pons+ Clinical Correlates
11.	Midbrain+ Clinical Correlates
12.	Cranial nerve nuclei+ Cranial Nerve
13.	Cranial Nerve Nuclei+ Cranial Nerve
14.	Cranial Nerve Nuclei+ Cranial Nerve
15.	**Substage I –(Written)**
16.	Cerebellum
17.	Cerebellum
18.	Cerebrum gross features
19.	White matter of cerebrum
20.	Cortical areas & their relation to blood supply& Applied
21.	Cortical areas & their relation to blood supply& Applied
22.	Thalamus
23.	Metathalamus, Epithalamus, Subthalamus
24.	Hypothalamus
25.	Lateral Ventricle
26.	Third ventricle
27.	4th ventricle
28.	CSF& its circulation+ Blood Barriers
29.	Basal ganglia
30.	Internal Capsule
31.	Limbic system
32.	Blood supply of brain
33.	Reticular formation
34.	Clinical Correlates
35.	**Substage II- (Oral)**
36.	**Written Stage**
37.	**Viva**
38.	**OSPE**

Facilitator:

Batch A: Dr. Khadija Haroon

Batch B: Dr. Ummara Sabir

Histology Practicals Schedule for 1st Year BDS (Session 2020-2021)

Sr. No	Practicals
1.	Microscope
2.	Staining techniques
3.	Artifacts +Exfoliative cytology
4.	Cell shapes
5.	Epithelium-I
6.	Epithelium-II
7.	Glands
8.	Connective Tissue Proper –I
9.	Connective Tissue Proper –II
10.	Cartilage
11.	Bone
12.	Muscle
13.	Peripheral Nerve
14.	Ganglion
15.	Spinal cord
16.	Cerebrum+ Cerebellum
17.	Circulatory system
18.	Lypmh node
19.	Thymus+ Tonsil
20.	Spleen
21.	Epiglottis
22.	Trachea
23.	Skin
24.	Mammary Gland
25.	Lip, Tongue
26.	Esophagus
27.	Salivary Glands
28.	Pituitary Gland
29.	Thyroid & Parathyroid Gland
30.	Eye
31.	Eye
32.	Ear

Facilitators:

Dr. Ammara Ghafoor

LIST OF TOPICS IN THE SUBJECT OF ANATOMY AND THEIR LEARNING OBJECTIVES

General Anatomy

Topic	Learning Objectives Students should be able to:	MIT (Mode of information transfer)
Disciplines of Anatomy & Body organization	**Knowledge** ➢ Define general anatomical terms and sectional planes of human body. ➢ Conceptualize the general organization of human body.	**LGIS (Large group interactive session)**
Integumentary System & fascia	**Knowledge** ➢ Enumerate the components of integumentary system. ➢ Enlist the functions of integumentary system ➢ Enlist the two main parts of skin. Enumerate its layers with their general features. ➢ Enumerate appendages of skin. ➢ Define cleavage lines? Describe their clinical importance. ➢ Explain the clinical significance of discoloration of skin (jaundice, cyanosis and anemia). ➢ Explain the structure and function of superficial & deep fascia.	**LGIS (Large group interactive session)**
Skeletal System	**Knowledge** ➢ Classify the appendicular and axial skeletal system ➢ Describe general surface features of human bones. ➢ Explain the functions of bones ➢ Classify bones on the basis of shape & size, evolution, structure, development, region and miscellaneous parameters. ➢ Explain the phenomenon of ossification, bone growth and neurovascular supply. ➢ Describe the blood supply of bones. ➢ Correlate the aforementioned anatomical knowledge clinically to fractures & their healing, rickets, osteoporosis, scurvy, osteomalacia, sternal puncture and avascular necrosis. ➢ Classify cartilage with examples.	**LGIS (Large group interactive session)**

	➢ Classify joints mentioning features of each with examples. ➢ Discuss the characteristics, types and movement of synovial, cartilaginous and fibrous joints with relevant examples. ➢ Describe the factors responsible for the stability of joints. ➢ Explain the general principles of blood and nerve supply of joints. ➢ Correlate aforementioned anatomical knowledge to arthroscopy & clinical conditions such as arthritis, joint injuries, and synovitis.	
Muscles	**Knowledge** ➢ Classify muscles with appropriate examples from each region of the body. ➢ Describe parts and features of muscles in general. ➢ Describe general principles of blood and nerve supply of muscles. ➢ Define and explain the mechanism of sprain, spasm, trophic degeneration and regenerative changes. ➢ Explain the synovial structures related to muscles (tendon, sheaths, and bursae). ➢ Describe related fibrous structures of skeletal muscles (aponeurosis, tendon, raphae).	**LGIS (Large group interactive session)**
Nervous system	**Knowledge** ➢ Describe division of nervous system on gross anatomical basis. ➢ Enumerate components of central and peripheral nervous system. ➢ Define autonomic nervous system (ANS). ➢ Enlist the differences between autonomic and somatic nervous system. ➢ Enlist the main divisions of ANS. ➢ Enumerate cranial ganglia and parasympathetic ganglia. ➢ Define enteric nervous system. Describe its general features.	**LGIS (Large group interactive session)**
Circulatory System	**Knowledge** ➢ Discuss the general structural plan of blood vessels.	**LGIS (Large group interactive**

	➢ Classify blood vessels on anatomical and functional basis. ➢ Discuss general plan of systemic, pulmonary and coronary circulatory system. ➢ Discuss general plan of portal system with brief accounts of arterial and venous portal systems giving examples. ➢ Define anastomosis; describe various types of anastomosis with examples and their clinical significance. ➢ Describe blood supply of arteries and veins. ➢ Explain the importance of collateral circulation.	**session)**
Lymphatic System	**Knowledge** ➢ Discuss general plan of the lymphatic circulatory system of the body. ➢ Explain mechanism of formation & flow of lymph. ➢ Enumerate the factors responsible for flow of lymph. ➢ Discuss the structural plan of lymphatic vessels. ➢ Describe the structural plan of lymph nodes and their role in lymphatic system ➢ Enumerate the capsulated lymphoid organs.	**LGIS (Large group interactive session)**
Radiographic Techniques	**Knowledge** ➢ Understand the basic under lying principles of X-rays, CT scan, Ultrasound and MRI. ➢ Identify anatomical structures in normal radiographs of different regions of the body. ➢ Interpret displacement of the fracture segments of the bone and dislocation of various joints of the body in radiographs. ➢ Identify structures in normal images of different imaging techniques (CT scans, MRI and Ultra-sonography)	**LGIS (Large group interactive session)**

Embryology

Topic	**Learning Objectives** Students should be able to:	**MIT (Mode of information transfer)**
Mitosis & Meiosis	**Knowledge** ➢ Define Meiosis & differentiate first and second meiotic divisions. ➢ State the phases of meiotic divisions. ➢ Discuss the importance and result of meiosis	**LGIS (Large group interactive session)**

	in both sexes. ➢ Differentiate between mitosis and meiosis. ➢ Describe the structure abnormalities in chromosomes like Euploidy, Aneuploidy, Trisomy, Non-disjunction, Translation Correlate the structure abnormalities with clinical conditions like: Down's syndrome Klinefelter and Tuner syndromes.	
Gametogenesis	**Knowledge** ➢ Describe the events of spermatogenesis. ➢ Describe the morphological changes during maturation of the gametes. ➢ Enlist the differences between spermiogenesis and spermatogenesis. Define the ovarian cycle. ➢ Describe the stages of follicular maturation. ➢ Explain the hormonal control (FSH, LH) of ovarian cycle. ➢ Discuss the transport of ovum from the surface of ovary to ampulla of fallopian tube.	**LGIS (Large group interactive session)**
Ovulation & Implantation	**Knowledge** ➢ Describe the process of fertilization. ➢ Describe the results of fertilization. ➢ Enumerate the changes that occur in spermatozoa before fertilization. ➢ Correlate the transport of zygote from ampulla of fallopian tube to the uterine cavity. ➢ Discuss cleavage & explain the formation of blastocyst.	**LGIS (Large group interactive session)**
1st week of development	**Knowledge** ➢ Explain the formation of outer and inner cell masses. ➢ Discuss the further development of outer cell mass (trophoblast). ➢ Differentiate syncytiotrophoblast and cytotrophoblast with its microscopic appearance. ➢ Describe the process of implantation (day wise change).	**LGIS (Large group interactive session)**
2nd week of development	**Knowledge** ➢ State the differentiation of embryonic pole and development of bilaminar germ disc with	**LGIS (Large group interactive session)**

	formation of Epiblast and hypoblast, their cavities (amniotic cavity and primary yolk sac). ➢ Discuss the development of the chorionic sac and formation of primary chorionic villi and growth of syncytiotrophoblast. ➢ Explain the establishment of utero placental circulation.	
3rd week of development	**Knowledge** ➢ Define gastrulation. ➢ Discuss the development of primitive streak and related congenital anomalies). ➢ Describe the development of notochordal process, notochord canal, prechordal plate and cloacal membrane. ➢ Define Neurulation List the steps of development of neural tube. ➢ Enumerate the derivatives of Neural Crest Cells. ➢ State the congenital anomalies resulting from abnormal neurulation. ➢ Enlist the derivatives of three germ layers. ➢ Explain the embryological basis of the neural tube defects like anencephaly and spina bifida ➢ Define Somites.	**LGIS (Large group interactive session)**
Embryonic period (3rd to 8th week)	**Knowledge** ➢ Describe the development of intraembryonic coelom. ➢ Describe the folding of the embryo in the longitudinal & horizontal plane. ➢ Describe relocation of connecting stalk to the anterior abdominal wall and its differentiation into umbilical cord. ➢ Describe the process of formation of blood and blood vessels and differentiate between angiogenesis and vasculogenesis. ➢ Define hemangioma and explain its embryological basis.	**LGIS (Large group interactive session)**
Fetal Period (third month to birth)	**Knowledge** ➢ Define fetal period. ➢ Enumerate various methods to estimate fetal age.	**LGIS (Large group interactive session)**

	➢ Describe factors affecting fetal growth. ➢ Enlist the external body landmarks from third month to birth. ➢ Define intrauterine growth retardation.	
Placenta & Fetal membranes	**Knowledge** ➢ Enlist types of chorion and give fate of each. ➢ Enlist types of decidua and give fate of each. ➢ Enumerate the fetal and maternal components of placenta. ➢ Differentiate between stem, anchoring and terminal villi. ➢ Enumerate the layers forming placental barrier. ➢ Describe placental circulation (maternal and fetal) & enumerate functions of the placenta. ➢ Enlist the features of maternal and fetal surfaces of placenta. ➢ List fetal membranes and their functions. ➢ Describe production, circulation and significance of the amniotic fluid. ➢ Describe the development of umbilical cord. ➢ Define preeclampsia and correlate it with trophoblastic differentiation. ➢ Describe the embryological basis of amniotic bands, umbilical cord defects, erythroblastosis fetalis and hydrops fetalis. ➢ Define poly and oligohydramnios.	**LGIS (Large group interactive session)**
Twinning	**Knowledge** ➢ Name two basic types of twins & describe the mechanism behind occurrence of dizygotic & monozygotic twins. ➢ Discuss the possible arrangements of fetal membranes in case of monozygotic twins. ➢ Discuss twin transfusion syndrome and conjoined twins.	**LGIS (Large group interactive session)**
Birth defects	**Knowledge** ➢ Enumerate types of birth abnormalities. ➢ Summarize principles of teratology. ➢ Enlist numerical & structural chromosomal abnormalities. ➢ Discuss the following numerical chromosomal abnormalities: ➢ Trisomy 21, Trisomy 18, Trisomy 13,	**LGIS (Large group interactive session)**

	Klinefelter syndrome and Turner syndrome. ➢ Discuss the following structural chromosomal abnormalities: Cri-du-chat syndrome Angel man's syndrome Prader-willi syndrome Miler-dieker syndrome. ➢ Define mosaicism& discuss its embryological basis.	
Development of pharyngeal apparatus	**Knowledge** ➢ Enumerate the components of pharyngeal apparatus and list derivatives of each (arch, cleft, pouch and membrane). ➢ Describe the development of tongue, thyroid gland and thymus. ➢ Describe the development of face, Nasal cavity and palate. ➢ Discuss different congenital malformation related to the development of aforementioned.	**LGIS (Large group interactive session)**
Development of nervous system	**Knowledge** ➢ Enumerate the brain vesicles& describe their development and enlist their derivatives. ➢ Describe the development of spinal cord. ➢ Enumerate the derivatives of neural crest cells. ➢ Discuss the development of autonomic nervous system. ➢ Discuss the congenital malformations of the nervous system.	**LGIS (Large group interactive session)**
Development of Ear	**Knowledge** ➢ Explain the development of external, middle and internal ear. ➢ Describe the congenital abnormalities of each.	**LGIS (Large group interactive session)**
Development of Eye	**Knowledge** ➢ Describe the development of lacrimal apparatus, eyeball and optic nerve. Discuss the congenital abnormalities related to eyeball.	**LGIS (Large group interactive session)**
Development of Tooth	**Knowledge** ➢ Describe the developmental stages of tooth and discuss its various anomalies.	**LGIS (Large group interactive session)**

Histology

Topic	Learning Objectives Students should be able to:	MIT (Mode of information transfer)
Cell (introduction, staining, cytoskeleton, cell junctions)	**Knowledge** ➢ Discuss the working & magnification of Light Microscope. ➢ Describe the steps involved in tissue processing. ➢ Define cell, identify various types of cells and shapes. Define Cytoskeleton. ➢ Enumerate the cell junctions and describe their histological structure. **Skill** ➢ Identify and draw the different parts of microscope and illustrate their usage. ➢ Focus the prepared slide at different magnifications. ➢ Identify the different shapes of cells and their examples. ➢ Draw & label the diagram of different types of shapes of cells.	**LGIS(Large group interactive session)** **LAB**
Surface & glandular epithelium	**Knowledge** ➢ Classify the body tissue into categories. ➢ Define & classify various types of Epithelium. ➢ Discuss general features of epithelial cells (basal, apical and lateral surfaces). ➢ Explain the different types of epithelium with examples. ➢ Describe glandular epithelium. ➢ Differentiate the structure of serous and mucus secreting cells. **Skill** ➢ Identify the different types of Epithelia. ➢ Draw a labeled diagram of different types of simple and stratified epithelia. ➢ Draw a labeled diagram of different types of glandular epithelia.	**LGIS(Large group interactive session)** **LAB**
Connective Tissue (General)	**Knowledge** ➢ Explain the components of connective tissue. ➢ Describe different types of cells in connective tissue. ➢ Describe different types of fibers in connective tissue.	**LGIS(Large group interactive session)** **LAB**

	➢ Discuss various constituents of ground substance. ➢ Classify various types of connective tissue. **Skill** ➢ Identify the microscopic structure of loose connective tissue, dense regular and irregular connective tissue. ➢ Draw a labeled diagram showing the microscopic structure of loose connective tissue, dense regular and irregular connective tissue.	
Bone	**Knowledge** ➢ Describe microscopic features of bones and types of ossification. ➢ Enlist the location of different types of bones. ➢ Describe the various types of bone cells. **Skill** ➢ Identify different types of bone microscopically. ➢ Draw a labeled diagram showing the histological structure of compact & spongy bone	**LGIS(Large group interactive session)** **LAB**
Cartilage	**Knowledge** ➢ Describe microscopic features of various types of cartilage. ➢ Explain chondrocyte. **Skill** ➢ Identify different types of cartilage microscopically. ➢ Draw a labeled diagram showing the histological structure of different types of cartilage.	**LGIS(Large group interactive session)** **LAB**
Muscle	**Knowledge** ➢ Describe the microscopic features of skeletal, smooth and cardiac muscle. ➢ Describe the differences between various types of muscles. **Skill** ➢ Identify the different types of muscle microscopically. ➢ Draw a labeled histological diagram of different types of muscles.	**LGIS(Large group interactive session)** **LAB**
Circulatory System	**Knowledge** ➢ Discuss the general structural plan of blood vessels. ➢ Describe and compare the histological structure	**LGIS(Large group interactive session)**

	of: • Elastic artery • Muscular artery • Arteriole • Different types of Capillaries • Venule • Medium sized vein • Large vein **Skill** ➢ Identify elastic artery, muscular artery and large vein under light microscope. ➢ Draw labeled diagram of various blood vessels.	**LAB**
Immune System	**Knowledge** ➢ Enumerate the cells of immune system. ➢ Describe the structure of primary and secondary lymph nodule. ➢ Describe the histological features of: Lymph node Thymus Spleen Tonsil. **Skill** ➢ Identify slides of lymph node, thymus, spleen and palatine tonsils under light microscope. ➢ Draw labeled diagram of lymph node, thymus, spleen and palatine tonsils.	**LGIS(Large group interactive session)** **LAB**
Respiratory system	**Knowledge** ➢ Enlist the main divisions of respiratory passage along with the structures constituting each. ➢ Define respiratory and olfactory epithelium. ➢ Describe the histological structure of the following with the help of diagram: • Paranasal air sinuses • Nasopharynx • Larynx • Trachea • Lungs • Pleura ➢ Differentiate various parts of bronchial tree on the basis of lining epithelium, presence of cilia, glands, cartilage, smooth muscles, and elastic fibers. **Skill** ➢ Identify slides of epiglottis, larynx, trachea & lungs under light microscope. ➢ Draw labeled diagram of epiglottis, larynx,	**LGIS(Large group interactive session)** **LAB**

	trachea & lungs.	
Integumentary System	**Knowledge** ➢ Explain the histological structure of skin. ➢ Explain the functions of skin. ➢ Differentiate between thick & thin skin. ➢ Describe the structure of mammary gland. **Skill** ➢ Identify slides of thick & thin skin and mammary gland under light microscope. ➢ Draw labeled diagram of thick & thin skin and mammary gland under light microscope.	**LGIS(Large group interactive session)** **LAB**
Nervous System	**Knowledge** ➢ Describe the structure of neuron & glial cells. ➢ Explain the various types of synapses. ➢ Explain the structure of peripheral nerve. ➢ Explain the types of ganglia. ➢ Explain the histological structure of spinal cord, cerebellum and cerebrum and correlate it to the functions. **Skill** ➢ Identify peripheral nerve, ganglia, spinal cord, cerebral & cerebellar cortex microscopically. ➢ Draw a labeled diagram showing the histological structure of peripheral nerve, ganglia, spinal cord, cerebral & cerebellar cortex.	**LGIS(Large group interactive session)** **LAB**
Digestive System	**Knowledge** ➢ Define the epithelium lining the oral cavity, tongue, gums, hard and soft palate, pharynx and lips ➢ Discuss the histological structure of tongue and esophagus. Explain the transition in epithelial lining relative to their functions. ➢ Describe the histological structure of salivary glands in the light of their functionality. **Skill** ➢ Identify, draw and label light microscopic diagram of lip, tongue, esophagus and salivary glands.	**LGIS(Large group interactive session)** **LAB**
Endocrine System	**Knowledge** ➢ Describe the histological structure and functions of Pituitary, Thyroid and Parathyroid gland. **Skill**	**LGIS(Large group interactive session)**

	➢ Identify, draw and label light microscopic diagram of pituitary gland, thyroid & parathyroid glands.	**LAB**
Eye and Ear	**Knowledge** ➢ Describe the histological structure of various layers of eyeball with emphasis on cornea and retina and give their functions related to their structure. Describe the histological structure of external, middle and internal ear in detail; correlate their functions to the structure. **Skill** ➢ Identify, draw and label light microscopic diagram of eyelid, cornea & retina. ➢ Identify, draw and label light microscopic diagram of pinna.	**LGIS(Large group interactive session)** **LAB**

Head & Neck

Topic	**Learning Objectives** Students should be able to:	**MIT (Mode of information transfer)**
Skull **Norma verticalis, frontalis, lateralis, occipitalis, basalis** **Cranial Cavity**	**Knowledge** ➢ Describe the bones forming the anterior, superior, lateral, posterior and basal view of skull on the given bone. ➢ Describe the bones forming the boundaries of orbit, nasal cavity and oral cavity and mark their boundaries. ➢ Describe the bones forming the cranial cavity. **Skill** ➢ Mark the main anatomical landmarks on norma occipitalis, verticals, lateralis, frontalis & basalis. ➢ Identify the boundaries of temporal, infratemporal fossa and pterygopalatine fossa on the given bone. ➢ Identify the boundaries of anterior, middle & posterior cranial fossa and structures passing through various foramina.	**SGD(Small group discussion)/ Demo**
Scalp	**Knowledge** ➢ Describe layers of scalp.	**SGD/ Demo**

	➢ Describe the course of arteries, veins and nerves supplying the scalp with the help of model. ➢ Describe the danger area of the scalp. **Skill** ➢ Identify the course of arteries, veins and nerves supplying the scalp with the help of model & specimen.	
Face	**Knowledge** ➢ Describe the anatomy of muscles of face along with their nerve supply with the help of models. • Describe the course of arteries, veins and nerves supplying the face with the help of model. • Describe the features of facial infections and cavernous sinus thrombosis. **Skill** ➢ Identify the course of arteries, veins and nerves supplying the face with the help of model & specimen.	**SGD/ Demo**
Trigeminal nerve **Facial nerve**	➢ Trace the pathway of trigeminal nerve from nucleus to target organs • Enumerate the divisions of trigeminal nerve • Describe the features of trigeminal neuralgia ➢ Describe the pathway of mandibular nerve from nucleus to target organs • Describe the pathway of maxillary nerve from nucleus to target organs • Describe the lesions of nerves with special reference to infections of molar teeth ➢ Describe the course of facial nerve in face • Enumerate its branches • Discuss the involvement of nuclei of facial nerve in bell palsy • Differentiate between upper and lower motor neuron lesions	**SGD/ Demo**
Salivary gland	**Knowledge** ➢ Enumerate salivary glands • Describe the locations of major salivary glands	**SGD/ Demo**

	Skill • Trace the secretomotor nerve supply of major salivary glands • Describe the structures involved in parotid infections	
Temporomandibular joint	**Knowledge** • Name the ligaments of TMJ. • Describe the movements of jaw at TMJ with special reference to axis and muscles producing them. • Describe the clinical signs of anterior dislocation of TMJ and explain the steps of its reduction. **Skill** • Identify the type of TMJ. • Identify the articular surfaces of TMJ on a given model or dry bones.	**SGD/ Demo**
Infratemporal region	**Knowledge** • Enlist the structures forming various boundaries of infratemporal fossa. • Enlist the communications of infratemporal fossa and the structures traversing each. • Enumerate the contents of infratemporal fossa. Discuss the relationships of various contents of infratemporal fossa. • Discuss the attachments, actions and nerve supply of muscles of mastication. **Skill** • Identify the location of infratemporal fossa on a given model and skull.	**SGD/ Demo**
Deep cervical fascia	**Knowledge** ➢ Enumerate the layers of deep cervical fascia. • Describe the attachments of investing, pretracheal, and prevertebral layers of fascia. • Describe the modification of prevertebral layer into axillary sheath. • Describe the formation of carotid sheath and its contents. ➢ Describe the spaces within fascia. • Describe the clinical significance of	**SGD/ Demo**

	retropharyngeal space. • Describe the relation of layers of fascia and spread of infection. • Describe the significance of merging of carotid sheath with pretracheal layer of fascia to prevent spread of infections.	
Neck:	**Knowledge** ➢ Describe the muscles of neck along with their nerve supply with the help of models. • Describe the features of torticollis. ➢ Enumerate triangles of neck. • Describe the muscles forming the boundaries of triangles. • Describe the contents of triangles and their importance. • Describe the lesions of the spinal accessory nerve in posterior triangle. ➢ Enumerate the main vessels in neck & describe the course and branches of main vessels of neck. ➢ Describe the importance of monitoring jugular venous pulse in heart diseases. • Enumerate causes of prominence of external jugular vein. **Skill** ➢ Trace the course of glossopharyngeal nerve, vagus nerve, accessory nerve and hypoglossal nerve on the given model, from nucleus to target organs. ➢ Enumerate branches of each of the above nerve	**SGD/ Demo**
Oral cavity	**Knowledge** ➢ Enumerate the vessels and verves supplying the oral cavity. ➢ Discuss clinical correlations of oral cavity. Identify structures forming the boundaries of oral cavity. Identify structures in the floor of oral cavity with the help of models. **Skill** ➢ Identify the structures forming the boundaries of oral vestibule.	**SGD/ Demo**
Palate	**Knowledge**	**SGD/ Demo**

	➢ Enumerate muscles of soft palate on the model ➢ Enumerate blood supply and nerve supply of soft palate. **Skill** ➢ Identify the main features of hard palate and soft palate. ➢ Identify the main muscles forming the palatoglossal and palatopharyngeal arches	
Tongue	**Knowledge** ➢ Describe the gross features of parts of tongue. ➢ Describe the blood supply, nerve supply, lymphatic drainage of tongue. ➢ Describe the movements of tongue.	**SGD/ Demo**
Pharynx	**Knowledge** ➢ Describe the following parts of pharynx on the given model. • Oropharynx • Nasopharynx • Laryngopharynx ➢ Describe muscles of pharynx. ➢ Describe lymphoid tissue in the pharynx. ➢ Describe the importance of structures passing through the spaces between muscles of pharynx while performing tonsillectomy. ➢ Describe spread of infections from nasopharynx to middle ear. ➢ Enumerate the main nerves in neck. **Skill** ➢ Trace the course of glossopharyngeal nerve, vagus nerve, accessory nerve and hypoglossal nerve on the given model, from nucleus to target organs. ➢ Enumerate branches of each of the above nerve.	**SGD/ Demo**
Lymphatic drainage of Head & Neck	**Knowledge** ➢ Enumerate the groups of lymph of nodes draining the neck. ➢ Describe their location and areas of drainage. ➢ Describe the formation of jugular lymph	**SGD/ Demo**

	trunk. ➢ Describe the clinical importance of lymphatic drainage of head and neck.	
Larynx	**Knowledge** ➢ Explain the gross features of inlet of larynx, piriformfossa, laryngeal folds, cavity of larynx. ➢ Correlate the laryngeal anatomy to foreign bodies aspiration. ➢ Explain the gross features of intrinsic muscles of larynx, extrinsic muscles of larynx, movements of vocal folds. ➢ Describe the cartilage involvement in fractures of the laryngeal skeleton. **Skill** ➢ Identify the gross features of • cartilages of larynx • membranes of larynx • Trace the course of following nerves of larynx • Internal laryngeal nerve • External laryngeal nerve • Inferior laryngeal nerve	**SGD/ Demo**
Ear **Vestibulo-cochlear nerve**	**Knowledge** ➢ Describe the gross anatomical features of external ear Auricle External auditory meatus. ➢ Describe the blood supply, nerve supply and lymphatic drainage of external ear. ➢ Correlate the significance of straightening the auditory canal during clinical examination with the anatomical structure of canal. ➢ Describe the gross anatomical features of middle ear. ➢ Describe the structures forming the walls of middle ear cavity on the given model. ➢ Describe the contents of middle ear cavity **Skill** ➢ Identify the parts of ear ossicles on the given model **Knowledge** ➢ Describe the muscles present in middle ear	**SGD/ Demo**

	cavity ➢ Describe the gross features of auditory tube ➢ Describe the nerve supply of auditory tube ➢ Discuss the clinical coorelates related with ear **Skill** ➢ Identify the parts of bony labyrinth on the given model ➢ Identify the parts of membranous labyrinth on the given model ➢ Identify the parts of cochlea of semi-circular canal on the given model. **Knowledge** ➢ Describe the gross features of bony labyrinth ➢ Describe the gross features of membranous labyrinth. ➢ Describe the orientation of semicircular canals and ducts within the inner ear. ➢ Describe the gross features of internal acoustic meatus. ➢ Describe anatomical structures involved in perforation of tympanic membrane. ➢ Discuss the consequences of damage to vestibulocochlear nerve. **Skill** ➢ Trace the course of vestibulocochlear nerve in the inner ear on the given model. ➢ Identify the area of supply of vestibular nerve on the given model. ➢ Identify the area of supply of cochlear nerve. ➢ Identify the gross features of vestibulocochlear ganglion on model.	
Orbit **Extraoccular muscles** **Occulomotor, Trochlear &Abducent nerves**	**Knowledge** ➢ Describe the bony orbit ➢ Enlist the structures present in the orbit. ➢ Describe gross features of eye lids. ➢ Describe the attachment of muscles of eyelid. ➢ Describe the attachment of orbital septum. ➢ Describe the distribution of Blood Vessels	**SGD/ Demo**

	and Lymph Vessels of the Orbit. ➢ Describe the anatomical structures involved Inflammation of the Palpebral Glands. ➢ Describe the extraocular muscles of eye. ➢ Describe the movements of eyeball. ➢ Correlate the anatomical lesions in nuclei of nerve supplying the extraocular muscles with the loss of function in muscles. ➢ Describe the origin course and distribution of occulomotor, trochlear and abducent nerves.	
Lacrimal apparatus	**Knowledge** ➢ Enumerate the structures forming lacrimal apparatus. ➢ Describe the gross features of each part of lacrimal apparatus. ➢ Describe the nerve supply of lacrimal apparatus. ➢ Discuss its clinical applied.	**SGD/ Demo**
Eyeball **Optic nerve**	**Knowledge** ➢ Describe the coats and parts of eyeball and discuss the blood supply and verve supply of eyeball. ➢ Describe the formation of olfactory bulb and optic tract. **Skill** ➢ Trace the pathway of optic nerve from nucleus to target organs.	**SGD/ Demo**
Nose **Olfactory nerve**	**Knowledge** ➢ Describe the structure of external nose and nasal cavity. ➢ Describe the concha and meatus in the lateral wall. ➢ Enumerate the sinuses opening in them. ➢ Discuss anatomical structures involved in nasal fractures. ➢ Correlate the anatomical structure of nasal mucosa with clinical manifestations of rhinitis. **Skill** ➢ Trace the pathway of Olfactory nerve form nucleus to target organs on a model.	**SGD/ Demo**

Paranasal sinuses	**Knowledge** ➢ Describe the gross features of paranasal sinuses. ➢ Describe infections of sinuses. ➢ Describe the Drainage of mucus in relation to sinusitis. ➢ Describe the Function of Paranasal Sinuses. ➢ Discuss the anatomical structures involved in sinusitis with special reference to clinical consequences of infections of the ethmoidal cells of the ethmoidal sinuses.	**SGD/ Demo**
Cranial nerves	**Knowledge** ➢ Discuss the intracranial and extra cranial course of all cranial nerves. ➢ Discuss clinical correlations and examination of all cranial nerves.	**SGD/ Demo**
Imaging of Head & Neck	**Skill** ➢ Identify the bones forming skeleton of head on radiograph. ➢ Identify boundaries of orbit &paranasal sinuses on radiograph.	**SGD/ Demo**
Surface Marking	**Skill** ➢ Mark the main vessels of head & neck on the given subject.	**SGD/ Demo**

Brain & Neuroanatomy

Topic	**Learning Objectives** Students should be able to:	**MIT (Mode of information transfer)**
Introduction to Nervous System	**Knowledge** ➢ Describe the divisions of the nervous system and their components and briefly describe how they function. ➢ Enumerate structures within spinal and cranial cavities ➢ Define ventricles and CSF. ➢ Define coverings of brain and spinal cord.	**SGD(Small group discussion)/ Demo**
Meninges & venous sinuses of Brain	**Knowledge** ➢ Identify meninges of brain on the given model ➢ Describe the dural reflections with special emphasis on tentorium cerebelli and falx cerebri. ➢ Explain the features of spaces within meninges.	**SGD/ Demo**

	➢ Define Meningitis. ➢ Explain the structures encountered during lumbar puncture ➢ Enumerate the nerves and blood vessels supplying the meninges. ➢ Describe the attachments of meninges with the help of dissection. ➢ Demonstrate the supratentorial and infratentorial compartments of tentorium cerebelli with the help of dissection. ➢ Describe the extradural and subdural hematoma. ➢ Explain the attachments of dural venous sinuses of brain with the help of diagrams. ➢ Describe the important relations with the help of diagrams. ➢ Discuss the importance of facial vein connection with dural venous sinuses.	
Structure of spinal cord, ascending & descending tracts of spinal cord	**Knowledge** ➢ Describe the structure of spinal cord. ➢ Describe the structure of gray matter and white matter in spinal cord. ➢ Enumerate the major ascending and descending tracts of spinal cords. Describe the pathways for superficial and deep sensations. ➢ Describe the effects of lesions of section of spinal cord. ➢ Outline the pathways of voluntary movements. ➢ Describe the location of first, second and third order neurons.	**SGD/ Demo**
Structure of Brainstem	**Knowledge** ➢ Describe gross features of medulla on a given model. ➢ Describe the internal structure of medulla with the help of different cross sections. ➢ Correlate the significance of raised pressure in posterior cranial fossa to its effects on medulla oblongata. ➢ Discuss nuclei of cranial nerves present in medulla. ➢ Describe clinical correlations of medulla. ➢ Explain the internal structure of Pons with cross sections at different levels. ➢ Discuss nuclei of cranial nerves lying in pons. ➢ Discuss the anatomical structures involved in Pontine hemorrhage.	**SGD/ Demo**

	➢ Describe the internal structure of midbrain with cross sections at different levels. ➢ Discuss nuclei of cranial nerves lying in midbrain. ➢ Enumerate the clinical consequences of trauma to midbrain. **Skill** ➢ Identify the gross features of medulla, pons & midbrain on a given model & specimen.	
Cerebellum	**Knowledge** ➢ Describe the gross features of cerebellum on the given model. ➢ Explain the cerebellar nuclei and their connection with other parts of brain. afferent fibers and efferent fibers. ➢ Discuss the effect of lesions of cerebellum on voluntary movements.	**SGD/ Demo**
Cerebrum	**Knowledge** ➢ Correlate the anatomical lesions of nuclei of thalamus and hypothalamus with the clinical conditions like diabetes inspidus and obesity. ➢ Describe the features of telencephalon & diencephalon parts of following on a given model. **Skill** ➢ Identify the gross features of thalamus & hypothalamus.	**SGD/ Demo**
Reticular formation & limbic system	**Knowledge** ➢ Discuss reticular formation and its afferent and efferent projections. ➢ Describe functions of reticular formation. ➢ Discuss components of limbic system. ➢ Discuss connecting pathways of the limbic system. ➢ Discuss afferent and efferent pathways of hippocampus. ➢ Discuss clinical correlations of reticular formation and limbic system.	**SGD/ Demo**
Basal nuclei	**Knowledge** ➢ Discuss corpus striatum and its nuclei. ➢ Discuss their connections, direct and indirect pathway. ➢ Discuss clinical correlations of basal nuclei. ➢ Discuss parkinsonism in detail.	**SGD/ Demo**
Cerbrum	**Knowledge** ➢ Describe the gross features of the lobes of cerebrum.	**SGD/ Demo**

	➢ Explain the phenomenon of cerebral dominance. ➢ Discuss clinical correlations of cerebral cortex. ➢ Discuss the effects of lesions in the Motor cortex on voluntary movements and speech. ➢ Discuss the effect of lesion in the Frontal eye field in relation to personality change. Classify the cerebral fibers of according to their connections. ➢ Describe the fibers present in the brain. ➢ Explain the effects of lesions of different parts of internal capsule. **Skill** ➢ Identify the main sulci and gyri of cerebral hemispheres on the given model. ➢ Identify the location of major sensory and motor areas within specific lobes with the help of dissection. ➢ Identify the major sensory and motor areas of cortex with the help of dissection.	
Blood supply of brainstem, spinal cord & cerebrum	**Knowledge** ➢ Describe the blood supply of different parts of brain. ➢ Explain the formation and importance of circle of Willis with diagram. ➢ Describe the blood supply of different parts of cerebrum.	**SGD/ Demo**
Imaging of CNS	**Knowledge& Skill** ➢ Describe the appearance of different parts of brain in ➢ Normal radiographs ➢ MRI ➢ CT scan	**SGD/ Demo**
Ventricles of brain	**Knowledge** ➢ Enumerate ventricles of brain. ➢ Describe the relations and boundaries of each ventricle. ➢ Describe the formation of choroid plexus. ➢ Explain the process of production and absorption of CSF by arachnoid villi. ➢ Explain the causes of overproduction and blockage of CSF. ➢ Enumerate the varieties of hydrocephalus.	**SGD/ Demo**

ASSESSMENT PLAN 1ST YEAR BDS ANATOMY DEPARTMENT SMDC, LAHORE

Following modes of assessment are planned for 1st year BDS class in the subject of Anatomy. This plan has been designed keeping in view the university curriculum and hopefully will facilitate the students in preparing for 1st professional examinations in the subject.

Component Tests:
These will be conducted at the completion of every Component (General Anatomy/Embryology/Histology). The test will comprise of MCQs and SEQs on the pattern of university examinations.

Gross Anatomy Region Tests:
Gross Anatomy Regions are subdivided into substages followed by a final stage. The substages and stage will comprise of MCQs, SEQs, OSPE & Viva on the pattern of university examinations.

Practical OSPE Tests:
In order to prepare the students for practical examinations at least two OSPE tests will be conducted on the pattern of university examinations.

Pre-annual Exam:
This will be undertaken in coordination with other departments, exactly following the format of university professional examinations. It will comprise of MCQs, SEQs, OSPE and Viva voce.

Internal Assessment:
Internal assessment will be calculated out of 20 on the basis of all the tests that will be conducted throughout the year.

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PRESCRIBED TEXT BOOKS & REFERENCES

RECOMMENDED BOOKS (Latest Edition):

1. General Anatomy by Prof. Tassaduq Hussain Sheikh
2. Medical Histology by Prof. Laiq Hussain Siddiqui
3. Cunningham's Clinical Dissector
4. Di-Fiore Atlas of Histology
5. Clinically Oriented Embryology by Keith L Moore
6. Clinically Oriented Anatomy by Keith Moore.
7. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 15th Ed., Vol-I, II.

REFERENCE BOOKS

1. Clinical Anatomy by Snell.
2. Grant's Dissector of Anatomy.
3. Wheater's Functional Histology
4. Basic histology by Junqueira and Carniero
5. Grant's Atlas of Anatomy