



DENTAL COLLEGE HITEC-IMS
Study Guide 1 - B2 - D26
Block-II
First Year BDS
Coordinator: Dr. Ayesha Zafar

NUMS Vision

The vision of the National University of Medical Sciences is to improve the quality of life through education, research, innovation, and healthcare, thereby contributing to endeavors to make Pakistan and this world a better place to live in.

Institutional Vision

Leading advancement in Oral & Dental health through excellence
in education, patient care and research

Institutional Mission

To serve the local and global communities by producing competent, ethical, socially responsible, research oriented and lifelong learning oral health care professionals



PROGRAM OUTCOMES

Code	Outcome Statement (Graduate will be able to...)	Keywords
PO1	Manage common oral diseases using safe and evidence-based practices.	Diagnosis · Treatment · Safety
PO2	Identify patients requiring referral for specialized oral and dental treatment.	Triage · Scope of Practice · Networks
PO3	Advocate preventive measures against common oral and dental disease.	Prevention · Risk Reduction · Health Promotion
PO4	Demonstrate professional, ethical, and culturally appropriate behavior.	Ethics · Altruism · Cultural Sensitivity
PO5	Engage in lifelong learning for continuous professional development.	CPD · Reflective Practice · Growth
PO6	Demonstrate effective verbal and written communication skills.	Counselling · Documentation · Clarity
PO7	Demonstrate basic skills to conduct research on common oral and dental issues.	Research Literacy · Audit · Inquiry
PO8	Work in healthcare teams and provide leadership when required.	Teamwork · Leadership · Collaboration



Curricular organization of the BDS program

BDS Year 1 (Integrated)	BDS Year 2 (Integrated)	BDS Year 3	BDS Year 4
SUBJECTS			
Anatomy Physiology Biochemistry Oral Biology	Community Dentistry Dental Materials General Pathology Pharmacology Preclinical Operative Dentistry Preclinical Prosthodontics	General Surgery General Medicine Periodontology Oral Medicine Oral Pathology Oral & Maxillofacial Surgery Operative dentistry Prosthodontics	Operative Dentistry & Endodontics Pediatric Dentistry Prosthodontics Oral & Maxillofacial Surgery Orthodontics
Pakistan Studies and Islamiat Fahimul Quran			
Clinical Photography Videography, Expository Writing	EOTO ICT		
LONGITUDINAL THREADS			
Behavioral Sciences			
Research/ICT			

Introduction to the Study Guide:

Dear Students,

This study guide has been developed and updated by the faculty and the Department of Medical & Dental Education SCD especially for you. This booklet is an aid to:

- Inform you about this part of curriculum and its organization.
- Help you organize and manage your studies throughout the module.
- Guide you on assessment methods, rules and regulations.
- Communicate information on management of the module. This will help you to contact the right person in case of any difficulty.
- Define the objectives which are expected to be achieved at the end of the module.
- Identify the learning strategies such as lectures, small group discussions, clinical skills, demonstrations, tutorials and case-based learning activities that will be implemented to achieve the module objectives.
- Provide a list of learning resources such as books, and journals for students to consult in order to maximize their learning.

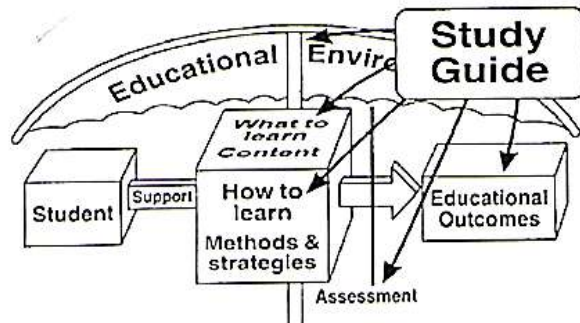


Figure 1. Objectives of the study Guide (HARDEN, J.M. LAIDLAW, E.A. HESKETH, 1999)



BLOCK COMMITTEE



Block-II

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Blocks Organization BDS Year 1

SPIRAL - I

Theme: Basis of Medicine I									
Blocks	BLOCK-I 11+1= 12 weeks			BLOCK-II 12+1= 13 weeks			BLOCK-III 10+1= 11 weeks		
Duration	02 weeks	06 weeks	03 weeks	05 weeks	02 weeks	05 weeks	06 weeks	02 weeks	02 weeks
Modules	Foundation I	Cell Structure & Function	Respiratory System	CVS	Endocrinology	Craniofacial	Neuroscience	Digestive system & Metabolism	Renal system

SPIRAL II

Oral Biology										
Blocks	BLOCK-I 11+1= 12 weeks				BLOCK-II (12+1 = 13 Weeks)				BLOCK-III (10+1 = 11 Weeks)	
Duration	01 weeks	04 weeks	03 weeks	03 weeks	08 weeks	03 weeks	01 weeks	05 weeks	02 weeks	03 weeks
Modules	Orofacial Biology	Oral Mucosa	Tooth Form & Structure	Growth & Development	Dental Tissues	Periodontal Tissues	Tooth Morphology - 1	Tooth Morphology - 2	Oral Physiology	Para-oral structures



ACADEMIC CALENDER-1st Year BDS CLASS-2026/27

Commencement of classes			
BLOCK-1 (18 WEEKS)(12+1)			
30th - March-26 to 2nd August-26			
Activity	Duration	From	To
Orientation Week	1 week	30 th -3-26	5 th -4-26
Academics	1 weeks	6 th -4-26	12 th -4-26
Sports Week	1 week	13 th - 4 -26	19 th -4-26
Academics	9 weeks	20 th - 4 -26	28 th -6-26
EID-UL ADHA	1 week	25 th -5-26	31 th -5-26
Summer Vacations	3 weeks	29 th -6-26	19 th -7-26
Academics	1 week	19 th -7-26	26 th -7-26
Block 1 assessment	1 week	27 th -7-26	2 th -8-26
BLOCK-2 (12 WEEKS) (11+1)			
3rd-August-26 to 25th-October-26			
Academics	11 weeks	3 rd -8-26	18 th -10-26
Block 2 assessment	1 week	19 th -10-26	25 th -10-26
BLOCK-3 (11 WEEKS) (11+1)+2			
26-Oct -26 to 1st- Mar -27			
Academics	9 weeks	26 th -10-25	21 th -12-26
Block 3 assessment	1 week	21 st -12-26	26 th -12-26
Academics	2 weeks	28 th -12-26	10 th -1-27
Send-up	3 weeks	11 th -1-27	5 th -2-27
Pre-annuals Leaves	4 weeks	5 th -2-27	1 st -3-27
1 ST PROFESSIONAL EXAM (tentative)	2 nd March-2027		



ALIGNMENT OF COURSE OUTCOMES WITH PROGRAM OUTCOMES (POS)

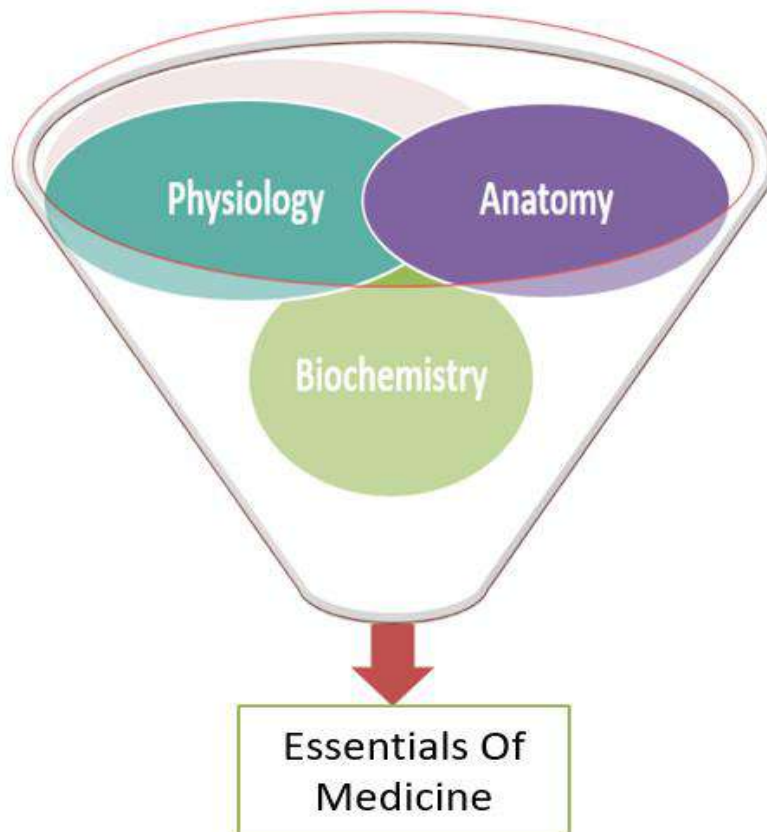
Integrated Block Outcome (IBO)	Mapped Program Outcome (PO)	Rationale
IBO 1. Integrate the structure and function of the cardiovascular system to explain blood flow, cardiac activity, and regulation of blood pressure.	PO1, PO5	Understanding cardiovascular physiology provides the scientific basis for safe dental management of patients with cardiovascular diseases and supports evidence-based clinical decision-making.
IBO 2. Apply physiological and biochemical principles to understand cardiac diseases such as myocardial infarction, shock, and hypertension.	PO2, PO5	Enables recognition of medically compromised patients, appropriate referral, and application of biomedical knowledge in dental practice.
IBO 3. Correlate lipid metabolism and cardiovascular health, including atherosclerosis and its clinical implications.	PO3, PO5	Understanding risk factors and lifestyle modification promotes preventive healthcare and supports management of systemic conditions affecting oral health.
IBO 4. Keeping in view the histo morphological features of endocrine glands, explain the mechanisms of hormone action and regulation of endocrine glands in maintaining homeostasis.	PO5	Integrates anatomy, histology, physiology and biochemistry to explain endocrine regulation essential for normal body function and dental patient management.
IBO 5. Analyze disorders of thyroid, parathyroid, adrenal, and pancreatic hormones with clinical correlations.	PO2, PO5.	Supports recognition of endocrine disorders that influence oral manifestations, treatment planning and referral for specialized medical care.
IBO 6. Apply knowledge of craniofacial anatomy, development, and neurovascular supply to dental and clinical scenarios.	PO1, PO5	Provides anatomical knowledge required for safe administration of local anesthesia, surgical procedures and diagnosis of craniofacial conditions.
IBO 7. Correlate head and neck anatomy with common clinical conditions (e.g., nerve injuries, infections, TMJ disorders).	PO1, PO2	Enables diagnosis of common head and neck conditions, appropriate management, and referral of complex cases.
IBO 8. Integrate biochemical concepts (nucleotides, cancer biology) with disease mechanisms and diagnostics.	PO5,.PO8.	Builds understanding of molecular disease mechanisms, interpretation of diagnostic investigations, and application of research evidence in clinical practice.



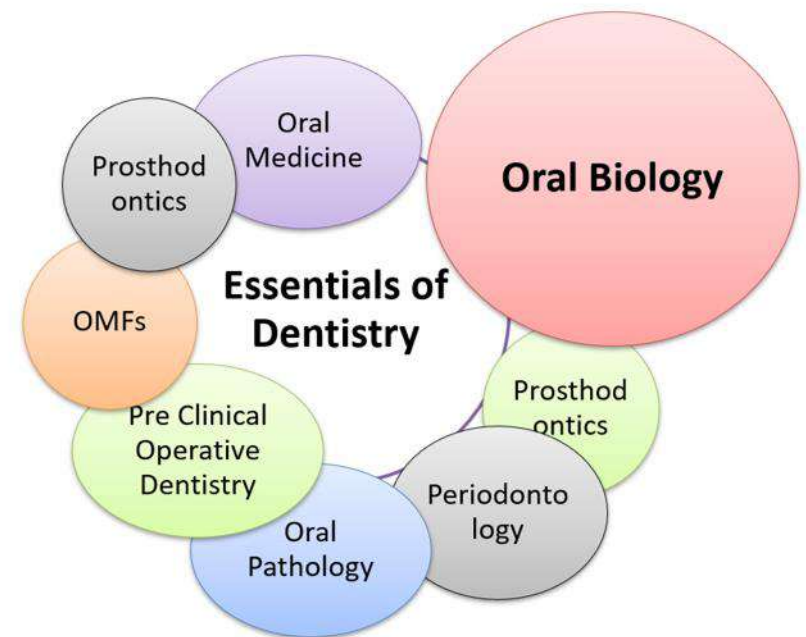
IBO 9. Describe the structure, development, morphology, and functions of enamel, dentin, pulp, incisors, periodontal ligament, gingiva, and alveolar bone, and relate these features to their clinical significance and common dental conditions.	PO1	Provides foundational knowledge of the structure, development, morphology, and function of dental and periodontal tissues.
IBO 10. Explain the processes of tooth development and relate developmental disturbances to common dental anomalies.	PO2	Enables students to apply knowledge of normal development to understand developmental abnormalities and their clinical presentation.
IBO 11. Differentiate permanent maxillary and mandibular incisors based on their morphological features and relate tooth morphology to function and clinical practice.	PO2	Students apply anatomical knowledge for tooth identification, function, and basic clinical procedures
IBO 12. Correlate the microscopic and structural features of enamel, dentin, pulp, and periodontal tissues with their clinical manifestations.	PO4	Develops the ability to interpret biological changes and relate them to common dental conditions.
IBO 13. Recognize normal and abnormal dental and periodontal structures using appropriate anatomical and clinical terminology.	PO3	Develops basic skills required for identification and recognition of normal and pathological oral structures.
IBO 14. Communicate knowledge of tooth morphology, tooth development, and periodontal tissues using appropriate scientific terminology.	PO8	Promotes accurate communication of dental and biological concepts in academic and clinical settings.
IBO 15. Integrate knowledge of dental tissues and periodontium to understand the relationship between structure, function, development, and disease.	PO5	Encourages integration of basic science knowledge to develop a scientific basis for understanding dental disease and clinical practice.



Horizontal Integration: Essential of Medicine



Vertical Integration: Essentials of Dentistry





Teaching And Learning Methodologies:

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

Educational Opportunities

Hospital Wards
Dental Clinics

Practical

Basic medical sciences practical related to Basics of Medicine and Dentistry, are scheduled for firsthand learning of skills

Large Group Interactive Sessions - LGIS

In large group, the lecturer introduces a topic or common clinical condition and explains the underlying phenomena through questions, pictures, videos of patient's interviews, exercises, etc. Students are actively involved in the learning process.

Case-Based Learning - CBL

This is a small group discussion format where learning is focused around a series of questions based on a clinical scenario. Students discuss and answer the questions applying relevant knowledge gained in clinical and basic health sciences during the block.

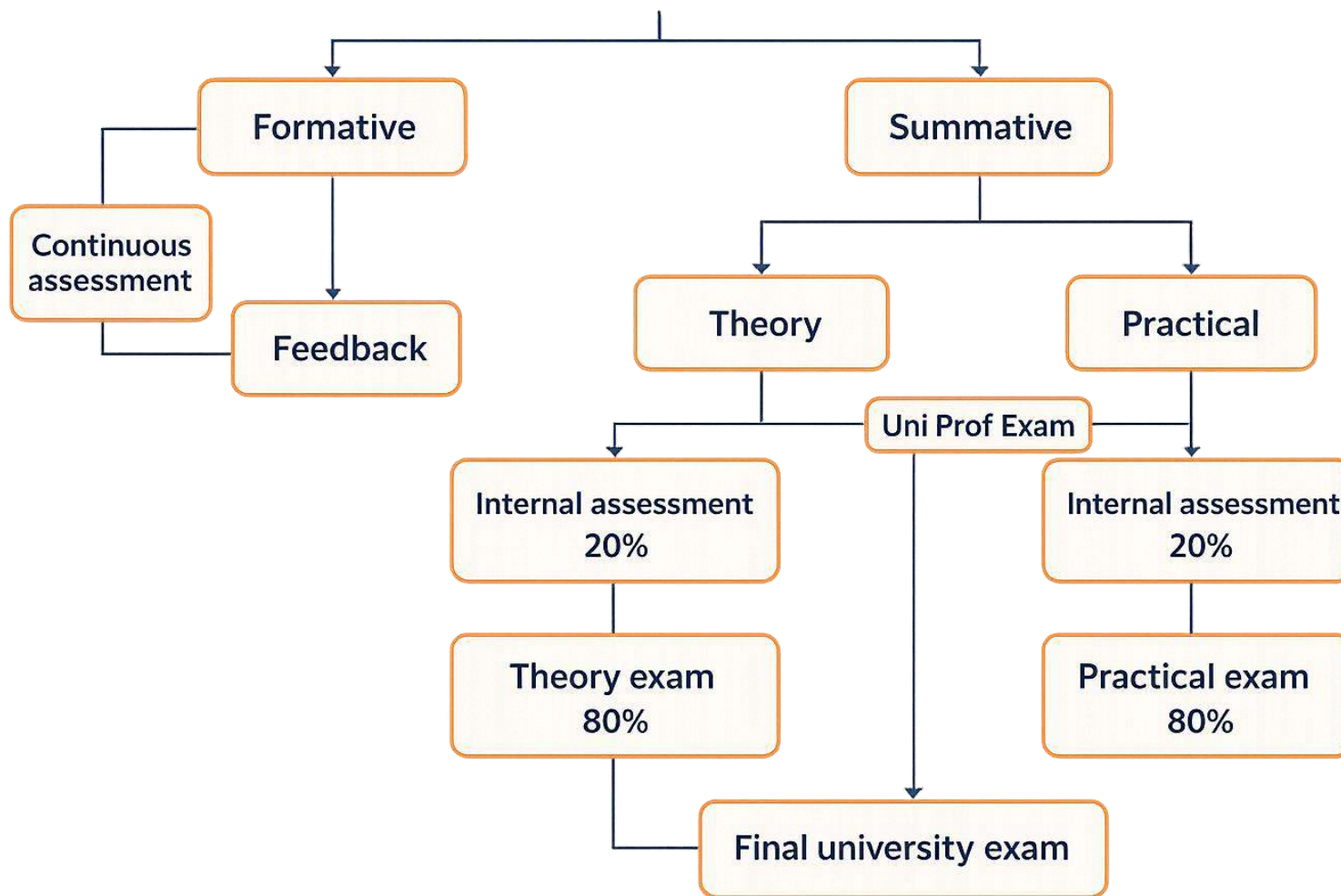
Self-Directed Study - SDL

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 will be provided time within the scheduled college hours for self-study.

Small Group Discussion - SGD

This format helps students to clarify concepts, acquired skills, attitudes and achieve objectives for that particular session. 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's role is to ask probing questions, summarize, or rephrase to help clarify and correlate integrated concepts.

Assessment Map





Structured Summary – Block II

Term Code	Y1-B2-D26
Term Title	Practice Based Learning
Duration Of Term	12 weeks
Important Dates	3 rd August, 2026 --- 25 th October, 2026.
Horizontally Integrated Themes	I.Cardiovascular System II.Endocrinology III.Craniofacial
Vertically Integrated Themes	Research Behavioral Sciences OMFS, Orthodontics, Operative Dentistry, Oral Pathology, Oral Medicine, Prosthodontics, Periodontology
Prerequisite Blocks	1 st Block First Year



Introduction to the Block II

Integrated Block II is designed to provide first-year BDS students with an integrated understanding of the **cardiovascular and endocrine systems, head and neck anatomy, biochemistry, histology, and oral biology**. The block emphasizes the correlation between normal structure and function and highlights their relevance to oral and systemic health.

Through horizontal integration of the basic sciences and the use of clinically relevant scenarios, students develop a sound understanding of the mechanisms underlying common cardiovascular and endocrine disorders, craniofacial anatomy, and molecular aspects of disease. This integrated approach enables students to apply biomedical knowledge to clinical problem-solving and future dental practice.

The block is delivered through a combination of **interactive lectures, practical sessions, small-group discussions, case-based learning, and self-directed learning**. It is aligned with the **PMDC Competency-Based Undergraduate Dental Curriculum** and the institutional Program Outcomes, providing a strong foundation for subsequent clinical training.

By the end of the block, students will be able to integrate knowledge from multiple disciplines to explain normal and altered body functions, recognize the clinical significance of basic biomedical concepts, and relate them to the diagnosis, prevention, and management of conditions commonly encountered in dental practice. This integrated learning experience prepares students for advanced preclinical and clinical training while fostering critical thinking, lifelong learning, and evidence-based practice.

Goodluck students

Block II Test Schedule 2026

Date	Day	Subject
18-8-2026	Tuesday	Anatomy
24-8-2026	Monday	Biochemistry
31-8-2026	Monday	Physiology
7-9-2026	Monday	Oral Biology
14-9-2026	Monday	Anatomy
21-9-2026	Monday	Biochemistry
28-9-2026	Monday	Physiology
5-9-2026	Monday	Oral Biology

STUDY GUIDE — ICON & ACTIVITY KEY

	LEARNING OBJECTIVES	What you should be able to know, explain, apply, analyze or demonstrate.
	LGIS	Large Group Interactive Session — active learning through questions, visuals, discussion and interaction.
	SGD	Small Group Discussion — clarify concepts, exchange ideas and apply knowledge with peers.
	SDL	Self-Directed Learning — independent study, information seeking, reflection and peer learning.
	CBL	Case-Based Learning — apply integrated knowledge to clinically relevant scenarios.
	PRACTICAL	Hands-on learning of basic medical/dental science skills using models, specimens, laboratory work or demonstrations.
	INTEGRATED SESSION	Links two or more disciplines to build connections between structure, function, disease and clinical relevance.
	ASSESSMENT / TEST	Assessment activities such as MCQs, SAQs/SEQs, class tests or other scheduled assessments.
	CLINICAL CORRELATION	Highlights the relevance of basic science concepts to dental practice and patient care.
	LEARNING RESOURCES	Recommended textbooks, articles and other resources for further learning.
	REVISION	Dedicated opportunity to consolidate, review and integrate previously covered learning.



SPIRAL I
BASIS OF MEDICINE I

Cardiovascular System	Endocrinology	Craniofacial
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SPIRAL II
DENTAL & PERIODONTAL HEALTH & TISSUE

¹ Dental Tissues	² Periodontal Tissues
³ Tooth Morphology – 1	⁴ Tooth Morphology – 2



SPIRAL I

ANATOMY

PHYSIOLOGY

**BASIS OF
MEDICINE I**

BIOCHEMISTRY



ANATOMY

CARDIOVASCULAR, ENDOCRINOLOGY & CRANIOFACIAL

Session – 1

Integrated Session of Anatomy & Physiology

Introduction to circulatory system

Mode of Delivery:
LGIS



You should be able to

- Justify general plan of systemic, portal and lymphatic circulatory system.
- Compare blood vessels according to their size and functions with examples of each type.
- Describe various types of anastomoses with example and their Clinical significance

Session – 2,3

Heart & Coronary circulation

Mode of Delivery:
LGIS/SGD



You should be able to

- Describe anatomical position, borders, surfaces and external features of heart.
- Outline the main internal features of various chambers of heart
- Describe the arterial supply, venous drainage and nerve supply of heart.
- Define dominance of heart



Session – 4,5&6 Skull		Mode of Delivery: SGD
 You should be able to	• Appreciate the general plan of studying skull from different views.	
Session – 7&8 Nose		Mode of Delivery: LGIS
 You should be able to	• Describe the skeletal framework of different walls of nose • Describe the features, vascular supply, nerve supply and openings in lateral wall of nose • Describe the features, vascular supply, nerve supply of medial wall of nose • Trace the location and drainage of paranasal sinuses in skull and on radiograph	
Session – 9 <i>Integrated Session of Anatomy & Biochemistry</i> Heart & coronary circulation		Mode of Delivery: LGIS
 You should be able to	• Define angina pectoris and myocardial infarction, and explain their anatomical basis in case of coronary artery disease. • Explain anatomical basis of cardiac referred pain in case of ischemic heart disease • Define angioplasty, angiography • Locate sites of auscultation of various heart sound son chest wall of a subject	



	Identify features of heart on a model.	
Session – 10 Paranasal sinus		Mode of Delivery: LGIS
 You should be able to	Trace the location and drainage of paranasal sinuses in skull and on radiograph	
Session – 11 Skull		Mode of Delivery: LGIS
 You should be able to	- Identify bony landmarks on the bones as viewed from lateral, superior, inferior , anterior, & posterior views. - List structures traversing the foramina in these bones. - Identify the bones forming the boundaries of orbit, nasal cavity, oral cavity, temporal & infratemporal & pterygopalatine fossa on the given bone .	
Session-12&13 Assessment		



Session –14,15&16
Development of skull

Mode of Delivery:
LGIS



You should be able to

- Identify the sources of skull
- Classify Skull on embryological basis Describe the events in development of Cartilaginous and membranous neuro cranium and viscera cranium
- Outline features of a newborn skull. Identify the fontanelles with reference to their location, closing time and clinical significance
- Explain the embryological basis of microcephaly and various types of cranio synostosis

Session -17,18 &19
Temporal & infratemporal region

Mode of Delivery:
SGD/LGIS



You should be able to

- Identify the location, boundaries, contents and communications of temporal and infratemporal fossa on a given model and skull.
- Describe the course and distribution of mandibular nerve from origin to distribution Tabulate the attachments, actions and nerve supply of muscles of mastication.
- Trace location, various routes and distribution of otic ganglion
- Justify role of lateral pterygoid as a peripheral heart on anatomical basis of pterygoid venous plexus
- Elucidate importance of pterygoid Enou plexuses case of intracranial spread of infection to cavernous sinus.
- Trace origin and distribution of superficial temporal, first and second Parts of maxillary artery

Session –20,21 & 22
Pterygopalatine fossa

Mode of Delivery:
LGIS/SGD/SDL



You should be able to

- Identify the location of pterygopalatine fossa on skull
- Enumerate the contents and communications
- Describe the distribution of third part of maxillary artery, nerve and pterygopalatine ganglion
- Justify the role of pterygopalatine ganglion in hay fever/allergies

Session – 23 & 24

Scalp

Mode of Delivery:

LGIS/SGD



You should be able to

- Appraise extent of scalp on model
- Enumerate layers of scalp in sequential order
- Correlate gross features of each layer with anatomical basis of black eye, profuse bleeding, gaping wound, spread of infection & shape of hematoma

Session – 25

Scalp

Mode of Delivery:

CBL



Vignette

A 25years old boxer complains of slowly developing discoloration/blackening around his right eye. History revealed week before this, during a fight, he got punched on right side of his head. He presented to the hospital with few lacerations only. Initial assessment showed no signs no signs of unconsciousness, major bleeding or vomiting after the event. After initial assessment he was sent home. Week after this event, he noticed blackening under his eye region and immediately reported to the hospital. Clinal examination shows swelling in the right side of the scalp while face is normal. CT scan is unremarkable, no signs of fracture is seen. MRI reveals submucosal hematoma while meningeal layers are intact.



**You should
be able to**

- Enumerate the layers of scalp in sequential order.
- Correlate the gross features of each layer with anatomical basis of blackening of the right eye.
- Justify the clinical and radiological findings in this case
- Discuss the detailed anatomical features of all the layers of the Scalp#
- Describe the blood supply (arterial + venous) of the Scalp
- Give the innervations of the scalp.

LEARNING RESOURCES:

1. Snell's Clinical Anatomy by Regions
2. KLM Anatomy Clinically Oriented Anatomy

SUGGESTED ARTICLE:

3. <https://www.ncbi.nlm.nih.gov/books/NBK551565/>



Session –26,27 &28
Hard & Soft palate

Mode of Delivery: **LGIS/SGD**



- Discuss the bony frame work of hard palate. Identify the gross features of hard palate and soft palate.
- Identify muscles of soft palate on the model Describe the attachments, nerve supply and actions of muscles of soft palate.
 - Describe blood supply and nerve supply of soft palate
 - Identify the main muscles forming the palatoglossal and palatopharyngeal Arches.
 - Name the intrinsic & extrinsic muscles of tongue.
 - Describe attachment nerve supply of muscles of tongue.

Session –29
Mandible

Mode of Delivery: **SGD**



You should be able to

- Identify parts of mandible
- Describe ramus and body of mandible with respect to its bony features and attachments. Muscles producing them.
- Describe the clinical signs of anterior dislocation of TMJ and explain the steps of its reduction

Session – 30
Pharynx

Mode of Delivery: **SGD**



- Differentiate extent, anatomical features, vascular supply, nerve supply of three parts of pharynx on anatomical basis
- List muscles of pharynx.



You should be able to	
Session –31 Submandibular region	Mode of Delivery: LGIS
 You should be able to	• Revisit boundaries of submandibular triangle • Describe part, relations & neurovascular supply of gland. • Trace routes of submandibular ganglion • Describe distribution of submandibular ganglion • Correlate anatomy of submandibular fascial spaces with Ludwig's angina.
Session –32 <i>Integrated session with Physiology</i> Thyroid & Pituitary	Mode of Delivery: SGD
 You should be able to	• Appraise the light microscopic structure of Thyroid & Pituitary. • Summarize the brief account of histological features of Thyroid & pituitary. • Identify gross features of thyroid and parathyroid glands on models. • Justify anatomical basis of movement of thyroid gland during deglutition. • Discuss surgical precaution in thyroid surgery while ligating vessels and enucleation.
Session –33 Submandibular gland	Mode of Delivery: SGD



You should be able to

- Trace routes of submandibular ganglion
- Describe distribution of submandibular ganglion
- Correlate anatomy of submandibular fascial spaces with Ludwig's angina

Session – 34&35
TMJ

Mode of Delivery: SGD/ LGIS



You should be able to

- Identify type TMJ
- Identify the articular surfaces of TMJ on given model.
- Explain the attachments of capsule
- Name ligaments of TMJ
- Describe attachments & relations of ligaments of TMJ
- Describe type 7 shape of articular disc.
- Justify presence of two joint cavities & types of movement occurring at each

Session – 36&37



Class Test

Mode of Delivery: MCQs, SEQs

Session – 38
Oral Cavity

Mode of Delivery: LGIS



You should be able to

- Name different boundaries of oral cavity. Describe blood and nerve supply and lymphatic drainage of oral cavity.
- Identify the location of inferior alveolar nerve block
- Describe the salient features of floor of mouth. Discuss the attachments, actions, nerve supply and relations of suprahyoid muscles
- Identify parts of tongue
- Identify the gross features of dorsal and ventral surfaces of tongue
- Name the intrinsic and extrinsic muscles of tongue. Describe attachments, actions and nerve supply of muscles of tongue
- Describe the motor, general and special sensory innervation of Tongue

Session 39&40
TMJ

Mode of Delivery: CBL

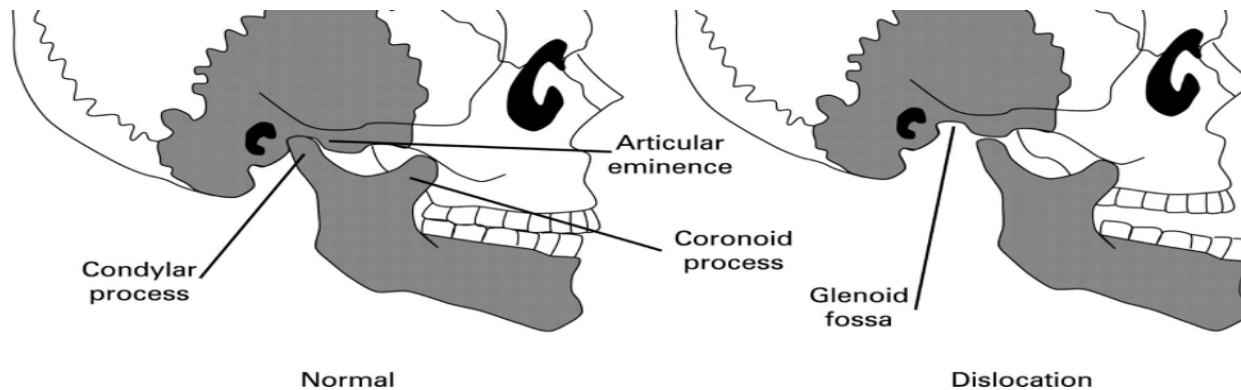


Vignette



A well-built 29-year-old Caucasian man attended the emergency department in the late evening unable to close his mouth immediately after yawning. Although he had no medical problems, he did admit to having longstanding 'clicking' of his left TMJ. On examination his mouth was open and there was significant drooling. No oral or facial lacerations were present. Bilaterally, there was a depression in his pre-auricular area associated with severe tenderness. Radiographs were taken and illustrated bilateral anterior dislocations of the patient's

TMJs



You should be able

- Identify the type of TMJ.
- Identify the articular surfaces of TMJ on a given model or dry bones.
- Explain the attachments of capsule.
- Name the ligaments of TMJ.
- Describe the attachments and relations of ligaments of TMJ.
- Describe the type and shape of articular disc. Justify the presence of two joint cavities and types of movements occurring in each.
- 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.

Session -41,42 &43 Face		Mode of Delivery: SGD/ LGIS
 You should be able to	• Outline the characteristic features of facial skin • Elucidate the intervention group of face facial muscles according to face. • Describe the nerve supply of muscles of facial expressions. • Describe the course of arteries, veins, lymphatics and nerves of the face with the help of model. • Correlate gross features of face with anatomical palsy. • Identify muscles of facial expressions Illustrate the cut aneurin nervation of face	
Session – 44 Vessels of the neck		Mode of Delivery: SGD
 You should be able to	• Enumerate the main vessels in neck. Describe the course and branches of • External carotid artery • Subclavian artery • External jugular vein • Internal jugular vein	



Session – 45

Integrated Session with Physiology

Nose

Mode of Delivery:

LGIS



You should be able to

- Describe the skeletal framework of different walls of nose
- Describe the features, vascular supply, nerve supply and openings in lateral wall of nose.
- Describe the features, vascular supply, nerve supply of medial wall of nose

Session – 46&47

Nerve Supply OF face

Mode of Delivery:

CBL



Vignette

A 58-year-old woman woke up one morning finding the right side of her face feeling “peculiar and heavy.” On looking in the mirror, she saw that the corner of her mouth on the right side was drooping and her right lower eyelid seemed to be lower than her left. When she attempted to smile, the right side of her face remained immobile and masklike. While eating her breakfast, she noticed that her food tended to stick on the inside of her right cheek and liquid dribbled out the corner of her mouth. On taking her dog for a walk, she found to her amazement that she could not whistle for his return to her side; her lips just would not pucker. Upon examination, the woman’s primary care physician found paralysis of the muscles of the entire right side of the face. Also, this patient talked with a slightly slurred speech and her blood pressure was very high. To make the diagnosis, the physician had to have knowledge of the facial muscles, the laryngeal muscles, and their nerve supply. This patient had paralysis of the muscles of the entire right side of the face. Only a lesion of the right facial nerve, which supplies the muscles, could cause this. Fortunately, this patient was suffering from Bell palsy, the prognosis was excellent, and she had a complete recovery.

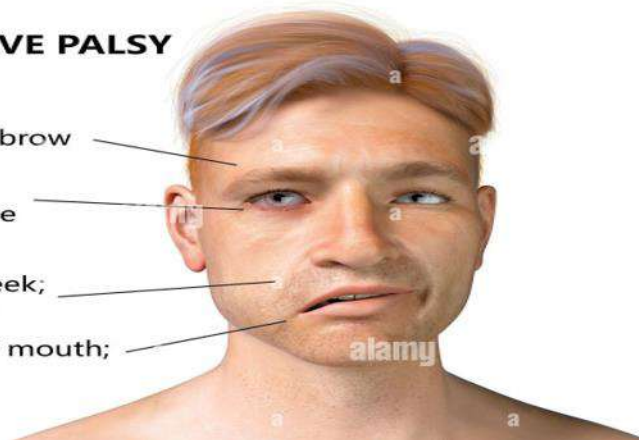
FACIAL NERVE PALSY

Inability to wrinkle brow

Drooping eyelid;
inability to close eye

Inability to puff cheek;
asymmetrical smile

Drooping corner of mouth;
dry mouth



You should be able to

- Explain the gross anatomy of face and its musculature
- Explain the blood supply and lymphatic drainage of face.
- Correlate the clinical presentation of facial nerve palsy with its anatomy.
- Explain the danger area of face and correlate it with the infection in cavernous sinus.
- How will you differentiate between upper and lower motor neuron lesion of the facial nerve?
- Cerebral hemorrhage is not the most likely diagnosis in this patient. Why?

Learning Resources:

- Clinical anatomy by regions. Richard S Snell
- Gray's Anatomy for students
- Clinically oriented anatomy by KLM
- <https://www.msdmanuals.com/professional/neurologic-disorders/neuroophthalmologic-and-cranial-nerve-disorders/facial-nerve-palsy>
- <https://www.ncbi.nlm.nih.gov/books/NBK526119/#:~:text=Lesions%20that%20involve%20the%20facial,brow%20on%20the%20damaged%20side>



Session – 48
Joints of neck

Mode of Delivery:
SGD



You should be able to

- Name the typical and atypical intervertebral joints of neck.
- Identify the types of atlanto-occipital and atlanto-axial joints.
- Describe the movements of these joints with muscles producing them

Session – 49&50
Mandibular and maxillary branches of Trigeminal nerve

Mode of Delivery:
SGD



You should be able to

- Describe the pathway of mandibular nerve from nucleustotar get organs
- Describe the pathway of maxillary nerve from nucleustotar get organs.
- Describe the lesion of nerves with special reference to infections of molar teeth.

Session –51,52 &53
Orbit & Lacrimal Apparatus

Mode of Delivery:
LGIS



You should be able to

- Describe the skeletal frame work of bony orbit and its communications
- List the contents of orbit
- Identify the parts of eyeball on a model Tabulate the attachments, nerve supply and actions of extraocular muscles
- Justify the movements of extraocular muscles based on their attachments
- Trace the course and distribution of III, IV and VI Cranial Nerves



- Trace the route and distribution of ciliary ganglion.
- Describe the course and distribution of ophthalmic nerve
- Describe the nerve supply of Lacrimal gland.
- Enumerate the structures forming the lacrimal apparatus

Session –54
Lesions of nerves of eye

Mode of Delivery: LGIS



You should be able to

- Justify the peculiar Position of eye ball in case of lesion of III, IV and VI Cranial Nerves

Session –55&56
Facial Nerve

Mode of Delivery: LGIS/ SGD



You should be able to

- Revisit the course and distribution off facial nerve
- Revisit the relationship of facial nerve with pterygopalatine and submandibular ganglia Revisit the effects of lesion off facial nerve at different levels
- Differentiate anatomical basis of clinical presentation of UMN and LMN lesion off facial nerve.

Session –57 & 58
Parotid gland

Mode of Delivery: LGIS/ SGD



You should be able to

- Trace the pathway of autonomic supply of parotid gland.
- Enumerate structures embedded in parotid gland in a sequential order.
- Analyze anatomical basis of clinical presentation of mumps
- Correlate the extra cranial course of facial nerve with bell,s palsy.

Session -59&60
Integrated session
Ear

Mode of Delivery:
LGIS



You should be able to

- Describe the gross anatomical features, boundaries, structures and contents of middle ear cavity.
- Describe the structures forming the walls of middle ear cavity on the given model.
- Highlight the importance of infection in middle ear cavity in relation to its communication
- Trace the pathway and distribution of facial nerve with in petrous part of temporal bone

Session – 61&62
Deep Cervical Fascia

Mode of Delivery:
LGIS



You should be able to

- Enumerate the layers of deep cervical fascia
- Trace the attachments of investing, pre- tracheal, carotid sheath and prevertebral layers of fascia.
- Identify various modifications and neck spaces formed by fascial attachment.
- Comprehend the clinical importance of neck spaces in spread of infection.



Session – 63

Larynx

Mode of Delivery:

SGD/LGIS



You should be able to

- Describe laryngeal wall in detail with emphasis on cartilages, ligaments, muscles, vascular supply and nerve supply.

Session – 64

Muscles of the neck

Mode of Delivery:

SGD



You should be able to

- Describe the muscles of neck (sternocleidomastoid, trapezius and in Fra hyoid muscles) along with their nerve supply with the help of models.
- Enlist the features of Torticollis

Session –65,66&67

Triangles of the neck

Mode of Delivery:

SGD



You should be able to

- Tabulate the attachments, nerve supply, actions of superficial and deep muscles of neck (sternocleidomastoid, suprahyoid, infrahyoid, suboccipital, prevertebral muscles,).
- Identify boundaries and contents of triangles of neck on model
- Describe the origin, course and distribution of nerves of neck (cervical plexus, Ansa cervicalis, Common carotid artery, Internal jugular vein, subclavian vessels)



Session – 68

Nerves & Vessels of the neck

Mode of Delivery:

SGD



You should be able to

- Enumerate the main vessels in neck. Describe the course and branches of
- External carotid artery
- Subclavian artery
- External jugular vein
- Internal jugular vein

Session – 69&70

Larynx

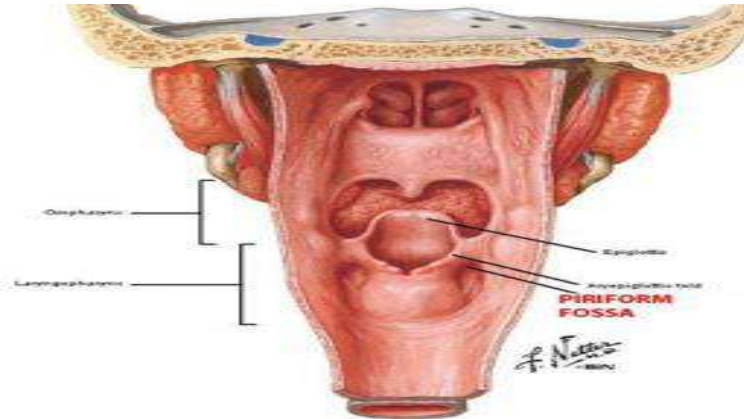
Mode of Delivery:

CBL



Vignette

A 40-year-old female presented to the OPD with complaint of a painless swelling in front of her neck near Adam's `apple that had increased in size over the past 4 months, hoarseness of voice and difficulty breathing. On examination the doctor observed that the swelling moved on swallowing. Ultrasonography of the thyroid and lateral neck showed a large mass of the left thyroid lobe, but no right or left neck lymphadenopathy. Fine needle aspiration (FNA) of neck mass was performed and diagnosed as papillary carcinoma of thyroid. The surgeon planned to admit the patient for total thyroidectomy with postoperative radiotherapy



You should be able to

- Describe cartilage ligaments & Muscles of larynx.
- Analyze mechanisms of abducted & adduction of vocal cords.
- Discuss the boundaries of piriform fossa.
- What are causes of hoarseness of voice?
- Describe the thyroid gland with reference to its vertebral level, surrounding fascia, capsule and blood supply.
- Why did the swelling move on swallowing in this case?
- Where do you prefer to ligate the superior and inferior thyroid artery during the surgical removal of thyroid gland (thyroidectomy)? Justify.
- What are the most common complications of thyroidectomy?
- What do you understand by the term near total thyroidectomy?
- Summarize the results of inadvertent surgical removal of the parathyroid glands. Suggested literature.

Learning resources:

- Hoarseness—Causes and Treatments Rudolf Reiter, Prof., *,1 Thomas Karl Hoffmann Prof.,2 Anja Pickhard,Priv.-Doz.Dr.,3And Sibylle Brosch, Prof.1 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4458789/>



- A Radiologic Review Of Hoarse Voice From Anatomic And Neurologic Perspectives. Simone Montoya, Anthony Portanova & Alok A. Bhatt
<https://Insightsimaging.Springeropen.Com/Articles/10.1186/S13244-019-0786-7>
- Voice Hoarseness In A Patient With Underlying Eisenmenger's Syndrome: A Case ReportPalak Suryavanshi, Sreejit Parameswaran, Nishant Sharma, Russell A. Murphy & Anil R.Sharma
<https://Journalotohns.Biomedcentral.Com/Articles/10.1186/S40463-019- 0358-3>.

Total no of sessions.	Mode of Assessment
70	MCQs, SAQs

PHYSIOLOGY

CARDIOVASCULAR MODULE

Session – 1

Integrated session

Physiological Anatomy of the Heart with Anatomy

Mode of Delivery:
LGIS



You should be able to

- Appreciate the physiological arrangement of right and left hearts along with the parallel arrangement of systemic circulation.
- Recognize the physiological anatomy of cardiac muscles, its functional syncytium and intercalated disc
- Differentiate between cardiac, skeletal and smooth muscles based on macro-, microscopic and functional differences, action potentials

Session – 2

Cardiac action potential

Mode of Delivery:
LGIS



You should be able to

- Distinguish ionic changes in different phases of
- Correlate the phases with ionic changes during pacemaker action potential in heart

Session – 3,4,5&6

Cardiac cycle

Mode of Delivery:
LGIS, SGD& Assessment



You should be able to

- Illustrate pressure and volume changes during various phases of cardiac cycle

Session – 7&8

Cardiac action potential

Mode of Delivery:
LGIS



You should be able to

- Comprehend cardiac impulse transmission

Session-9&10

ECG

Mode of Delivery: LGIS



- Draw and label a normal ECG showing various waves, segments and intervals
- Understand significance of waves, segments and intervals of ECG
- Calculation of heart rate and various intervals and segments
- Appreciate the relationship between vector and lead, type and locations of leads and principles for vector analysis in abnormal heart

Session – 11&12

Cardiac cycle

**Mode of Delivery:
CBL**



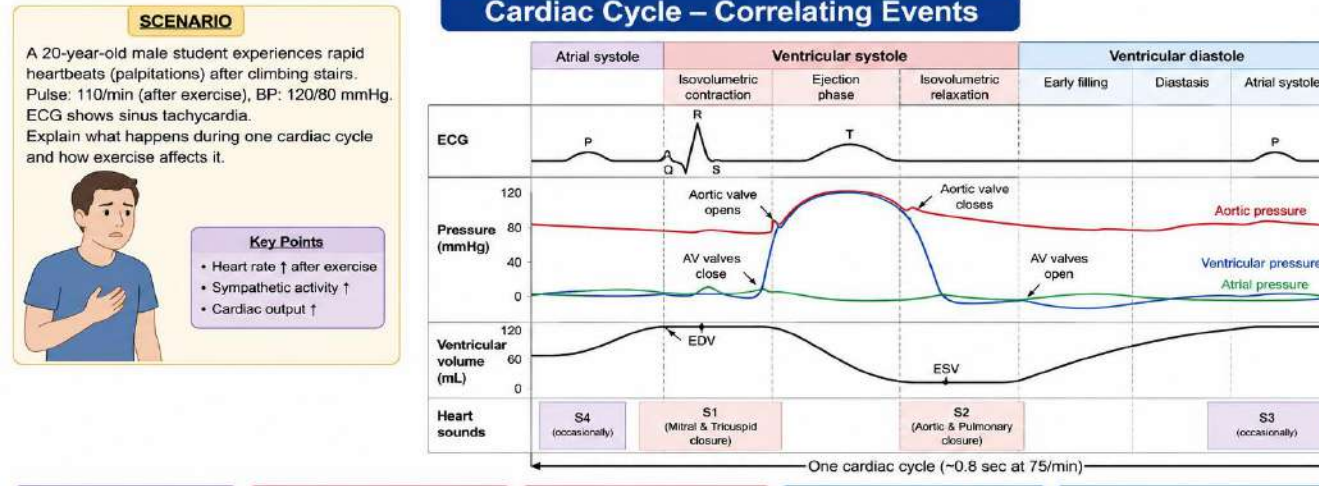
Vignette

A 20-year-old male medical student visits the physiology laboratory after experiencing episodes of palpitations during strenuous exercise. He reports that his heart beats rapidly after climbing three flights of stairs but returns to normal within a few minutes of rest. He has no history of chest pain, syncope, hypertension, or diabetes. Physical examination reveals:

- Pulse: **110 beats/min** (after exercise), regular
- Blood Pressure: **120/80 mmHg**
- Respiratory Rate: **20/min**
- Heart sounds: Normal S1 and S2

- ECG: Sinus tachycardia without abnormalities

The physiology instructor asks the students to explain the changes occurring during one cardiac cycle and how exercise affects these events. The students are also asked to correlate heart sounds, ECG findings, valve movements, pressure changes, and ventricular volume changes during the cardiac cycle



You should be able to

- Define the cardiac cycle.
- Describe the phases of the cardiac cycle and Correlate ECG changes with mechanical events.
- Describe changes in atrial, ventricular, and aortic pressures and volume during systole and diastole
- Calculate stroke volume and ejection fraction.
- Comprehend cardiac impulse transmission
- Interpret normal physiological findings in the presented case.



Session – 13&14 Control of Local Blood flow		Mode of Delivery: LGIS
 You should be able to	• Distinguish between acute and chronic control of local blood flow. • Conceptualize active and reactive hyperemia • Relate the blood flow control to total peripheral resistance	
Session – 15,16,17&18 Arterial blood pressure		Mode of Delivery: LGIS, SGD, Assessment
 You should be able to	• Comprehend the determinants of arterial pressure, factors affecting and mechanisms regulating blood pressure on short- and long-term basis. • Recognize mean arterial pressure and its significance. • Comprehend the individual and integrative role of baroreceptors, chemoreceptor, volume receptors, arterial natriuretic factors and Renin-angiotensin -aldosterone system in regulation of arterial pressure • Understand the characteristics of regional circulations (skeletal muscles, pulmonary, coronary & cerebral) and factors regulating thereof	
Session – 19 Cardiac output		Mode of Delivery: LGIS



You should be able to

- Understand the determinants of cardiac output and factors affecting cardiac output.
- Appreciate the mechanics of low and high cardiac outputs along with their effects on the heart

Session – 20

Venous Return

Mode of Delivery:
LGIS



You should be able to

- Comprehend the factors affecting stroke volume, heart rate and total peripheral resistance
- List the functions of veins
- Identify factors regulating venous return and significance of venous reservoirs.
- Appreciate the equality of Cardiac output and venous return

Session-21&24

Circulatory Shock

Mode of Delivery:
LGIS



You should be able to

- Discriminate various types of shock, its types and stages of development
- Differentiate between compensated and uncompensated shock.
- Recognize the short-term and long-term compensatory mechanisms in circulatory shock.
- Diagnose and treat various types of shock based on clinical scenarios



Session-22&23

SHOCK

Mode of Delivery:

CBL

Vignette



A **26-year-old male** is brought to the emergency department following a motorcycle accident. He sustained a deep laceration over his left thigh with profuse bleeding. Bystanders report that he lost a large amount of blood before reaching the hospital.

On examination:

- Conscious but anxious and restless
- Pale, cold, clammy skin
- Heart rate: **132 beats/min**
- Blood pressure: **80/50 mmHg**
- Respiratory rate: **30 breaths/min**
- Oxygen saturation: **95% on room air**
- Capillary refill time: **4 seconds**
- Urine output: **10 mL/hour**

The emergency team immediately applies direct pressure to the wound, establishes two large-bore IV cannulas, and begins fluid

Resuscitation

A 26-year-old male is brought to the ER after a motorcycle accident. He has a deep laceration on the left thigh with profuse bleeding and has lost a large amount of blood.

INITIAL ASSESSMENT

- Conscious but anxious
- Pale, cold, clammy skin
- HR: 132 beats/min
- BP: 80/50 mmHg
- RR: 30 breaths/min
- SpO₂: 95% (room air)
- Capillary refill: 4 sec
- Urine output: 10 mL/hr

PATHOPHYSIOLOGY

- Acute Blood Loss
 - ↓ Blood Volume
- ↓ Venous Return (Preload)
 - ↓ Stroke Volume
 - ↓ Cardiac Output
 - ↓ Blood Pressure
 - ↓ Tissue Perfusion
- Anaerobic Metabolism
 - ↑ Lactic Acid
 - Metabolic Acidosis
 - Organ Dysfunction




You should be able to

- Identify the condition in above case.
- Describe the pathophysiology of above case
- Differentiate between compensated and uncompensated shock
- Discriminate various types of shock, and their pathophysiology
- Recognize the short-term and long-term compensatory mechanisms in circulatory shock
- Discuss the treatment of shock.



Session-25&26



TEST

Assessment;
MCQs, Seqs

ENDOCRINOLOGY MODULE

Session -27

Mechanisms of action of hormones

Mode of Delivery:
LGIS



You should be able to

- Explain the mechanism of intracellular signaling after hormone receptor activation
- Explain the second messenger mechanisms for mediating intracellular hormonal functions
- Identify the hormones that act mainly on the genetic machinery of the Cell

Session-28&29

Hypothalamus

Mode of Delivery:
LGIS, SGD



You should be able to

- Explain the pituitary gland and its relation to the hypothalamus
- Summarize the hypothalamic-hypophyseal portal blood vessels of the anterior pituitary gland and its significance



Session -30,31&32

Pituitary Gland

Mode of Delivery:
LGIS,SDL



You should be able to

- Recall the functions and regulation of growth hormone
- Differentiate between hyperpituitarism and hypopituitarism and its pathophysiological basis
- Explain the posterior pituitary gland and its relation to the hypothalamus
- Describe the physiological functions of ADH and oxytocin Hormone

Session-33

Thyroid Hormone

Mode of Delivery:
LGIS, SGD



You should be able to

- Recall the synthesis and secretion of the thyroid hormone
- Explain the functions of the thyroid hormone
-

Session-34

Integrated session

Thyroid Hormone with Anatomy

Mode of Delivery:
LGIS



You should be able to

- Summarize the regulation of thyroid hormone secretion
- Identify the disorders of the Thyroid gland and their pathophysiological basis



Session-35 Thyroid Hormone		Mode of Delivery: SGD
 You should be able to	- Recall the synthesis and secretion of the thyroid hormone - Explain the functions of the thyroid hormone	
Session -36&37 Adrenal Gland		Mode of Delivery: LGIS
 You should be able to	- Explain synthesis and secretion of adrenocortical hormones - Enlist the functions of aldosterone - Enlist functions of the glucocorticoids - Describe the disorders of adrenocortical secretion and their pathophysiological basis	
Session -38,39 <i>Integrated session with Biochemistry</i> Calcium regulating hormones		Mode of Delivery: LGIS
 You should be able to	- Explain the regulation of calcium and phosphate in the extracellular fluid and plasma - Enlist the actions of vitamin D - Explain the effect of parathyroid hormone on calcium and phosphate concentrations in the extracellular fluid - Summarize the control of parathyroid secretion by calcium ion concentration - Describe the actions of calcitonin	



- Explain the pathophysiology of parathyroid hormone, vitamin D, and bone diseases

Session -40

Calcium regulating hormones

Mode of Delivery: LGIS



You should be able to

- Explain the regulation of calcium and phosphate in the extracellular fluid and plasma
- Enlist the actions of vitamin D
- Explain the effect of parathyroid hormone on calcium and phosphate concentrations in the extracellular fluid
- Summarize the control of parathyroid secretion by calcium ion concentration
- Describe the actions of calcitonin
- Explain the pathophysiology of parathyroid hormone, vitamin D, and bone diseases

Session -41&42

Thyroid

Mode of Delivery: CBL



Vignette



A 40-year-old woman presented with **weight loss despite increased appetite, heat intolerance, palpitations, agitation, and fine tremors** for the past **one year**. On examination, she had **tachycardia, a diffuse enlarged thyroid gland, and bilateral exophthalmos**. Laboratory investigations showed **decreased TSH, elevated T3 and T4 levels, and positive Long-Acting Thyroid Stimulator (LATS)/Thyroid-Stimulating Immunoglobulin (TSI)**.



You should be able to

- Identify the clinical condition in above case
- Explain why thyroid hormone increases metabolic activity
- Explain the physiological function of thyroid hormone
- Describe exophthalmos?
- What will be the treatment options
- Explain the regulation of calcium and phosphate in the extracellular fluid and plasma.

Session -43

Integrated session

Calcitonin with Biochemistry

Mode of Delivery:
LGIS



You should be able to

- Describe the actions of calcitonin

Session -44

Pancreas

Mode of Delivery: [LGIS](#)



You should be able to

- Describe the disorders of adrenocortical secretion and their pathophysiological basis

CRANIOFACIAL MODULE

Session-45

Integrated session

Physiology on olfaction with Anatomy

**Mode of Delivery:
[LGIS](#)**



You should be able to

- Explain the physiological anatomy of Olfactory membrane.
- Explain the mechanism of stimulation of olfactory cells.
- Identify the primary sensations of Smell
- Describe the transmission of signals of Olfaction in to the central nervous system



Session -46&47 Taste		Mode of Delivery: LGIS, SGD
 You should be able to	• Describe the primary sensations of taste • Describe the mechanism of stimulation of taste buds and the transmission of signals to CNS	
Session-48 Revision		Mode of Delivery: SDL
Session-49&50  Test		
Session-51 <i>Integrated session</i> EYE		Mode of Delivery: LGIS
 You should be able to	• Explain refraction and concept of convergence and divergence. • Define focal length, focal point and power of lens. •	



Session-52,53,54&55

Mode of Delivery: **LGIS, SGD**

Eye



You should be able to

- Differentiate between ametropic, myopia, hyperopia, astigmatism, presbyopia and describe their treatment
- Explain physiological anatomy of retina
- Discuss photo chemistry of vision
- Explain visual pathways and accommodation reflex pathways

Session-56

Mode of Delivery: **LGIS, SGD**

Ear



You should be able to

- Describe the physiological Anatomy of ear
- Explain the mechanism of conduction of sound waves through the ear to the cochlea
- Describe “Impedance Matching” and its importance
- Describe the process of attenuation of sounds

Session-57

Mode of Delivery: **LGIS, SGD**

Ear



You should be able to

- Describe the physiological Anatomy of ear
- Explain the mechanism of conduction of sound waves through the ear to the cochlea
- Describe “Impedance Matching” and its importance
- Describe the process of attenuation of sounds



Session-58,59

Mode of Delivery:

CBL

Eye

Vignette



A **19-year-old female first-year BDS student** visits the ophthalmology clinic complaining of **difficulty seeing the whiteboard during lectures** for the past 8 months. She reports that distant objects appear blurred, while reading books and using her mobile phone are comfortable. She experiences occasional headaches after attending long lectures but denies eye pain, redness, or double vision. Her father has a history of wearing spectacles since adolescence.

On examination:

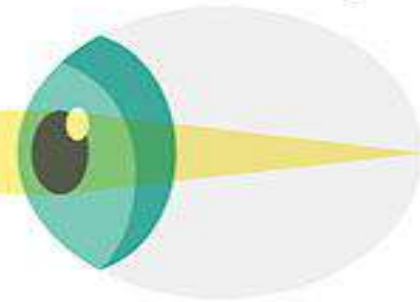
- General physical examination: Normal
- Visual acuity:
 - Right eye: **6/18**
 - Left eye: **6/24**
- Near vision: Normal
- Pinhole test: Vision improves to **6/6** in both eyes.
- Ophthalmoscopic examination: Normal retina and optic disc.



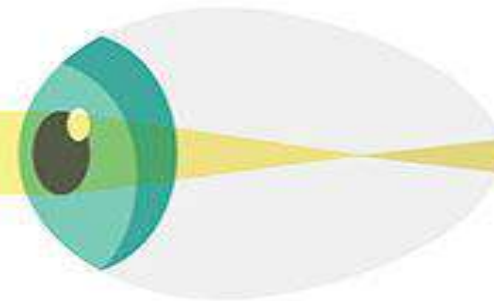
The ophthalmologist diagnoses a **refractive error**.



Normal Eye



Myopic Eye





You should be able to

- Describe the refractive components of the eye.
- Define refractive errors.
- Differentiate between:
 - Myopia
 - Hypermetropia
 - Astigmatism
 - Presbyopia
- Explain the physiological basis of accommodation.
- Interpret visual acuity findings.

Session-60,61

Integrated session

Ear with Anatomy

Mode of Delivery: LGIS



You should be able to

- Describe the physiological Anatomy of ear
- Explain the mechanism of conduction of sound waves through the ear to the cochlea
- Describe “Impedance Matching” and its importance
- Describe the process of attenuation of sounds

SESSION 62,63,64,65,66,67&68

REVISION

Total no of sessions.

Mode of Assessment

DDE-POL01-F-19

**BIOCHEMISTRY****CARDIOVASCULAR MODULE**

Session -1 &2

Mode of Delivery: **LGIS****Lipid chemistry**

You should be able to

- Define, classify and explain the biomedical function of lipids, Glycolipids, and sphingolipids
- Classify Fatty acids, chemistry, and elaborate their biochemical functions

Session – 3,4,5,6&7

Mode of Delivery: **LGIS****Lipid Metabolism**

You should be able to

- Elaborate Mobilization & transportation of Fatty Acids
- Explain the steps of Beta oxidation and energy calculation



Session- 8&9 <i>Integrated Session with Anatomy</i> Atherosclerosis		Mode of Delivery: LGIS
 You should be able to	Define and explain Hypercholesterolemia in relation with the pathophysiology of atherosclerosis	
Session –10 Reverse Cholesterol Transport		Mode of Delivery: LGIS
 You should be able to	Explain the role of HDL in maintaining blood cholesterol levels	
Session –11 Ketone bodies		Mode of Delivery: LGIS
 You should be able to	- Classify Steroids, sterols, e.g., cholesterol, & elaborate their functions and clinical significance - Illustrate the process of Ketogenesis and Ketolysis - Explain the Mechanism and utilization of Ketone bodies and their significance	



Session – 12
Myocardial Infarction

Mode of Delivery: LGIS



You should be able to

- Describe the role of cardiac biomarkers in the Diagnosis of MI

Session – 13
Eicosanoids

Mode of Delivery: LGIS



You should be able to

- Classify eicosanoids and explain their synthesis and function and related clinical significance

Session –11
Cholesterol

Mode of Delivery: LGIS



ENDOCRINOLOGY & CRANIOFACIAL MODULE

Mode of Delivery:
LGIS

Session – 14 & 15

Cancer and Tumor Markers



You should be able to

- Explain the Biomedical Importance and fundamental features of carcinogenesis
 - Describe the role Oncogenes and tumor suppressor genes and key role in carcinogenesis
- Tumor biomarkers

Session – 16 & 17

Assessment

Session – 18 & 19

Vitamin D

Mode of Delivery:
LGIS



You should be able to

- Identify the Sources of Vit D
- Elaborate its biochemical functions
- Illustrate the synthesis of vit D
- Explain its regulation and clinical significance
- Correlate the Biochemical functions, regulation and clinical significance of Calcium with health and disease

Session-20&21

Vitamin A

Mode of Delivery: **LGIS**



You should be able to

- Relate the role of Vit-A in vision; Sources, biochemical role in vision – Wald's visual cycle
-

Session-16

Free Radicals

Mode of Delivery: SGD



You should be able to

- Define reactive oxygen species (ROS) in human body
- Elaborate Mechanism of production of reactive oxygen species (ROS)
- Describe the Effect of ROS on health and disease
- Appraise the Mechanism of scavenging ROS
- Biochemical role of antioxidants (Vit E, Vit C, Glutathione, Lipoic Acid, CoQ10 and NADPH)

Session-17,18&19

Nucleotides

Mode of Delivery: LGIS



You should be able to

- Define Nucleic acids, their types, structure and functions
- Illustrate the Chemistry and structure of nucleotides and their biochemical role
- Define Nucleotides derivatives and elaborate their biochemical role
-

Session-20

Calcium

Mode of Delivery: LGIS



You should be able to

- Corelate the Biochemical functions, regulation and clinical significance of Calcium with health and disease

Session -20

Xenobiotics

Mode of Delivery: LGIS



You should be able to

- Define xenobiotics
- Elaborate the functions and clinical significance of Xenobiotics

Session-21,22, &23,

Nutrition

Mode of Delivery: LGIS



You should be able to

- Define the Mediterranean diet.
- List the major components of the Mediterranean diet.
- Describe the recommended food groups and their frequency of consumption.
- Explain the nutritional composition of the Mediterranean diet (healthy fats, fiber, antioxidants, vitamins, and minerals)

Session-23&24

Integrated Session
Vitamin D with Physiology

Mode of Delivery: LGIS



You should be able to

- Explain the biochemical and physiological basis of Vitamin D deficiency and rickets/osteomalacia

Session-25&26

Integrated Session
PTH with Physiology

Mode of Delivery: [LGIS](#)



You should be able to

- Correlate the role of PTH in maintaining calcium homeostasis under various physiological and biochemical conditions.

Session-27

Obesity

Mode of Delivery: [LGIS](#)



You should be able to

- Discuss healthy dietary modifications to reduce the risk of cardiovascular disease, type 2 diabetes, and obesity.



College of Medicine - Quakertown

Session-28&29

Mode of Delivery: **CBL**

Lipid Metabolism



Vignette

The Marathon Runner

Ali, a 22-year-old male medical student, had been training intensely for his first full marathon. On race day, he reported good sleep the night before and had followed a carbohydrate-loading plan for three days prior. At mile 5, Ali suddenly hit the “wall,” experiencing fatigue, dizziness, and heavy legs. He noticed difficulty maintaining his pace and mild confusion. He had been drinking water at every hydration station but had avoided energy gels or sports drinks during the race. On examination at the medical tent:

- Pulse: 110/min
- BP: 100/60 mmHg
- Skin: Pale, clammy
- Blood glucose: 70 mg/dL



You should be able to

- Classify dietary lipids and identify which serve as major energy reserves during prolonged exercise.
- Describe the role of lipids as an energy source during prolonged exercise.
- Outline the absorption of lipid digestion products into enterocytes and their re-esterification
- Explain the biochemical pathway of β -oxidation of fatty acids in mitochondria and its clinical significance (**MCAD deficiency**)
- Discuss the hormonal regulation of lipid mobilization during fasting and prolonged exercise.
- How to calculate the energy yield from fats."

Session-30,31,32,33&34

Student Presentation

Mode of Delivery:
Presentations



You should be able to

- Corelate the Biochemical functions, regulation and clinical significance of Calcium with health and disease

Session:35&36

Revision Vitamin A &D

Mode of Delivery: SGD

Session-37



Quiz

Mode of Delivery:

Session38,39,40,41&42

Lipid chemistry, Lipid Metabolism, Lipoprotein Metabolism

Atherosclerosis, Myocardial Infarction

Mode of Delivery: SDL

Total no of sessions.	Mode of Assessment
42	MCQs, SAQs

ANATOMY SKILL LABS

Session –1 Thyroid		Mode of Delivery: Demonstration followed by Hands-on Practical
	• Identify the radial artery for pulse examination. • Measure pulse rate accurately. • Assess pulse rhythm, volume, and character. • Interpret normal and abnormal pulse findings.	
Session – 2 Pituitary		Mode of Delivery: Demonstration followed by Hands-on Practical
	• Appraise the light microscopic structure of Pituitary. • Summarize the brief account of histological features of Pituitary.	



Session – 3

Trigeminal nerve

Mode of Delivery:
SDL



You should be able to

- Describe the pathway of mandibular nerve from nucleus to target organs
- Describe the pathway of maxillary nerve from nucleus to target organs.
- Describe the lesion of nerves with special reference to infections of molar teeth.

Session –4

Blood supply of nose

Mode of Delivery:
SDL



You should be able to

- Identify the radial artery for pulse examination.
- Highlight the significance of Little's area in case of epistaxis

Session – 5

Nerve supply of Larynx

Mode of Delivery:
SDL



You should be able to

- Distinguish clinical presentation so fin jury to external, internal and recurrent laryngeal nerves



Session -6
Cervical Vertebrae

Mode of Delivery: SGD



You should be able to

- Differentiate typical and atypical cervical vertebrae Give distinguishing features of each cervical vertebra.
- Enumerate structures Passing through foramina
- Outline ligamentous attachments once cervical vertebrae
-

Session –7
Revision of skull

Mode of Delivery:
Demonstration followed by Hands-on Practical

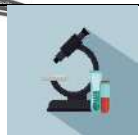


You should be able to

- Identify the bones forming the boundaries of orbit, nasal cavity, oral cavity, temporal & infratemporal & pterygopalatine fossa on the given bone

Session – 8
Radiograph

Mode of Delivery:
Demonstration followed by Hands-on Practical



You should be able to

- Trace the location & drainage of paranasal sinuses on radiograph

Session – 9

Models & specimens

Mode of Delivery:

Demonstration followed by Hands-on Practical



You should be able to

- Identify muscles of facial expressions Illustrate the cutaneous innervation of face.
- Identify the muscles forming the boundaries of anterior & posterior triangle of the neck.
- Identify the muscles & nerves of larynx on model.
- Identify the extraocular muscles on model.

Session –10

Viscera's of the neck

Mode of Delivery: SGD



You should be able to

- Appraise the relations of trachea and esophagus in neck region with the help of dissection
- Describe the structures involved in cricoid hyoidotomy and Tracheostomy with the help of dissection



Session – 11
Revision of OSPE

Mode of Delivery: SDL

Total no of sessions.	Mode of Assessment
11	OSPE,VIVA

PHYSIOLOGY SKILL LAB

Session –1

Examination of Radial Pulse

Mode of Delivery:
Demonstration followed by Hands-on Practical



You should be able to

- Identify the radial artery for pulse examination.
- Measure pulse rate accurately.
- Assess pulse rhythm, volume, and character.
- Interpret normal and abnormal pulse findings.



Session – 2

Examination of Heart Sounds

Mode of Delivery:
Demonstration followed by Hands-on Practical



You should be able to

- Identify the anatomical areas for cardiac auscultation.
- Differentiate the first and second heart sounds.
- Correlate heart sounds with the cardiac cycle.
- Recognize normal heart sounds and common abnormalities.

Session – 3

Recording of Normal ECG

Mode of Delivery:
Demonstration followed by Hands-on Practical



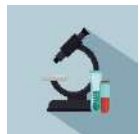
You should be able to

- Demonstrate correct placement of ECG electrodes.
- Record a standard 12-lead ECG.
- Identify the P wave, QRS complex, T wave, and ECG intervals.
- Interpret the features of a normal ECG tracing.

Session –4

Recording of Blood Pressure by Palpatory and Auscultatory Method

Mode of Delivery:
Demonstration followed by Hands-on Practical



You should be able to

- Demonstrate the correct technique for measuring blood pressure.
- Measure systolic blood pressure using the palpatory method.
- Measure systolic and diastolic blood pressure using the auscultatory method.
- Compare blood pressure readings obtained by both methods

Session – 5

Recording of Blood Pressure by Palpatory and Auscultatory Method (Revision)

Mode of Delivery:

Demonstration followed by Hands-on Practical



You should be able to

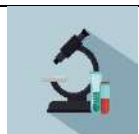
- Perform accurate blood pressure measurement independently.
- Minimize common errors during blood pressure recording.
- Interpret blood pressure readings according to normal reference values.
- Demonstrate proper handling of the sphygmomanometer and stethoscope

Session – 6

Effect of Posture and Exercise on Blood Pressure

Mode of Delivery:

Demonstration followed by Hands-on Practical



You should be able to

- Measure blood pressure in different body positions.
- Record blood pressure before and after exercise.
- Explain the physiological mechanisms responsible for changes in blood pressure.
- Interpret cardiovascular adaptations to posture and exercise



Session –7

Visual Acuity

Mode of Delivery:

Demonstration followed by Hands-on Practical



You should be able to

- Measure visual acuity using the Snellen chart.
- Record and interpret visual acuity findings.
- Explain the physiological basis of visual acuity.
- Identify common causes of reduced visual acuity.

Session – 8

Hearing Test

Mode of Delivery:

Demonstration followed by Hands-on Practical



You should be able to

- Perform basic clinical hearing tests (Rinne's and Weber's tests).
- Differentiate between conductive and sensorineural hearing loss.
- Explain the physiological basis of hearing.
- Interpret hearing test findings accurately.

Session – 9,10&11



Revision & test

Mode of Delivery:

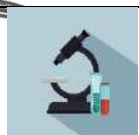
Demonstration followed by Hands-on Practical & Ospe



Total no of sessions.	Mode of Assessment
11	OSPE, VIVA

BIOCHEMISTRY SKILL LAB

Session –1 Estimation and clinical interpretation of serum TAGS By micro lab		Mode of Delivery: Demonstration followed by Hands-on Practical
 You should be able to	Estimate serum triglyceride (TAG) levels using the Micro lab method and interpret the results in common clinical conditions.	
Session – 2 Estimation and clinical interpretation of serum cholesterol By micro lab		Mode of Delivery: Demonstration followed by Hands-on Practical



You should be able to

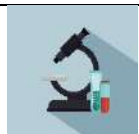
- Estimate serum total cholesterol using the Micro lab method and interpret its clinical significance in cardiovascular disease

Session – 3

Recording Estimation and clinical interpretation of serum creatine kinase by micro lab

Mode of Delivery:

Demonstration followed by Hands-on Practical



You should be able to

- Estimate serum creatine kinase activity using the Micro lab method and interpret its clinical significance in muscle injury.

Session –4

Estimation and clinical interpretation of serum calcium and magnesium

Mode of Delivery:

Demonstration followed by Hands-on Practical



You should be able to

- Estimate serum calcium and magnesium levels and interpret their clinical significance in health and disease.



Session – 5

Justify the use of solutions in clinical settings

Mode of Delivery:

Demonstration followed by Hands-on Practical



You should be able to

- Differentiate commonly used clinical solutions and justify their appropriate use based on their composition and clinical indications.

Session – 6

Estimation and clinical interpretation of vit C by titration method

Mode of Delivery:

Demonstration followed by Hands-on Practical



You should be able to

- Estimate vitamin C concentration by the titration method and interpret the results in relation to nutritional status.

Session –7

Revision

Mode of Delivery: SDL



Session – 8  TEST	Mode of Delivery: Assessment, OSPE
Session – 9 Revision	Mode of Delivery: SDL
Session – 10  TEST	Mode of Delivery: Assessment, OSPE
Session – 11 Revision	Mode of Delivery: SDL

Total no of sessions.	Mode of Assessment
11	OSPE, VIVA



SPIRAL II

DENTAL & PERIODONTAL HEALTH & TISSUE

Dental Tissues	Periodontal Tissues
Tooth Morphology – 1	Tooth Morphology – 2



ORAL BIOLOGY

Session – 1 <i>Integrated with Oral Pathology</i> Introduction to Tooth Development		Mode of Delivery: LGIS, TBL, OPEN BOOK LEARNING
 You should be able to	• Define odontogenesis. • Explain formation of oral ectoderm, primary epithelial band and dental placodes. • Correlate the stages of tooth development with clinical significance.	
Session – 2 Dental & Vestibular Lamina		Mode of Delivery: LGIS
 You should be able to	• Explain formation of dental lamina and vestibular lamina. • Describe the process of tooth initiation. • Discuss theories of tooth type determination.	



Session-3 Maxillary Central & Lateral Incisors		Mode of Delivery: LGIS
 You should be able to	• Describe crown and root morphology • Identify distinguishing features • Describe pulp morphology	
Session- 4,5,6 Dentinogenesis & Root Formation		Mode of Delivery: LGIS
 You should be able to	• Explain dentinogenesis and Hertwig's epithelial root sheath. • Describe root formation and eruption.	
Session- 7 Bell Stage		Mode of Delivery: LGIS
 You should be able to	• Explain histodifferentiation and morpho differentiation. • Describe the cells of the enamel organ.	



Session 8 Mandibular central and Lateral incisor		Mode of Delivery LGIS:
 You should be able to	• Describe Morphology • Compare it with maxillary incisors.	
Session 9 Bell Stage		Mode of Delivery LGIS
 You should be able to	• Explain histodifferentiation and morpho differentiation. • Describe the cells of the enamel organ.	
Session-10 Permanent Canines		Mode of Delivery: LGIS,
 You should be able to	• Describe the morphology of maxillary and mandibular canines. • Identifying distinguishing features.	



Session -11 Dentin Sensitivity& Repair		Mode of Delivery: LGIS
 You should be able to	• Explain hydrodynamic theory • Describe defensive and reparative mechanisms. • Discuss age changes.	
Session- 12,13 Enamel Composition		Mode of Delivery: LGIS
 You should be able to	• Describe physical and chemical properties of enamel. • Explain composition and mineralization.	
Session-14 Dentinogenesis & Root Formation		Mode of Delivery: LGIS
 You should be able to	• Explain dentinogenesis and Hertwig's epithelial root sheath. • Describe root formation and eruption.	



Session- 15,18

Amelogenesis

Mode of Delivery: **LGIS**



You should be able to

- Explain stages of amelogenesis
- Correlate amelogenesis with developmental enamel defect.

Session- 16,21

Integrated with Oral Pathology

Developmental Defects of Enamel

Mode of Delivery: **LGIS**



You should be able to

- Discuss enamel hypoplasia, hypo mineralization and amelogenesis imperfecta.
- Correlate defects with clinical findings.

Session- 17

Integrated with operative

Dentin Sensitivity & Repair

Mode of Delivery: **LGIS**



You should be able to

- Explain hydrodynamic theory.
 - Describe defensive and reparative mechanisms.
 - Discuss age changes.
- Discuss dentin hypoplasia and dentinogenesis imperfecta.

Session- 19

Enamel Histology

Mode of Delivery: LGIS



You should be able to

- Describe enamel rods, incremental lines and enamel microstructure.
- Correlate structure with function

Session - 20

Enamel Proteins

**Mode of Delivery:
LGIS**



You should be able to

- Describe enamel proteins.

Session- 22

Comparison of Permanent Incisors

**Mode of Delivery:
LGIS**



You should be able to

- Compare all permanent incisors with deciduous.

Session-23&24
Test

Session- 25

Pulp Histology

Mode of Delivery: LGIS



You should be able to

- Describe cells, blood supply and nerve supply of dental pulp.
- Explain functions of pulp.

Session- 26

Theories of Tooth Development

Mode of Delivery: LGIS



You should be able to

- Explain the theories



Session- 27,44

Mode of Delivery: **CBL**

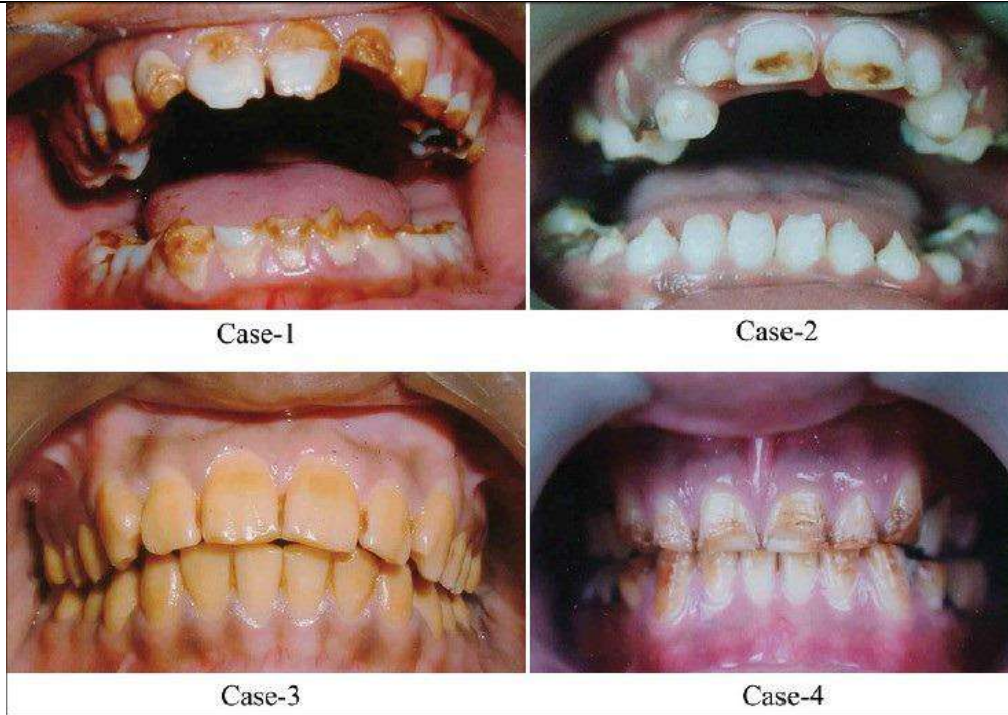
Integrated with Operative Dentistry & Oral Pathology

Developmental Anomalies

Vignette



A 17-year-old male presented with yellow-brown tooth discoloration since childhood, affecting both primary and permanent dentition. Clinical examination revealed generalized brown discoloration, posterior attrition with reduced crown height, and pitting in several teeth, while enamel remained hard without chipping. Panoramic radiography showed a thin enamel layer with greater radiodensity than dentin. Based on the clinical and radiographic findings, a diagnosis of hypoplastic amelogenesis imperfecta (AI) was established.



You should be able to

- Discuss developmental anomalies of teeth and supporting tissues.
- Correlate with oral pathology.

Session- 28

Premolars

Mode of Delivery: [LGIS](#)



You should be able to

- Describe morphology of maxillary and mandibular premolars.
- Identify distinguishing features.

Session- 29

Age Related Changes in Enamel

Mode of Delivery: LGIS



You should be able to

- Describe age related changes in enamel.

Session- 30

Bone Composition

Mode of Delivery: LGIS



You should be able to

- Describe physical and chemical properties of bone.
- Classify bone types

Session- 31

Canines

Mode of Delivery: LGIS



You should be able to

- Discuss permanent canines

Session- 32

Bone Histology

Mode of Delivery: [LGIS](#)



You should be able to

- Describe microscopic structure of bone.
- Identify osteons and bone cells

Session- 33

Bone Development & Remodeling

Mode of Delivery: [LGIS](#)



You should be able to

- Explain ossification, remodeling and repair.
- Correlate bone disorders with clinical conditions.

Session- 34&35

Cementum

Mode of Delivery: [LGIS](#)



You should be able to

- Describe composition, types and functions of cementum.
- Explain cement genesis.

Session- 36

Morphology

Mode of Delivery: [LGIS](#)



You should be able to

- Identify Canine teeth from different aspects.
- Describe permanent canine teeth.

Session- 37

Cementoenamel Junction

Mode of Delivery: [LGIS](#)



You should be able to

- Classify CEJ and CDJ.
- Explain their clinical significance.

Session- 38

Age Changes & Repair in Cementum

Mode of Delivery: [LGIS](#)



You should be able to

- Describe age-related changes and repair mechanisms.
- Correlate with clinical conditions.

Session- 39

Periodontal Ligament

Mode of Delivery: [LGIS](#)



You should be able to

- Describe composition, cells and functions of PDL.

Session- 40

Morphology

Mode of Delivery: [LGIS](#)



You should be able to

- Discuss permanent canine teeth.

Session-41

Principal Fibers

Mode of Delivery: [LGIS](#)



 You should be able to	• Classify principal fiber groups. • Explain their functions.
Session-42 Periodontium	Mode of Delivery: LGIS
 You should be able to	• Explain neurovascular supply and clinical significance. • Discuss age changes.
Session-43&47 PDL	Mode of Delivery: LGIS
 You should be able to	• Explain functional changes in periodontium. • Correlate with occlusal forces.
Session-45 Clinical Morphology	Mode of Delivery: LGIS



You should be able to

- Discuss tooth morphology in restorative, endodontic and extraction procedure.

Session- 46

Mode of Delivery: CBL

Integrated with Operative Dentistry

Dental Pain & Dentin Sensitivity

Vignette



Jane, a 28-year-old female, presented with sensitivity in multiple premolars and molars, especially to hot and cold stimuli. Clinical examination revealed generalized enamel wear on the occlusal surfaces without caries, fractures, or restorations. Air-blast and cold-water tests produced sharp, transient pain in the affected teeth. Radiographs showed generalized enamel loss with no evidence of caries or periapical pathology, suggesting dentinal hypersensitivity secondary to enamel wear.



(b)



(c)



You should be able to

- Explain histological basis of dentin sensitivity and pain.

Session-49

Integrated with Periodontology

Gingivitis vs Periodontitis

Mode of Delivery: CBL



Vignette

A 28-year-old female, presented with sensitivity in several premolar and molar teeth when consuming hot and cold foods. Clinical examination showed generalized enamel wear on the chewing surfaces and mild gingival redness with bleeding on probing. Air-blast and cold-water tests caused sharp, short-lasting pain. Radiographs showed enamel loss but no caries, bone loss, or periapical pathology, suggesting dentinal hypersensitivity with mild gingivitis.



You should be able to

- Correlate histology with periodontal diseases

Session- 50,51

Class Test

Mode of Delivery:



Session – 52,53

Mode of Delivery: **LGIS**

Repair and Regeneration



You should be able to

- Explain wound healing and regeneration

Total no of sessions.	Mode of Assessment
53	MCQs, SAQs,OBE

PRACTICALS HISTOLOGY LAB

Session- 1

Mode of Delivery: **Practical/SGD**

Stages of Tooth Development (Bud, Cap and Early Bell Stage)



You should be able to

- Identify the histological stages of tooth development
- Differentiate their characteristic microscopic features.



Session- 2 Advanced Bell Stage, Apposition and Root Development		Mode of Delivery: Practical/SGD
 You should be able to	• Identify the histological features of advanced tooth development • Interpret the process of enamel, dentin and root formation.	
Session- 3 Structure of Enamel		Mode of Delivery: Practical/SGD
 You should be able to	• Identify the microscopic structures of enamel • Differentiate its histological features.	
Session- 4 Amelogenesis, Ameloblasts and Developmental Defects of Enamel		Mode of Delivery: Practical/SGD



 You should be able to	• Identify the stages of amelogenesis and recognize the histological features of enamel developmental defects.
Session- 5 Structure and Types of Dentin	Mode of Delivery: Practical/SGD
 You should be able to	• Identify the microscopic structure of dentin differentiate the types of dentin.
Session- 6 Dentin Sensitivity: Theories and Clinical Correlation	Mode of Delivery: Practical/SGD
 You should be able to	• Identify dentinal tubule features and correlate them with theories of dentin sensitivity.
Session - 7 Gingiva and Principal Fibers of Periodontal Ligament	Mode of Delivery: Practical/SGD



 You should be able to	• Identify the histological features of gingiva • Recognize the principal fiber groups of periodontal ligaments.
Session- 8 Root Development and Hertwig's Epithelial Root Sheath	
 You should be able to	• Identify the histological features of root development • Recognize the role of Hertwig's epithelial root sheath.
Session- 9 Bone Histology	
 You should be able to	• Identify the microscopic structure of bone and • Differentiate compact and cancellous bone.
Session- 10 Cementum: Types and Histological Features	
Mode of Delivery: Practical/SGD	



You should be able to

- Identify the types of cementum.
- Differentiate their histological characteristics

Session- 11

Integrated Oral Histology Revision (OSPE)

Mode of Delivery: Practical/SGD



You should be able to

Identify unknown oral tissue specimens. Differentiate their histological features.

TOOTH MORPHOLOGY PRACTICALS

Session- 1

Introduction to Tooth Morphology

Mode of Delivery: Practical/SGD



 You should be able to	Identify permanent dentition, tooth numbering systems and chronology.
Session- 2 Maxillary Central Incisor	Mode of Delivery: Practical/SGD
 You should be able to	Describe crown, root, pulp chamber and identifying features.
Session- 3 Maxillary Lateral Incisor	Mode of Delivery: Practical/SGD
 You should be able to	Identify morphological features and distinguish from central incisor.
Session- 4 Mandibular Central Incisor	Mode of Delivery: Practical/SGD



 You should be able to	• Describe morphology and identify distinguishing features.
Session- 5 Mandibular Lateral Incisor	Mode of Delivery: Practical/SGD
 You should be able to	• Compare with mandibular central incisor.
Session- 6 Maxillary Canine	Mode of Delivery: Practical/SGD
 You should be able to	• Describe crown and root morphology and identify anatomical landmarks.
Session- 7 Mandibular Canine	Mode of Delivery: Practical/SGD



 You should be able to	• Compare maxillary and mandibular canines.
Session – 8 Comparative Morphology of Incisors	Mode of Delivery: Practical/SGD
 You should be able to	• Differentiate all four permanent incisors using models.
Session- 9 Premolars	Mode of Delivery: Practical/SGD
 You should be able to	• Differentiate maxillary and mandibular 1st premolars.
Session- 10 Premolars	Mode of Delivery: Practical/SGD



 You should be able to	Identify U, H, and Y patterns mandibular 2nd premolar.
Session- 11 Integrated Morphology Revision (OSPE)	
 You should be able to	Identify incisors, canine and premolars

Total no of sessions.	Mode of Assessment
22	OSPE, VIVA



Block II Test Schedule 2026

Date	Day	Subject
18-8-2026	Tuesday	Anatomy
24-8-2026	Monday	Biochemistry
31-8-2026	Monday	Physiology
7-9-2026	Monday	Oral Biology
14-9-2026	Monday	Anatomy
21-9-2026	Monday	Biochemistry
28-9-2026	Monday	Physiology
5-9-2026	Monday	Oral Biology

Learning Resources



Anatomy

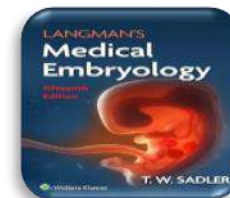
Langman's Medical Embryology

Authors: T. W. Sadler

Edition: 15th Edition

Publisher: Wolters Kluwer

Recommended use: Primary/reference resource for embryological development, congenital anomalies, and clinically relevant developmental concepts.



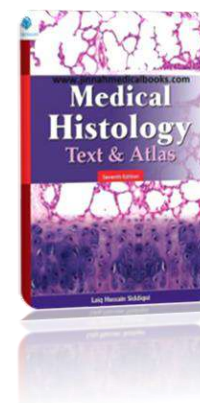
Medical Histology

Author: Laiq Hussain Siddiqui

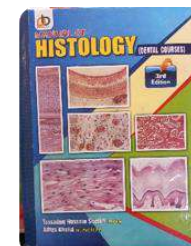
Edition: 7th Edition

Publisher: —

Recommended use: Primary learning resource for basic and systemic histology, microscopic structure, and tissue organization.



Histology Practical Copy





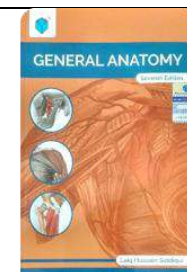
General Anatomy

Author: Laiq Hussain Siddiqui

Edition: 7th Edition

Publisher: —

Recommended use: Primary learning resource for fundamental anatomical concepts, anatomical terminology, bones, joints, muscles, and general structures.



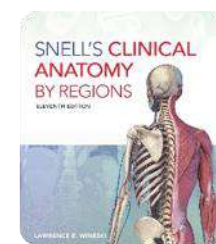
Snell's Clinical Anatomy by Regions

Author: Lawrence E. Wineski

Edition: Latest Edition

Publisher: Wolters Kluwer

Recommended use: Reference resource for regional anatomy, anatomical relationships, and clinical applications.



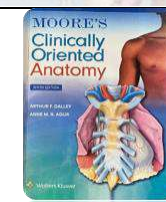
Moore's Clinically Oriented Anatomy

Authors: Keith L. Moore, Arthur F. Dalley II, Anne M. R. Agur

Edition: Latest Edition

Publisher: Wolters Kluwer

Recommended use: Reference resource for clinically relevant anatomy, regional relationships, and application of anatomical knowledge to clinical practice.



Physiology

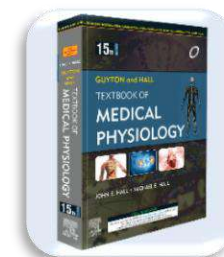
Guyton and Hall Textbook of Medical Physiology

Authors: John E. Hall, Michael E. Hall

Edition: 15th Edition

Publisher: Elsevier

Recommended use: Primary/reference resource for understanding core physiological concepts, mechanisms, and clinical applications.



Human Physiology: From Cells to Systems

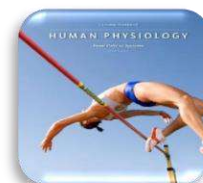
Authors: Lauralee Sherwood



Edition: 10th Edition

Publisher: Cengage Learning

Recommended use: Recommended supplementary resource for conceptual understanding of human physiology and integration of physiological systems



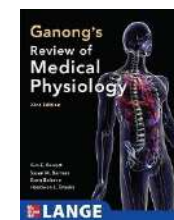
Review of Medical Physiology

Authors: William F. Ganong, Kim E. Barrett, Scott Boitano, Susan M. Barman

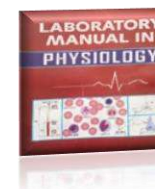
Edition: 27th Edition

Publisher: McGraw Hill

Recommended use: Reference resource for detailed physiological mechanisms, advanced concepts, and integration of physiology with clinical medicine.



Laboratory Manual in Physiology



Biochemistry

Lippincott Illustrated Reviews: Biochemistry

Authors: Denise R. Ferrier

Edition: 8th Edition

Publisher: Wolters Kluwer

Recommended use: Primary textbook for understanding fundamental biochemical concepts, metabolic pathways, clinical correlations, and applied biochemistry.





Essentials of Biochemistry

Author: Mushtaq Ahmad

Edition: 9th Edition

Publisher: Nishtar Publications

Recommended use: Supplementary resource for basic concepts, concise explanations, and revision of essential biochemistry topics.



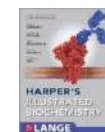
Harper's Illustrated Biochemistry

Authors: Victor W. Rodwell, David A. Bender, Kathleen M. Botham, Peter J. Kennelly, P. Anthony Weil

Edition: 32nd Edition

Publisher: McGraw Hill

Recommended use: Reference resource for detailed biochemical mechanisms, metabolic pathways, molecular concepts, and clinical applications of biochemistry.



Experimental Biochemistry Manual



Oral Biology

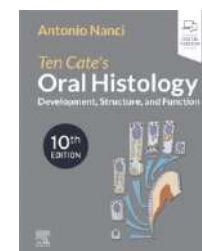
Ten Cate's Oral Histology: Development, Structure, and Function

Author: Antonio Nanci

Edition: 10th Edition

Publisher: Elsevier

Recommended use: Primary/reference resource for oral histology, tooth development, enamel, dentin, pulp, periodontium, salivary glands, bone and TMJ.





Orban's Oral Histology, Embryology and Physiology

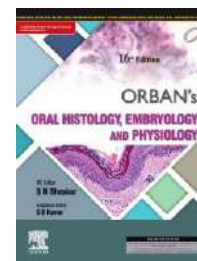
Author: G. S. Kumar

Edition: 16th Edition (2023)

Publisher: Elsevier India

Recommended use: Student-friendly resource covering

oral embryology, histology and oral physiology, with learning objectives, summaries and review questions.



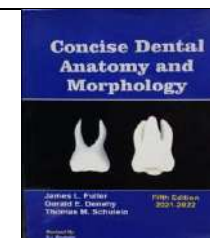
Concise Dental Anatomy and Morphology

Author: James L. Fuller, Gerald E. Denehy & Thomas M. Schulein

Edition: 5th Edition

Publisher: Public Service Department

Recommended use: Supplementary resource for detailed tooth morphology, identification and practical dental anatomy.

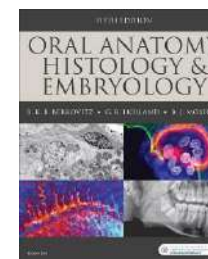


Oral Anatomy, Histology and Embryology

Author: B.K.B BERKOVITZ

Edition: 5th Edition

Publisher: Elsevier





Week 1

Weekly Time Table (2026)

Block: 2

Themes: Basics of Medicine I & Essentials of Dentistry I Modules: Foundation I & Orofacial Biology

Themes: Basics of Medicine & Essentials of Dentistry Procedures: Foundation & Oral Clinical Biology											
Day/Time	8:30-9:20	9:20-10:10	10:10-10:30	10:30-11:20	11:20-12:10	12:10-12:30	12:10-1:50	1:50-3:30			
Monday 3-8-26	Integrated session Introduction to circulatory system			F.A Classification	Introduction Development		<u>PRACTICAL /SGD</u> Batch A – PHYSIOLOGY Batch B - ANATOMY Batch C BIOCHEMISTRY	Maxillary Central & Lateral Incisors			
	LGIS Anatomy	LGIS Dr.Ayesha Physiology		LGIS Dr Naila Biochemistry	LGIS Dr Saman Malik Oral Biology		LGIS Dr Khawlah Oral Biology				
Tuesday 4-8-26	Lipids Classification	Dental & Vestibular Lamina		Cardiac AP	Circulatory system		<u>PRACTICAL/SGD</u> Batch B - PHYSIOLOGY Batch C - ANATOMY Batch A-BIOCHEMISTRY	<u>Practical Oral Bio</u> Batch A Histology Batch B Morphology			
	LGIS Dr Naila Biochemistry	LGIS Dr Saman Malik Oral Biology		LGIS Dr.Ayesha Physiology	LGIS Dr Marrium Anatomy						
Wednesday 5-8-26	Cardiac Cycle	Cholesterol Bio synthesis		Coronary circulation	Cardiac Cycle		12:30-1:10 Foramina of skull	1:10-1:50	<u>Practical Oral Bio</u> Batch B Histology Batch A Morphology		
	LGIS Dr.Ayesha Physiology	LGIS Dr Naila Biochemistry		LGIS Dr Ayesha Anatomy	LGIS Dr.Ayesha Physiology		Anatomy	Islamiyat			
Thursday 6-8-26	Skull			F.A Mobilization	Skull		<u>PRACTICAL/SGD</u> Batch C - PHYSIOLOGY Batch A - ANATOMY Batch B-BIOCHEMISTRY		Cardiac Cycle		
	SGD All faculty Anatomy			LGIS Biochemistry	SGD Anatomy				SGD All Faculty Physiology		
Friday 7-8-26	8:30-9:30 Bud Cap Stage	9:30-10:30 Skull SGD		10:30-11:20 B-Oxidation Of F.A	11:20-12:10 Cardiac Cycle		12:10-1:00 Dentinogenesis & Root Formation		1:00-1:45 Quran+ namaz break	1:50-3:30 Expository english	
	LGIS Dr Saman Malik Oral Biology	SGD All faculty Anatomy		LGIS Dr Naila Biochemistry	LGIS Dr.Ayesha Physiology		LGIS Dr Sajida Farid Oral biology		Dr Nousheen		
Dr.Ayesha Zafar Coordinator 2nd Block HOD Physiology		Dr.Ayesha Shahid HOD Anatomy		Dr.Naila Zakria HOD Biochemistry		Dr.Saman Malik HOD Oral Biology		Dr.Faizan Munir D.D.E	Prof. Dr.Irfan Shah Principal		
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Feedback on the study guide:

We value your feedback and will use it for improvement of this study guide. Kindly provide feedback at the given email address: dental.education@hitec-ims.edu.pk