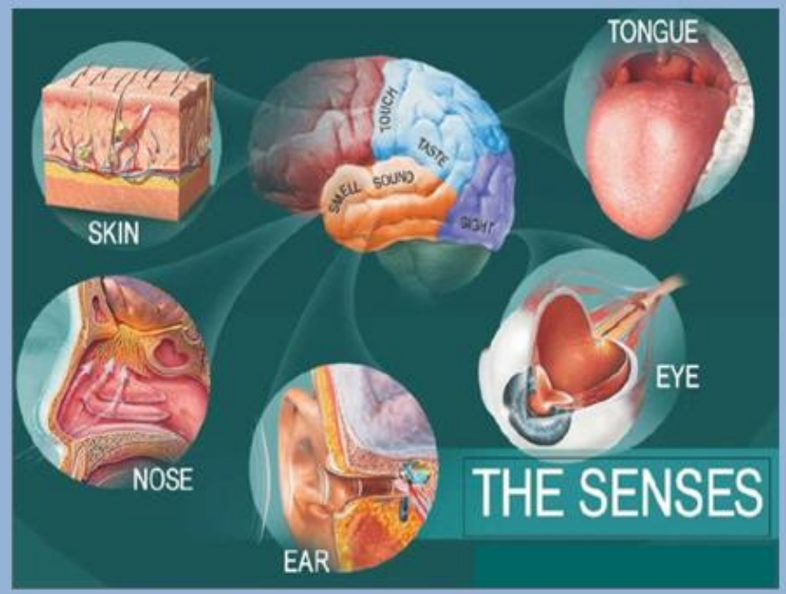
Special Senses Module



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Document Information

Category	**Special Senses Module Study Guide**
Document	Procedure for Control of Documented Information
Issue	1
Rev	00
Identifier	RMU-MR-SOP-60
Status	Final Document
Author(s)	Director Medical Education, Asst. Director Medical Education,
Reviewer(s)	Curriculum Committee.
Approver(s)	Vice Chancellor
Creation Date	03-05-2024
Effective Date	03-05-2024
Control Status	**Controlled**
Distribution	VC, Principal, ISO Committee
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Document Approval

Prepared By	Reviewed By	Approved By
Director Medical Education, Asst. Director Medical Education,	Curriculum Committee	Vice Chancellor

Document Revision History

Author(s)	Date	Version	Description
Prof Naeem Akhtar, Dr Ifra Saeed, Dr. Ayesha Yousaf, Dr Sidra Hamid, Dr Tehmina Qamar	2017-2018	1st	Developed for Second Year MBBS. Composed of Horizontally and vertically Integrated Special Senses.
Dr Tehzeeb, Dr Samia Sarwar, Dr Ifra Saeed, Dr. Ayesha Yousaf, Dr Tehmina Qamar, Dr Sidra Hamid	2019-2020	2nd	Developed for Second Year MBBS. Horizontally and vertically integrated Learning objectives updated
Dr Tehzeeb, Dr Samia Sarwar, , Dr Ifra Saeed, Dr Ayesha Yousaf , Dr Tehmina Qamar, Dr Sidra Hamid	2021-2022	3rd	Developed for Second Year MBBS. Horizontally and vertically integrated Learning objectives updated, Research curriculum incorporated
Dr Tehzeeb, Dr Samia Sarwar, Dr Ifra Saeed, Dr Ayesha Yousaf, Dr Tehmina Qamar, Dr Sidra Hamid	2022-2023	4th	Developed for Second Year MBBS. Horizontally and vertically integrated Learning objectives updated, Research, Bioethics, Family Medicine curriculum incorporated along with Professionalism
Dr Samia Sarwar, Dr Ifra Saeed, Dr Ayesha Yousaf, Dr. Aneela Jamil, Dr Sidra Hamid	2023-2024	5th	Developed for Second Year MBBS. Horizontally and vertically integrated Learning objectives updated, Research curriculum revamped Bioethics, Family Medicine curriculum incorporated along with Professionalism. Entrepreneurship curriculum incorporated

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Document Code	Issue # /Rev.#	Copy #	Copy Holders	Distribution Mode	Signature
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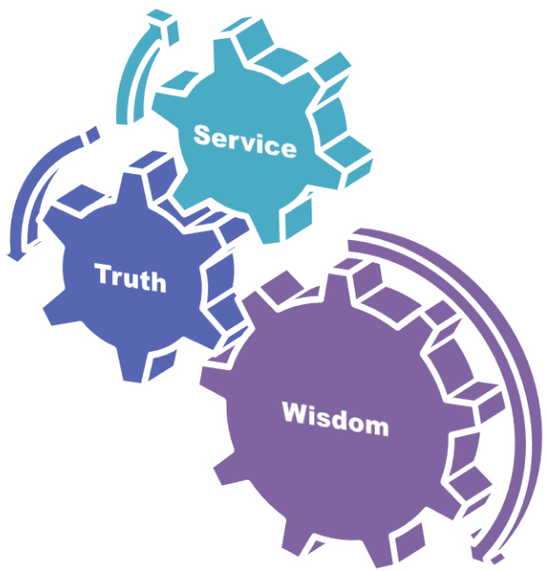
University Moto, Vision, Values & Goals

RMU Motto



Mission Statement

To impart evidence-based research-oriented health professional education in order to provide best possible patient care and inculcate the values of mutual respect, ethical practice of healthcare and social accountability.

Vision and Values

Highly recognized and accredited centre of excellence in Medical Education, using evidence-based training techniques for development of highly competent health professionals, who are lifelong experiential learner and are socially accountable.

Goals of the Undergraduate Integrated Modular Curriculum

The Undergraduate Integrated Learning Program is geared to provide you with quality medical education in an environment designed to:

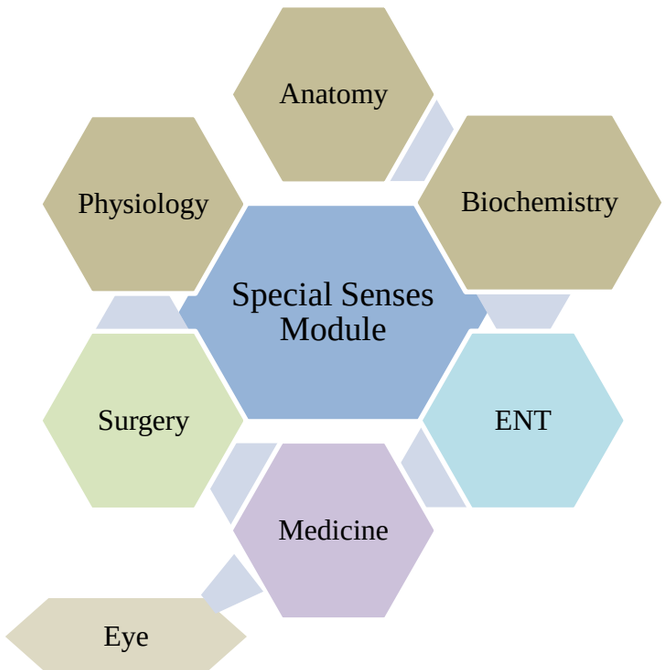
- Provide thorough grounding in the basic theoretical concepts underpinning the practice of medicine.
- Develop and polish the skills required for providing medical services at all levels of the health care delivery system.
- Help you attain and maintain the highest possible levels of ethical and professional conduct in your future life.
- Kindle a spirit of inquiry and acquisition of knowledge to help you attain personal and professional growth & excellence.

Second Year MBBS 2024

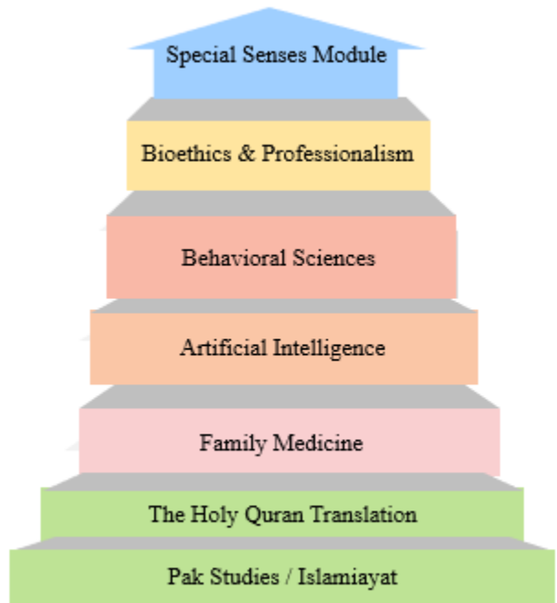
Study Guide

Special Senses Module

Integration of Disciplines in Special Senses Module



Spiral / General Education Cluster Courses



Discipline Wise Details of Modular Contents

Block	Subjects	Embryology	Histology	Histology Practical SKL. Lab.	Gross Anatomy	CBL	SDL
\ III	• Anatomy	• Development of Eye • Development of Pharyngeal arches • Development of Ear	• Histology of Eye • Histology of Ear	• Cornea • Retina • External and Internal ear	• Facial and superior aspect of cranium (Norma frontalis, Norma verticalis) • External surface of cranial base (Norma basalis) • Lateral and occipital aspect of cranium (Norma lateralis, occipitalis) • Mandible • Temporomandibular joint • Face • Scalp • Orbit boundaries and Extraocular muscles • Vessels and nerves of orbit • Eyeball • Eyelid and lacrimal apparatus • Parotid and temporal region • Infratemporal fossa • Pterygopalatine fossa • External and middle ear • Inner ear • Nose and paranasal sinuses	• Oculomotor nerve palsy • Extra Dural hemorrhage	• Norma frontalis, verticalis and basalis • Lateralis and occipitalis, TMJ & Mandible Orbit boundaries • Extraocular muscles • Vessels and Nerves of orbit • Temporal and Infra temporal region, Pterygopalatine fossa • External and middle ear
	• Physiology	• Physiology of Ear & Eye					
	• Biochemistry	• Receptors, Second messengers, Neurotransmitters, Vitamin A role in vision					
	Spiral Courses						
	• The Holy Quran Translation	•					
	• Islamiayat	• Imaniat (Hadith) • Zimidaari aur taluqaat • Uswa-e-hasna					
	• Pak Studies	• Pakistan ki jughrafiyai ahmiyat aur difai haisiyat					

		• Pakistan k hamsaya mumalik se taluqaat • Pakistan k qudrati wasail-maadniyaat
	• Biomedical Ethics / Professinalism	• Ethical dilemmas Involving breach in Justice
	• Behavioral Sciences	• Perception
	• Radiology & Artificial Intelligence	• General radiologic concepts
	• Family Medicine	• Approach to a patient with earache
	Vertical Integration	
	• Surgery	• Plastic surgery
	• ENT	• Nasal polyp & Sinusitis & Diseases of External Nose • Otitis Media Ear Discharge &Hearing Problems in Children • Facial fractures
	• Medicine	• Management Of Covid-19 Sense of Smell
	• Eye	• Refractive Errors Strabismus • Ocular trauma & Ocular Procedures • Conjunctivitis Chalazion • Cataract & Glaucoma & Anti glaucoma drugs
	Early Clinical Exposure (ECE)	
	• Medicine	• Hyperthyroidism • Hypothyroidism • Cushing Syndrome
	• Surgery	• Thyroid Nodule • Multi nodular Goiter • CA Thyroid • Graves Diseases
	• Eye	• Blindness • Visual field defect • Cataract
	• Otolaryngology	• Deafness • Hearing tests • Nasal Obstruction

Table of Contents

Special Senses Module Team

Module Name	:	Special Senses Module
Duration of module	:	04 Weeks
Coordinator	:	Dr. Minahil Haq
Co-coordinator	:	Dr. Fareed Ullah
Reviewed by	:	Module Committee

Module Committee		
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar
2.	Director DME	Prof. Dr. Ifra Saeed
3.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf
4.	Chairperson Physiology	Prof. Dr. Samia Sarwar
5.	Chairperson Biochemistry	Dr. Aneela Jamil
6.	Focal Person Anatomy Second Year MBBS	Dr. Maria Tasleem
7.	Focal Person Physiology	Dr. Sidra Hamid
8.	Focal Person Biochemistry	Dr. Aneela Jamil
9.	Focal Person Pharmacology	Dr. Zunera Hakim
10.	Focal Person Pathology	Dr. Asiya Niazi
11.	Focal Person Behavioral Sciences	Dr. Saadia Yasir
12.	Focal Person Community Medicine	Dr. Afifa Kulsoom
13.	Focal Person Quran Translation Lectures	Dr. Uzma Zafar
14.	Focal Person Family Medicine	Dr. Sadia Khan

Module Task Force Team		
1.	Coordinator	Dr. Minahil Haq (Senior Demonstrator of Anatomy)
2.	DME Focal Person	Dr. Farzana Fatima
3.	Co-coordinator	Dr. Sadia Baqir (Senior Demonstrator of Anatomy)
4.	Co-Coordinator	Dr. Romessa (Demonstrator of Biochemistry)
5.	Co-coordinator	Dr. Fareed Ullah Khan (Senior Demonstrator of Physiology)

DME Implementation Team		
1.	Director DME	Prof. Dr. Ifra Saeed
2.	Assistant Director DME	Dr Farzana Fatima
3.	DME Implementation Team	Prof. Dr. Ifra Saeed Dr. Farzana Fatima Dr. Saira Aijaz
4.	Editor	Muhammad Arslan Aslam

Module III – Special Senses Module

Rationale: Visual system is a blessing, and no one can underestimate the importance of sight in ones life. It is a highly sensitive system. Unfortunately, it is among the neglected parts of health care and millions of people are getting blind either due to negligence or inappropriate treatment. Refractive errors, cataract, glaucoma and diabetic eye disease are among the ophthalmic diseases which can be easily treated, and morbidity prevented if diagnosed earlier. A young doctor must know how to screen out eye diseases and treat where possible. It is our responsibility to provide them with the required acumen.

Ear, Nose and Throat disorders are very common in the community and form a major portion of clinical practice of a general / family physician. Common ENT problems like phayngitis, tonsillitis, Otitis media, rhinosinusitis, nasal allergy, deafness, vertigo and balance problems can be diagnosed and treated easily. The prevalence of cancer of the upper aerodigestive tract is very high in Pakistan. These patients must be diagnosed and treated at the early stages to reduce morbidity and mortality. Medical students must be made aware of the importance of proper management of ENT problems for the benefit of community and humanity.

Module Outcomes

By the end of the module, students will be able to:

Knowledge

- Integrate the basic knowledge and clinical problems.
- Take detailed history, examine the patients and make a provisional diagnosis with the plan of management.
- Timely refer the patient to an ophthalmologist or ENT specialist.
- Used technology based Medical Education including **Artificial Intelligence**
- Appreciate concept and importance of **Family Medicine, Biomedical Ethics, & Research.**

Skills

- Demonstrate effective skill for performing and interpreting various laboratory tests like pregnancy test.
- Demostrate awareness of ethical, legal and social implecation of issues related to bioethics.

Attitude

- Demonstrate effective communication skill strategies while interacting with patients.
- Demonstrate teamwork and positive interaction with colleges.
- Demonstrate self learning attitude and problem-solving skills.

SECTION - I

Terms & Abbreviations

Contents

Tables & Figures

Table1. Domains of Learning According to Blooms Taxonomy

Sr. #	Abbreviation	Domains of learning
1.	C	**Cognitive Domain:** knowledge and mental skills.
	• C1	Remembering
	• C2	Understanding
	• C3	Applying
	• C4	Analyzing
	• C5	Evaluating
	• C6	Creating
2.	P	**Psychomotor Domain:** motor skills.
	• P1	Imitation
	• P2	Manipulation
	• P3	Precision
	• P4	Articulation
	• P5	Naturalization
3.	A	**Affective Domain:** feelings, values, dispositions, attitudes, etc
	• A1	Receive
	• A2	Respond
	• A3	Value
	• A4	Organize
	• A5	Internalize

Teaching and Learning Methodologies / Strategies

Large Large Group Interactive Session (LGIS)

The large group interactive session is structured format of Prof Umar Model of Integrated lecture. It will the followed for delivery of all LGIS. The lecturer will introduce a topic or common clinical condition and explains the underlying phenomena through questions, pictures, videos of patients, interviews, and exercises, etc. Students are actively involved in the learning process.

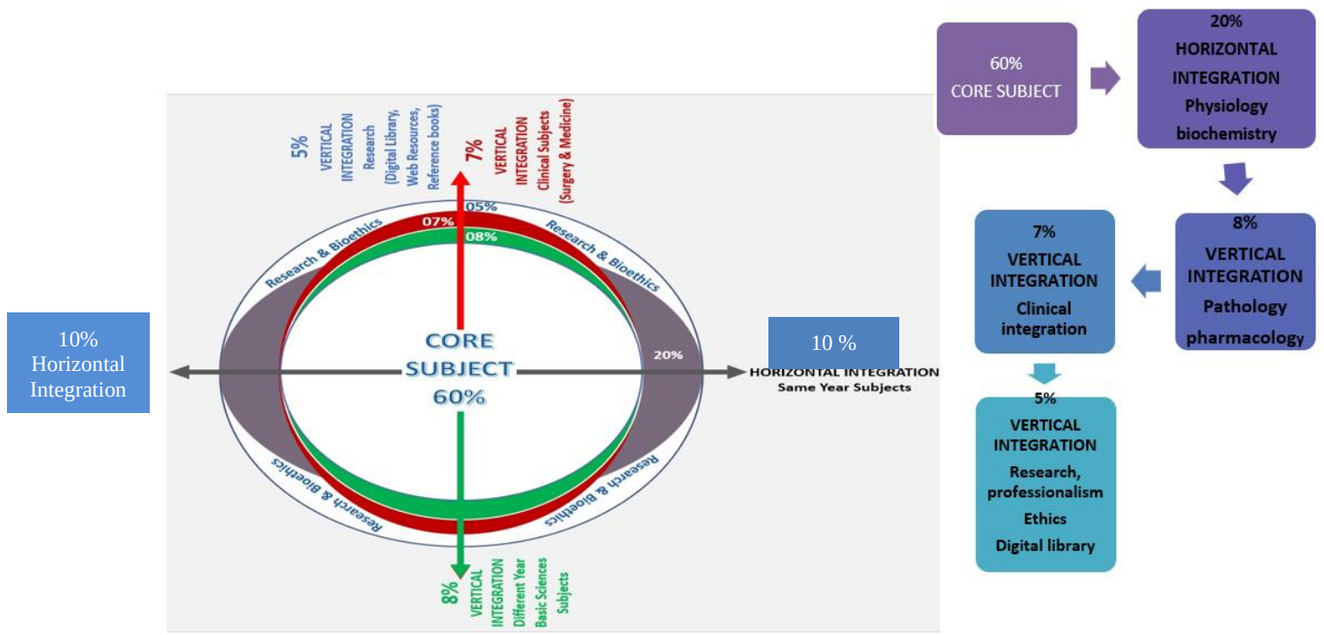


Figure 1. Prof Umar's Model of Integrated Lecture

Small Group Discussion (SGD)

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

Table 2. Standardization of teaching content in Small Group Discussions

S. No	Topics	Approximate %
1	Title Of SGD	
2	Learning Objectives from Study Guides	
3	Horizontal Integration	5%+5%=10%
4	Core Concepts of the topic	60%
5	Vertical Integration	20%
6	Related Advance Research points	3%
7	Related Ethical points	2%

Table 3. Steps of Implementation of Small Group Discussions

Step 1	Sharing of Learning objectives by using students Study guides	First 5 minutes
Step 2	Asking students pre-planned questions from previous teaching session to develop co-relation (these questions will be standardized)	5minutes
Step 3	Students divided into groups of three and allocation of learning objectives	5minutes
Step 4	ACTIVITY: Students will discuss the learning objectives among themselves	15 minutes
Step 5	Each group of students will present its learning objectives	20 min
Step 6	Discussion of learning content in the main group	30min
Step 7	Clarification of concept by the facilitator by asking structured questions from learning content	15 min
Step 8	Questions on core concepts	
Step 9	Questions on horizontal integration	
Step 10	Questions on vertical integration	
Step 11	Questions on related research article	
Step 12	Questions on related ethics content	
Step 13	Students Assessment on online MS teams (5 MCQs)	5 min
Step 14	Summarization of main points by the facilitator	5 min
Step 15	Students feedback on the SGD and entry into log book	5 min
Step 16	Ending remarks	

Self-Directed Learning (SDL)

- Self- directed learning is a process where students take primary charge of planning, continuing, and evaluating their learning experiences.
- Time Home assignment
- Learning objectives will be defined
- Learning resources will be given to students = Textbook (page no), web site
- Assessment:

  i Will be online on LMS (Mid module/ end of Module)

  ii.OSPE station

Case Based Learning (CBL)

- It's a learner centered model which engages students in discussion of specific scenarios that typically resemble real world examples.
- Case scenario will be given to the students
- Will engage students in discussion of specific scenarios that resemble or typically are real-world examples.
- Learning objectives will be given to the students and will be based on
  i. To provide students with a relevant opportunity to see theory in practice
  ii. Require students to analyze data in order to reach a conclusion.
  iii. Develop analytic, communicative, and collaborative skills along with content knowledge.

Problem Based Learning (PBL)

- Problem-based learning (PBL) is a student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem.
- This problem is what drives the motivation and the learning.

The 7- Jump-Format of PBL (Masstricht Medical School)		
Step 7	Syntheise & Report	Session - II
Step 6	Collect Information from outside	
Step 5	Generate learning Issues	Session - I
Step 4	Discuss and Organise Ideas	
Step 3	Brainstorming to Identify Explanations	
Step 2	Define the Problem	
Step 1	Clarify the Terms and Concepts of the Problem Scenario	
Problem- Scenario		

Figure 2. PBL 7 Jumps Model

Practical Sessions/Skill Lab (SKL)

Practical Session/ Skill Lab (SKL)	
Demonstration/ power point presentation 4-5 slide	10-15 minutes
Practical work	25-30 minutes
Write/ draw and get it checked by teacher	20-25 minutes
05 mcqs at the end of the practical	10 minutes
At the end of module practical copy will be signed by head of department	
At the end of block the practical copy will be signed by Head of Department Dean Medical education department QEC	

SECTION – II

Learning Objectives, Teaching Strategies & Assessments

Contents

- Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)
- Large Group Interactive Session:
  - Anatomy (LGIS)
  - Physiology (LGIS)
  - Biochemistry (LGIS)
- Small Group Discussions
  - Anatomy (SGD)
  - Physiology (SGD)
  - Biochemistry (SGD)
- Self-Directed Topic, Learning Objectives & References
  - Anatomy (SDL)
  - Physiology (SDL)
  - Biochemistry (SDL)
- Skill Laboratory
  - Anatomy
  - Physiology
  - Biochemistry

Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)

Anatomy Large Group Interactive Session (LGIS)

Topics	At the end of lecture students should be able to:	Learning Domains	Teaching Strategy	Assessment Tools
Development				
Development of Pharyngeal apparatus	• Define the pharyngeal arch apparatus. • Describe components of pharyngeal arches. • Enlist derivatives of each of pharyngeal arch. • Describe the development of pharyngeal grooves and pharyngeal membranes. • Enlist the derivates of pharyngeal pouches and clefts. • Enlist common birth defects associated with pharyngeal apparatus. • Explain the embryological basis of these defects. • Understand the bio-physiological aspects of arches. • Correlate with the clinical conditions. • understand provision of curative and preventive health care measures. • Practice principles of bioethics. • Apply strategic use of AI in health care. • Read relevant research article.	C1 C2 C1 C2 C1 C1 C2 C2 C3 C3 C3 C3 C3	LGIS	MCQ SAQ VIVA OSPE
Development of face, nasal cavities	• Describe the developmental stages of face. • Discuss the role of neural crest cells in development of facial skeleton and pharyngeal arch derivatives. • Describe the molecular regulation of facial development. • Discuss the congenital anomalies of face. • Describe the development of nasal cavities and paranasal sinuses. • Understand the bio-physiological aspects of face & nasal cavities • Correlate with the clinical conditions.	C2 C2 C2 C3 C2 C3 C3 C3 C3	LGIS	MCQ SAQ VIVA OSPE

	• understand provision of curative and preventive health care measures. • Practice principles of bioethics. • Apply strategic use of AI in health care. • Read relevant research article.	C2 C3 C3 C3		
Development of palate	• Discuss the development of primary and secondary palate. • Enlist the different varieties of cleft palate. • Discuss the etiology of cleft lip and cleft palate. • Describe embryological basis of craniofacial anomalies. • Understand the bio-physiological aspects of Palate. • Correlate with the clinical conditions. • understand provision of curative and preventive health care measures. • Practice principles of bioethics. • Apply strategic use of AI in health care. • Read relevant research article.	C2 C1 C3 C3 C2 C3 C3 C3 C3 C3	LGIS	MCQ SAQ VIVA OSPE
Development of Eye I (Optic Cup & Retina)	• Describe the different embryological sources of development of eye. • Describe development of eye field on rostral neural tube. • Enlist derivatives of optic cup and development of retina. • Recall the differentiation of optic grooves and optic vesicle. • Discuss transformation of optic vesicles into optic cup. • Describe development of retina. • Correlate with the clinical conditions. • understand provision of curative and preventive health care measures. • Practice principles of bioethics. • Apply strategic use of AI in health care.	C2 C2 C1 C2 C2 C2 C3 C3 C3	LGIS	MCQ SAQ VIVA OSPE

	• Read relevant research article.	C3		
Development of Eye II (Congenital defects)	• Describe formation of optic stalk. • Explain induction of optic placodes and lens primordia. • Enumerate neural crest cell and mesenchymal derived eye structures. • Enlist the molecular regulation of eye development. • Discuss birth defects of the eye. • Correlate with the clinical conditions. • understand provision of curative and preventive health care measures. • Practice principles of bioethics. • Apply strategic use of AI in health care. • Read relevant research article.	C2 C2 C1 C1 C2 C3 C3 C3	LGIS	MCQ SAQ VIVA OSPE
Development of Ear	• Explain the development of optic placodes, otic pit, otic vesicle and otic capsule. • Enlist derivatives of otic vesicle and otic capsule. • Describe development of middle ear cavity and Eustachian tube from tubotympanic recess. • Describe the development of auditory ossicles, tympanic membrane and mastoid antrum. • Discuss development of external acoustic meatus. • Enlist commom congenital anomalies associated with ear development. • Describe the embryological basis of these anomalies • Correlate with the clinical conditions. • understand provision of curative and preventive health care measures. • Practice principles of bioethics. • Apply strategic use of AI in health care. • Read relevant research article.	C2 C1 C2 C2 C2 C1 C2 C3 C3 C3 C3	LGIS	MCQ SAQ VIVA OSPE
Histology				
	• Describe the structural differences between outer, middle and inner ear.	C2 C2		

Histology of Ear	• Discuss the functions of different parts of ear. • Distinguish the auditory part of inner ear from the vestibular system. • Discuss their roles in hearing & balance • Describe the fuction of sensory hair cells. • Describe the appearance and function of spinal ganglia. • Understand the bio-physiological aspects of hearing • Correlate with the clinical conditions. • Understand provision of curative and preventive health care measures. • Practice principles of bioethics. • Apply strategic use of AI in health care. • Read relevant research article.	C2 C2 C2 C2 C3 C3 C3 C3 C3 C3	LGIS	MCQ SAQ VIVA OSPE
Histology of Eye I (Fibrous & Vascular coat)	• Discuss the histology of different coats of the eyeball. • Describe histological sections of sclera & Cornea. • Describe the histology of choroid, ciliary body and iris. • Discuss histological sections of accessory structures of the eye. • Discuss the histological details of lens chamber & Vitroeus body. • Understand the bio-physiological aspects of vision • Correlate with the clinical conditions like glaucoma, cataract. • understand provision of curative and preventive health care measures. • Practice principles of bioethics. • Apply strategic use of AI in health care. • Read relevant research article.	C2 C2 C2 C2 C2 C2 C3 C3 C3 C3	LGIS	MCQ SAQ VIVA OSPE
Histology of Eye II (Retina & Photoreceptors)	• Describe layers of retina • Discuss retinal pigment epithelium • Discuss histology& functions of neuronal retina. • Describe photoreceptors & rod cells. • Understand the bio-physiological aspects of Palate. • Correlate with the clinical conditions like retinal	C2 C2 C2 C2 C2 C3	LGIS	MCQ SAQ VIVA OSPE

	detachment • understand provision of curative and preventive health care measures. • Practice principles of bioethics. • Apply strategic use of AI in health care. • Read relevant research article.	C2 C3 C3 C3		

Physiology Large Group Interactive Session (LGIS)

Topics	Learning Objectives	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
Introduction to Physiology of Eye & Optics of vision. General Principles of optics, Physiological basis for errors of refraction	1. Explain the basic physiology of eye and its refractive surfaces 2. Discuss the physical principles of optics 3. Describe the mechanism of accommodation and its control 4. Describe the errors of refraction (Myopia, hyperopia, astigmatism and their correction by using different lens systems	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 177,185) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 85 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10,Page 374-378) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition,Vision(Chapter 64,Page 1086) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 50, Page 627-635)	• https://www.britannica.com/science/human-eye • https://youtu.be/laEFdlxW0rA	1.C2 2. C2 3. C2 4.C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE

Introduction to Physiology of external ear, Middle ear	1.Describe physiology of external ear 2.Describe physiology of middle ear 3. Explain structure of middle ear	• Ganong's Review of Medical Physiology.25TH Edition.Section 02, (Chapter 10, Page 199) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 92 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10,Page 364-371) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 53, Page 663)	• https://youtu.be/VRLm7cpmZSk • https://www.sciencedirect.com/science/article/pii/S0378595522002192	1. C2 2. C2 3. C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Fluid system of the eye Intraocular pressure, Function of the Structural Elements of the Retina	1.Describe the formation and circulation of aqueous humor 2.Explain the mechanism of regulation of intraocular pressure 3.Define glaucoma and its treatment	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 178) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition,Vision(Chapter 64,Page 1094) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 50, Page 635) (Chapter 51,Page 639)	• https://youtu.be/CKtLlOSh8o4 • https://youtu.be/7CFY4gxLnMY • https://my.clevelandclinic.org/health/body/24611-aqueous-humor-vitreous-humor	1. C2 2. C2 3. C1	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Functions of Inner ear, Physiology of Hearing	1. Describe the physiology of hearing and function of tympanic membrane and ossicular system. 2. Define impendence matching and attenuation reflex 3. Explain the conduction of sound waves in the cochlea	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 10, Page 200,204) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 93	1. https://youtu.be/Ie2j7GpC4JU 2. https://youtu.be/qgdqp-oPb1Q 3. https://www.urmc.rochester.edu/encyclopedia/content.aspx?ContentTypeID=90&ContentID=P	1. C2 2. C1 3. C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,

		• Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 371-374) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 53, Page 664,669)	02025			MST based Assessment) OSPE
Photochemistry of vision &Physiological basis for photo transduction	1. Describe the physiology of retinal layers 2. Explain photochemistry of vision (rhodopsin - retinal) 3. Describe the mechanism of activation of Rods 4. Explain the photochemistry of color vision	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 182) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 87 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 379-387) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 51, Page 641)	1. https://www.brainkart.com/article/Photochemistry-of-Eye-Vision_19676/ 2. https://youtu.be/k9lrM5iPNuY	1. C2 2. C2 3. C2 4. C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Hearing abnormalities, Tuning fork tests and audiometry	1. Explain the auditory nervous pathway and abnormalities associated with it. 2. Describe the function of cerebral cortex in hearing.	• Physiological Basis of Medical Practice by Best & Taylor's.13th Edition(Chapter 62,Page 1067) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 53, Page 672)	1. https://youtu.be/FgF91K7dU8Y 2. https://youtu.be/acYMy9b0F2A 3. https://www.uptodate.com/contents/image?imageKey=PC%2F58032&topicKey=PC%2F15359&source=see_link	1. C2 2. C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE

Light & dark adaptation, Color vision, Neural functions of the retina, Central neurophysiology of vision, Neural pathways for analysis of visual information	1. Explain the neural circuitry of the Retina 2. Describe the physiology of visual pathway 3. Name the optic lesion associated with visual pathway	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 189,193) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 90 • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 51, Page 644)(Chapter 52,Page 653-657)	**1.** https://youtu.be/wiYmTAuVimg 2. https://youtu.be/cG5ZuK0_qtc 3. https://teachmeanatomy.info/head/cranial-nerves/optic-cnii/	1.C2 2.C2 3.C1	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Vestibular system	1. Describe the function of the organ of corti 2. Explain vestibular system	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 10, Page 209) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 95 • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition,(Chapter 63,Page 1072)	1. https://www.physio-pedia.com/Vestibular_System 2. https://youtu.be/ryGMI3SpxCE 3. https://youtu.be/mcp7qLh8_5c	1. C2 2. C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Lesions of visual pathway and its effects on field of vision, Movements of eye ball along with neural control	1. Explain the muscular control of eye movement 2. Describe the fixation movements of eye 3. Define accommodation reflex and pupillary light reflex 4. Name the optic lesion associated with visual pathway	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 190) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 374-378) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 52, Page 657)	1. https://youtu.be/evLyI35m8xU 2. https://teachmeanatomy.info/head/organs/eye/extraocular-muscles/	1. C2 2. C2 3. C2 4. C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE

Sense of Taste and pathophysiology	• List the primary sensation of taste • Explain the mechanism of taste perception and its transmission into central nervous system	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 11, Page 221) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 100 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 361) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 54, Page 675-679)	1. https://youtu.be/K9JSBzEEA0o 2. https://youtu.be/mFm3yA1nslE 3. https://www.sciencedirect.com/topics/nursing-and-health-professions/taste	1. C1 2. C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Physiology of accommodation and clinical abnormalities	1. Define accommodation reflex and pupillary light reflex 2. Explain Clinical abnormalities associated with accommodation	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 188) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 52, Page 660)	1. https://youtu.be/xj0blrAx3_s 2. https://teachmephysiology.com/nervous-system/ocular-physiology/ocular-accommodation/	1. C1 2. C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Sense of Smell and pathophysiology	1. List the primary sensation of smell 2. Describe the stimulation of olfactory cells and its transmission into central nervous system	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 11, Page 217) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 98 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 358) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 54, Page 679)	1. https://www.alimentarium.org/en/fact-sheet/senses-smell 2. https://youtu.be/mFm3yA1nslE	3. C1 4. C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE

Biochemistry Large Group Interactive Session (LGIS)

Topic	Learning Objectives At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Receptors and their classification	Define receptors. Classify Receptors	C1 C2	LGIS	MCQs, SAQs& Viva
Signal transduction G proteins	Explain the structure and function of G proteins	C2	LGIS	MCQs, SAQs & Viva
Signal transduction Second messenger system	Describe different types of second messengers	C2	LGIS	MCQs, SAQs & Viva
Neurotransmitters	Explain synthesis & functions of neurotransmitters. Discuss related clinical disorders	C2 C3	LGIS	MCQs, SAQs & Viva
Role of vitamin A in vision	Explain the role of vitamin A in vision. Discuss related clinical abnormalities	C2 C3	LGIS	MCQs, SAQs & Viva

Anatomy Small Group Discussion (SGDs)

Topics	At the end of lecture students should be able to:	Learning Domains	Teaching Strategy	Assessment Tools
Facial & Superior Aspect of Cranium (Norma Frontalis & Verticalis.)	• Define boundaries of Norma frontalis and verticalis.	C1	Skills Lab	MCQ SAQ VIVA OSPE
	• Enumerate their muscle attachment.	C1		
	• Describe and features of its structure	C2		
	• Correlate with the clinical conditions.	C3		
	• understand provision of curative and preventive health care measures.	C3		
	• Practice principles of bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		
External Surface of Cranial Base (Norma Basalis)	• Describe bones forming the base of skull	C2	Skills Lab	MCQ SAQ VIVA OSPE
	• Explain the details of anterior, middle and posterior part of base of skull	C2		
	• Identify different foramina and structures passing through them.	C1		
	• Explain the attachments and relations of base of skull.	C2		
	• Fracture of cranial base	C2		
	• Head injuries and intracranial hemorrhage	C3		
	• Correlate with the clinical conditions	C3		
	• understand provision of curative and preventive health care measures.	C3		
	• Practice principles of bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		
Lateral & Occipital Aspect of Cranium (Norma Lateralis. & Occipitalis)	• Enlist various bones in normal lateralis. Describe the cranial and facial subdivision. Define external acoustic meatus,	C1	Skills Lab	MCQ SAQ VIVA OSPE
	• Discuss attachments of mastoid and styloid process.	C2		
	• Explain the boundaries of Norma occipitalis.	C2		
	• Identify different foramina and structures passing through them at the base.	C1		
	• Explain its attachments and relations.	C2		
	• Correlate with the clinical conditions	C3		

	• understand provision of curative and preventive health care measures.	C3		
	• Practice principles of bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		
Mandible	• Describe the anatomical features of mandible	C2	Skills Lab	MCQ SAQ VIVA OSPE
	• Describe parts of mandible	C2		
	• Explain structural features of each part	C2		
	• Enlist attachments of each part	C1		
	• Describe blood and nerve supply of mandible.	C2		
	• Interpret applied anatomy of mandible.	C3		
	• Correlate with the clinical conditions	C3		
	• understand provision of curative and preventive health care measures.	C3		
	• Practice principles of bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		
Temporomandibular joint (TMJ)	• Discuss the temporomandibular joint, its type, formation and neurovascular supply.	C2	Skills Lab	MCQ SAQ VIVA OSPE
	• Describe the movement's axis and muscles involved.	C2		
	• Correlate clinically disorders of the temporo- mandibular joint.	C3		
	• Correlate with the clinical conditions	C3		
	• understand provision of curative and preventive health care measures.	C3		
	• Practice principles of bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		
	• Discuss limits of face.	C2		
	• Tabulate the muscles of face. (Superficial and deep) origin, insertion, nerve supply and action.	C2		
	• Discuss their role in facial expression.	C2		

Face	• Describe facial nerve palsy upper and lower motor neuron.	C3	Skills Lab	MCQ SAQ VIVA OSPE
	• Discuss nerve supply of face.	C1		
	• Discuss superficial and deep vasculature of face.	C1		
	• Map the outline of facial artery and vein on simulated patient / model.	P+A		
	• Correlate with the clinical conditions	C3		
	• understand provision of curative and preventive health care measures.	C3		
	• Practice principles of bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		
Scalp and temple	• Explain the extent of scalp	C2	Skills Lab	MCQ SAQ VIVA OSPE
	• Describe the Scalp layers, nerves &vessels	C2		
	• Discuss the clinical correlates like scalp injuries and scalp wounds.	C3		
	• Correlate with the clinical conditions	C3		
	• understand provision of curative and preventive health care measures.	C3		
	• Practice principles of bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		
Orbit	• Discuss its location, surfaces and borders	C2	Skills Lab	MCQ SAQ VIVA OSPE
	• Describe its muscular and ligamentous attachment.	C2		
	• Describe eyeball movements in relation to recti and oblique muscles.	C2		
	• Discuss role of levator palpebrae superioris	C2		
	• Discuss clinical correlations of different coats of eyeball.	C2		
	• Explain extent and subdivisions of pharynx	C2		
	• Correlate with the clinical conditions	C3		
	• understand provision of curative and preventive health care measures.	C3		
	• Practice principles of bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		

Eyeball	• Describe anatomy of eyeball with suspensory apparatus.	C2	Skills Lab	MCQ SAQ VIVA OSPE
	• Discuss different coats of eyeball with their nerve and blood supply.	C2		
	• Discuss refractive media and compartments of eyeball.	C2		
	• Correlate with the clinical conditions	C3		
	• understand provision of curative and preventive health care measures.	C3		
	• Practice principles of bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		
Eyelid & lacrimal app	• Discuss the different components of lacrimal apparatus	C2	Skills Lab	MCQ SAQ VIVA OSPE
	• Describe the lacrimal gland and its neurovascular supply	C2		
	• Correlate with the clinical conditions	C3		
	• understand provision of curative and preventive health care measures.	C3		
	• Practice principles of bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		
Parotid & Temporal Region	• Describe boundaries of parotid region.	C2	Skills Lab	MCQ SAQ VIVA OSPE
	• Discuss surfaces, innervation and relations of parotid gland.	C2		
	• Understand the bio-physiological aspects of arches	C2		
	• Map the outline of parotid gland and duct on simulated patient / model.	P+As		
	• Correlate with the clinical conditions	C3		
	• understand provision of curative and preventive health care measures.	C3		
	• Practice principles of bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		
Infra temporal Fossa	• Discuss the boundaries and contents of temporal region.	C2	Skills Lab	MCQ SAQ VIVA
	• Describe the temporalis muscle and its relations	C2		
	• Enumerate the boundaries and contents of infratemporal region.	C1		
	• Discuss muscles of mastication	C2		
	• Correlate with the clinical conditions	C3		

	• understand provision of curative and preventive health care measures.	C3		OSPE
	• Practice principles of bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		
Pterygopalatine Fossa	• Discuss the boundaries and contents of pterygopalatine fossa.	C2	Skills Lab	MCQ SAQ VIVA OSPE
	• Discuss the communications of pterygopalatine fossa.	C2		
	• Understand the bio-physiological aspects of arches	C2		
	• Correlate with the clinical conditions	C3		
	• understand provision of curative and preventive health care measures	C3		
	• Practice principles of bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		
External & Medal Ear	• Describe parts of the ear.	C2	Skills Lab	MCQ SAQ VIVA OSPE
	• Discuss walls and contents of external and middle ear,	C2		
	• Discuss their blood and nerve supply.	C2		
	• Explain pharynges tympanic tube, mastoid antrum and air cells.	C2		
	• Relation of chorda tympani and facial nerve.	C1		
	• Discuss Mastoiditis and tubal blockage	C3		
	• Correlate with the clinical conditions	C3		
	• understand provision of curative and preventive health care measures	C3		
	• Practice principles of bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		
Inner Ear	• Discuss membranous and bony labyrinth.	C2	Skills Lab	MCQ SAQ VIVA OSPE
	• Describe internal acoustic meatus.	C2		
	• Explain the course of 7th and 8th cranial nerve in detail.	C2		
	• Correlate with the clinical conditions	C3		
	• understand provision of curative and preventive health care measures	C3		
	• Practice principles of bioethics	C3		
	• Apply strategic use of AI in health care	C3		

	• Read relevant research article	C3		
Nose & Paranasal Sinuses	• Discuss anatomy and location of paranasal air sinuses separately.	C2	Skills Lab	MCQ SAQ VIVA OSPE
	• Define & list names of paranasal sinuses	C1		
	• Describe their blood and nerve supply	C2		
	• Describe functions of paranasal sinuses.	C2		
	• Discuss drainage of paranasal sinuses.	C2		
	• Identify carious sinuses in radiographs	C1		
	• Describe anatomy of external nose and features of nasal septum, side and anatomical position.	C2		
	• Describe details of olfactory receptors and formation of olfactory nerve.	C2		
	• Discuss blood and nerve supply of external nose and nasal septum.	C2		
	• Explain functions of nose.	C2		
	• Discuss in detail clinical correlates of external nose and nasal septum. Lateral nasal wall and their importance.	C2		
	• Discuss on clinical importance of nasal cavity.	C3		
	• Correlate with the clinical conditions	C3		
	• understand provision of curative and preventive health care measures	C3		
	• Practice principles of bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		
Cross Sectional Anatomy	Identify the structures at • Sagittal section of head • Level passing through the vestibule of the nose, the inferior nasal the temporomandibular joint , the pons and the occipital lobe of the cerebrum.	C3		

Physiology Small Group Discussion (SGDs)

Topics	Learning Objectives	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
Physiology of Vision	1. Explain the basic physiology of eye and its refractive surfaces 2. Discuss the physical principles of optics 3. Describe the mechanism of accommodation and its control 4. Describe the errors of refraction (Myopia, hyperopia, astigmatism and their correction by using different lens systems	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 177,185) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 85 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10,Page 374-378) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition,Vision(Chapter 64,Page 1086) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 50, Page 627-635)	1. https://www.britannica.com/science/human-eye 2. https://youtu.be/laEFdlxW0rA	1.C2 2. C2 3. C2 4.C2	SGD	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Physiology of Hearing	1. Describe the physiology of hearing and function of tympanic membrane and ossicular system. 2. Define impendence matching and attenuation reflex 3. Explain the conduction of sound waves in the cochlea	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 10, Page 200,204) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 93 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 371-374) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 53, Page 664,669)	1. https://youtu.be/Ie2j7GpC4JU 2. https://youtu.be/qgdqp-oPb1Q 3. https://www.urmc.rochester.edu/encyclopedia/content.aspx?ContentTypeID=90&ContentID=P02025	1. C2 2. C1 3. C2	SGD	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE

Sense of Taste and Smell	1. List the primary sensation of taste 2. Explain the mechanism of taste perception and its transmission into central nervous system 3. List the primary sensation of smell 4. Describe the stimulation of olfactory cells and its transmission into central nervous system	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 11, Page 221) (Chapter 11, Page 217) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 100 , chapter 3, page 98 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 361) (Chapter 10,Page 358) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 54, Page 675-679) . (Chapter 54, Page 679)	1. https://youtu.be/K9JSBzEEA0o 2. https://youtu.be/mFm3yA1nslE 3. https://www.sciencedirect.com/topics/nursing-and-health-professions/taste 4. https://www.alimentarium.org/en/fact-sheet/senses-smell 5. https://youtu.be/mFm3yA1nslE	1.C1 2.C2 3.C1 4.C2	SGD	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE

Biochemistry Small Group Discussion (SGDs)

Topic	Learning Objectives At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Receptors & G proteins	Explain different types of receptors and G proteins	C2	SGD	MCQs, SAQs& Viva
Neurotransmitters	Discuss synthesis, functions & clinical significance of neurotransmitters	C2	SGD	MCQs, SAQs & Viva

Anatomy Self Directed Learning (SDL)

Topics	Learning objectives	Learning Resources
Norma Frontalis and Verticalis.	• Define boundaries of Norma frontalis and verticalis. • Enumerate their muscle attachment. • Describe and features of its structure • Read relevant research article	• Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Page 823-8291). • https://youtu.be/rr3-V7Qhf8E • https://youtu.be/35Y71cRBqs8
External Surface of Cranial Base Norma Basalis.	• Describe bones forming the base of skull • Explain the details of anterior, middle and posterior part of base of skull • Identify different foramina and structures passing through them. • Explain the attachments and relations of base of skull. • Fracture of cranial base • Head injuries and intracranial hemorrhage • Read relevant research article	• Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, P829-836). • https://youtu.be/6ZjJPLOJ0N8 • https://youtu.be/75lLaDFJTP4 • https://youtu.be/fteiKT_wQDE
Lateral & Occipital Aspect of Cranium Norma Lateralis. Norma Occipitalis	• Enlist various bones in normal lateralis. Describe the cranial and facial subdivision. • Define external acoustic meatus, • Discuss attachments of mastoid and styloid process. • Explain the boundaries of Norma occipitalis. • Identify different foramina and structures passing through them at the base. • Explain its attachments and relations. • Read relevant research article	• Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Page 827-829). • https://youtu.be/tkpzPMXzwiM • https://youtu.be/9Msvtw5CjFY
Mandible	• Define location of mandible • Describe parts of mandible • Explain structural features of each part • Enlist attachments of each part • Describe blood and nerve supply of mandible. • Interpret applied anatomy of mandible. • Read relevant research article	• Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Pae 827). • https://youtu.be/_lHosB-c_fQ • https://youtu.be/Qc0ysewMJg4

Temporomandibular joint	• Discuss the temporomandibular joint, its type, formation, and neurovascular supply. • Describe the movement's axis and muscles involved. • Correlate clinically disorders of the temporo- mandibular joint. • Read relevant research article	• Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Page 916-920). • https://youtu.be/6tJsi5oghNY • https://youtu.be/0BKU04QLzV0
Orbit	• Discuss its location, surfaces and borders • Describe its muscular and ligamentous attachment. • Describe eyeball movements in relation to recti and oblique muscles. • Discuss role of levator palpebrae superioris • Discuss extraocular muscles of orbit. • Supporting apparatus of eyeball. • Nerves of eye ball • Vasculature of orbit • Read relevant research article	• Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Page 889-906). • https://youtu.be/HKEA4p5k66U • https://youtu.be/Oz4kGGiJNrA
Temporal Region	• Describe boundaries of parotid region. • Discuss surfaces, innervation and relations of parotid gland. • Understand the bio-physiological aspects of arches • Read relevant research article	• Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Page 914-916). • https://youtu.be/HB6bN-rs2NU • https://youtu.be/zo7DDK-h1Mg
Infra temporal Fossa	• Discuss the boundaries and contents of temporal region. • Describe the temporalis muscle and its relations • Enumerate the boundaries and contents of infratemporal region. • Discuss muscles of mastication • Read relevant research article	• Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Page 916-926). • https://youtu.be/z2GlluoOtMY • https://youtu.be/ixCCX46XWHA
Pterygopalatine Fossa	• Discuss the boundaries and contents of pterygopalatine fossa. • Discuss the communications of pterygopalatine fossa. • Understand the bio-physiological aspects of arches • Read relevant research article	• Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Page 951-954) • https://youtu.be/9taW-Th3ycc • https://youtu.be/o_JbDynMZjo

External & Middle Ear	• Describe parts of the ear. • Discuss walls and contents of external and middle ear , • Discuss their blood and nerve supply. • Explain pharyngo tympanic tube, mastoid antrum and air cells. • Relation of chorda tympani and facial nerve. • Discuss Mastoiditis and tubal blockage • Read relevant research article	• Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Page 966-973). • https://youtu.be/VRLm7cpmZSk • https://youtu.be/unDpXRE_PPA

Physiology Self Directed Learning (SDL)

Topics Of SDL	Learning Objective	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
ON CAMPUS Introduction to Physiology of external ear, Middle ear	1.Describe physiology of external ear 2.Describe physiology of middle ear 3. Explain structure of middle ear	• Ganong's Review of Medical Physiology.25TH Edition.Section 02, (Chapter 10, Page 199) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 92 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10,Page 364-371) ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 53, Page 663)	1. https://youtu.be/VRLm7cpmZSk **2.** https://www.sciencedirect.com/science/article/pii/S0378595522002192	1. C2 2. C2 3. C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE SDL Evaluation
Functions of Inner ear, Physiology of Hearing	1.Describe the physiology of hearing and function of tympanic membrane and ossicular system. 2.Define impendence matching and attenuation reflex 3. Explain the conduction of sound waves in the cochlea	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 10, Page 200,204) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 93 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 371-374)	1. https://youtu.be/Ie2j7GpC4JU 2. https://youtu.be/qgdqp-oPb1Q 3. https://www.urmc.rochester.edu/encyclopedia/content.aspx?ContentTypeID=90&ContentID=P02025	1.C2 2.C1 3. C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment)

		• Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 53, Page 664,669)				OSPE SDL Evaluation
Hearing abnormalities, Tuning fork tests and audiometry	1.Explain the auditory nervous pathway and abnormalities associated with it. 2. Describe the function of cerebral cortex in hearing.	• Physiological Basis of Medical Practice by Best & Taylor's.13th Edition(Chapter 62,Page 1067) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 53, Page 672)	1. https://youtu.be/FgF91K7dU8Y 2. https://youtu.be/acYMy9b0F2A 3. https://www.uptodate.com/contents/image?imageKey=PC%2F58032&topicKey=PC%2F15359&source=see_link	1.C2 2. C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE SDL Evaluation
OFF CAMPUS Introduction to Physiology of Eye & Optics of vision. General Principles of optics, Physiological basis for errors of refraction	1. Explain the basic physiology of eye and its refractive surfaces 2. Discuss the physical principles of optics 3. Describe the mechanism of accommodation and its control 4. Describe the errors of refraction (Myopia, hyperopia, astigmatism and their correction by using different lens systems	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 177,185) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 85 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10,Page 374-378) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition,Vision(Chapter 64,Page 1086) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 50, Page 627-635)	• https://www.britannica.com/science/human-eye https://youtu.be/laEFdlxW0rA	1.C2 2. C2 3. C2 4.C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE SDL Evaluation
Fluid system of the eye Intraocular pressure, Function of the Structural	1.Describe the formation and circulation of aqueous humor 2.Explain the mechanism of regulation of intraocular pressure	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 178) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition,Vision(Chapter 64,Page 1094)	• https://youtu.be/CKtLlOSh8o4 • https://youtu.be/7CFY4gxLnMY • https://my.clevelandclinic.org/health/body/24611	1. C2 2. C2 3. C1	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based

Elements of the Retina	3.Define glaucoma and its treatment	• Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 50, Page 635) (Chapter 51,Page 639)	-aqueous-humor-vitreous-humor			Aseessment, MST based Assessment) OSPE SDL Evaluation
Photochemistry of vision &Physiological basis for photo transduction	1. Describe the physiology of retinal layers 2. Explain photochemistry of vision (rhodopsin - retinal) 3. Describe the mechanism of activation of Rods 4. Explain the photochemistry of color vision	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 182) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 87 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 379-387) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 51, Page 641)	3. https://www.brainkart.com/article/Photochemistry-of-Eye-Vision_19676/ https://youtu.be/k9lrM5iPNuY	1. C2 2. C2 3. C2 4. C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE SDL Evaluation
Vestibular system	1. Describe the function of the organ of corti 2. Explain vestibular system	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 10, Page 209) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 95 Physiological Basis of Medical Practice by Best & Taylor's.13th Edition,(Chapter 63,Page 1072)	4. https://www.physio-pedia.com/Vestibular_System 5. https://youtu.be/ryGMI3SpxCE https://youtu.be/mcp7qLh8_5c	1. C2 2. C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE SDL Evaluation
	1. List the primary sensation of taste 2. Explain the mechanism of taste perception and its	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 11, Page 221) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 100	3. https://youtu.be/K9JSBzEEA0o 4. https://youtu.be/mFm3yA1nslE	1.C1 2. C2		MCQ SEQ VIVA VOCE

Sense of Taste and pathophysiology	transmission into central nervous system	• Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 361) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 54, Page 675-679)	5. https://www.sciencedirect.com/topics/nursing-and-health-professions/taste		SDL	MCQ (LMS based Aseessment, MST based Assessment) OSPE SDL Evaluation
Sense of Smell and pathophysiology	1. List the primary sensation of smell 2. Describe the stimulation of olfactory cells and its transmission into central nervous system	• Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 11, Page 217) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 98 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 358) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 54, Page 679)	6. https://www.alimentarium.org/en/fact-sheet/senses-smell 7. https://youtu.be/mFm3yA1nslE	1.C1 2.C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE SDL Evaluation

Biochemistry Self Directed Learning (SDL)

Topics Of SDL	Learning Objectives	Learning resources

Neurotransmitter	• Explain synthesis & functions of neurotransmitters
	• Discuss related clinical disorders
		• Lippincott Illustrated reviews of biochemistry 8th edition (Chapter 13, 21 page 166 & 317 - 319)
		• Use digital library
		  ◦ https://www.khanacademy.org/science/biology/human-biology/neuron-nervous-system/a/neurotransmitters-their-receptors
		  ◦ https://youtu.be/LOHKVp8hn7o
		  ◦ https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=neurotransmitters&oq=Neurotransmitter#:~:text=Axelrod%C2%A0%2D%20Scientific%20American%2C%201974%20%2D%20JSTOR

Receptors	• Define receptors
	• Classify Receptors
		• Text book of Biochemistry Lehninger 8th edition (Chapter 12, page 439- 440)
		• Use digital library
		  ◦ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4817805/
		  ◦ https://www.sinobiological.com/research/receptors/what-are-receptors#:~:text=Receptors%20are%20proteins%2C%20usually%20cell,cells%2C%20monocytes%20and%20stem%20cells.
		  ◦ https://youtu.be/vjFes5I07c0

G - Proteins	• Explain the structure and function of G proteins	• Harper's Illustrated Biochemistry 32th edition (Chapter 42, page 503 – 505)
		• Use digital library
		  ◦ https://youtu.be/GHwMJnxaiys
		  ◦ https://www.britannica.com/science/G-protein-coupled-receptor
		• https://www.nature.com/scitable/topicpage/gpcr-14047471/

Role of Vitamin A in Vision	• Explain the role of vitamin A in vision
	• Discuss related clinical abnormalities
		• Lippincott Illustrated reviews of biochemistry 8th edition (Chapter 28, page 433-434)
		• Use digital library
		  ◦ https://www.bing.com/search?pglt=41&q=role+of+vitamin+a+in+vision&cvid=dddf1e33ab0a45318ddff31539f0445a&aqs=edge.2.69i57j0l8.11403j0j1&FORM=ANSPA1&PC=U531#:~:text=https%3A//pubmed.ncbi.nlm.nih.gov/27830507
		  ◦ https://www.bing.com/search?pglt=41&q=role+of+vitamin+a+in+vision&cvid=dddf1e33ab0a45318ddff31539f0445a&aqs=edge.2.69i57j0l8.11403j0j1&FORM=ANSPA1&PC=U531#:~:text=Vision%20%E2%80%93%20Introduction%20to%20%E2%80%A6-,https%3A//mtsu.pressbooks.pub/.../8f%2Dvision%2Dvitamins,-Web
		  ◦ https://youtu.be/wo7i9bFs4Bw

Second Messenger System	• Describe different types of second messengers	• Lippincott Illustrated reviews of biochemistry 8th edition (Chapter 8, page 103- 105) • Harper's Illustrated Biochemistry 32th edition (Chapter 42, page 506 – 509) • Use digital library • https://www.britannica.com/ • https://youtu.be/PzA5Z3DXfrQ

Histology Practicals Skill Laboratory (SKL)

Topics	At the End of Demonstration Student Should Be Able To	Learning Domains	Teaching Strategy	Assessment Tools
Cornea	• Identify the histological slide cornea. • Illustrate the microscopic picture of Cornea. • Enlist two points of identification of each • Read a relevant research article	P C2 C1 C3	Skill Lab	OSPE

Retina	• Identify the histological slide of retina. • Illustrate the microscopic picture of retina • Enlist two points of identification • Read a relevant research article	P C2 C1 C3	Skill Lab	OSPE
Ear	• Identify the histological slide of ear • Illustrate the microscopic picture of ear • Enlist two points of identification of each • Read a relevant research article	P C2 C1 C3	Skill Lab	OSPE

Physiology Practicals Skill Laboratory (SKL)

Topic	Learning Objectives	Reference	Learning Domains	Learning Strategy	Assessment Tools
Estimation of Visual Acuity	• Apparatus identification • Principle • Procedure • Precautions • Recall normal value of visual acuity • Use of Snellen's chart & jaeger's chart • Recall the different Errors of refraction	Practical Notebook of Physiology First year MBBS by Dr Saqib Sohail	P C1 P C1 C1 P C1	Practicals/ skill lab	Viva Voce Ospe Video Assissted Assessment
Examination of 8th Cranial Nerve (vestibular function)	• Apparatus identification • Principle • Procedure • Precautions • Use various hearing tests & interpretation of their results • Recall deafness, its types & causes	Practical Notebook of Physiology First year MBBS by Dr Saqib Sohail	P C1 P C1 C1 C1	Practicals/ skill lab	Viva Voce Ospe Video Assissted Assessment
	• Apparatus identification • Principle	Practical Notebook of Physiology First year MBBS by Dr Saqib Sohail	P C1		Viva Voce

Performance of Hearing Test (cochlear function)	• Procedure • Precautions • Use various hearing tests & interpretation of their results • Recall deafness, its types & causes		P C1 C1 C1	Practicals/ skill lab	Ospe Video Assissted Assessment

Biochemistry Practicals Skill Laboratory (SKL)

Topic	Learning Objectives At The End Of Practical Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Urine report	Write and interpret urine report	P	Skill Lab	OSPE
Lipid Profile	Write and interpret lipid profile	P	Skill Lab	OSPE
Revision of Spectrophotometer	Understand principle and uses of spectrophotometer	P	Skill Lab	OSPE

SECTION - III

Basic and Clinical Sciences (Vertical Integration)

Content

- **CBLs**
- **PBLs**
- **Vertical Integration LGIS**

Case Based Learning Objectives (CBL)

Subjects	Topics	At the end of the session the student should be able to	Learning Domains
Anatomy	• Extra dural Haemorrhage (Norma lateralis & occipitalis)	Apply basic knowledge of subject to study clinical case.	C3
	• Occulo Motor nerve palsy (Extra ocular muscles)	Apply basic knowledge of subject to study clinical case.	C3
Biochemistry	• Night Blindness	Apply basic knowledge of subject to study clinical case.	C3

Vertical Integration LGIS

Pharmacology

Topic	At The End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Anti glaucoma drugs	• Recall the process of production and drainage of aqueous humor	C1	LGIS	MCQ
	• Outline the range of normal IOP	C1		
	• Enumerate main drug groups used in treatment of glaucoma	C1		
	• Briefly discuss IOP lowering mechanism of main groups	C2		

Medicine

Topic	At The End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Management Of Covid-19 Sense of Smell	• Discuss pathophysiology, signs and symptoms of patients with COVID-19.	C2	LGIS	MCQ
	• Discuss How will you investigate the patient with COVID-19.	C2		
	• Explain the management of COVID-19.	C2		

Sugery

Topic	At The End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Plastic surgery	• Introduction to Plastic Surgery	C2	LGIS	MCQ
Burn	• Define Burn	C1	LGIS	MCQ
	• Types of Burns	C2		
	• Classification of Burns			
	• Percentages of Burn			
Burn Managment	• Approach toward Burn patient?	C1	LGIS	MCQ
	• Physiological changes because of Burn	C2		
	• Importance of Fluid Management in burn			
Foot Ulcer	• Classify Foot Ulcer	C1	LGIS	MCQ
	• Differentiate among Venous/Arterial /Traumatic and Diabetic Ulcer	C2		
	• Grading of Diabetic foot ulcers	C3		
Skin ulcer	• Classify Skin Ulcers	C1	LGIS	MCQ
	• Differentiate between marjolin ulcer, basal cell carcinoma and squamous cell carcinoma	C2	LGIS	MCQ

Peadiatrics

Topic	At the End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Preventive Pediatrics	• Classify the degree of malnutrition in a malnourished child	C1	LGIS	MCQs
	• Differentiate between clinical features of kwashiorkor and marasmus on a patient	C2	LGIS	MCQs

Radiology

Topic	At The End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
General radiologic concepts	• Categorize different tissues from most to least opaque on x-ray including bone, soft tissue, air, metal, and fat.	C2	LGIS	MCQs

ENT

Topic	At The End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Deafness	• Know various cases of deafness	C1	LGIS	MCQs,
	• Understand the etiology, Pathology of various cases of deafness in external middle and internal ear and to know how to treat them.	C2		
DNS & Rhinitis	• Should define the turns	C1	LGIS	MCQs,
	• Know various causes of DNS and Rhinitis	C1		
	• Must be able to know treatment of all.	C1		
Nasal polyp	• Know definition of polyp	C1	LGIS	MCQs,
	• Know different types of nasal Polyps, their etiology, pathophysiology and treatment	C1		
	• Know latest management	C1		
Diseases of External Nose	• Know various diseases of external nose, their etiology	C1	LGIS	MCQs,
	• Pathophysiology and know how to treat them	C1		
Ear Discharge	• Know Various cases of ear discharge	C1	LGIS	MCQs,
	• Understand the etiology, Pathology of various cases of ear discharge in external and middle ear.	C2		
	• Know how to treat these causes.	C1		

Dizziness and Vertigo.	• Recognise signs and symptoms of acoustic neuroma. • Identify treatment options and risks	C1 C2	LGIS	MCQs,
Facial fractures	• Classify facial fractures • Enumerate treatment options for facial fractures	C1 C2	LGIS	MCQs,
Sinusitis	• Classify Sinusitis • Enlist clinical features of sinusitis.	C1 C2	LGIS	MCQs,
Hearing Problems in Children	• Define deafness • State the aetiology of hearing loss • Elaborate the types of hearing loss • Discuss the investigations of hearing loss • Describe the treatment options for hearing loss patients.	C1 C1 C1 C2 C2	LGIS	MCQs,

Eye

Topic	At The End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Refractive Errors	Refractive Errors	C1	LGIS	MCQs,
	• Types			
	• Treatment			
	ColourVison			
	• Types			
	• Inheritence			
	• Gender Predisposition			
	Night Blindness	C1		
	• Etiology			
	• Treatment			
Glaucoma	Glaucoma	C1	LGIS	MCQs,
	• What is Glaucoma			
	• Classification			
	• Treatment			

Cataract	Cataract	C1	LGIS	MCQs,
	• Define			
	• Types of cataract			
	• Surgical procedures			
Ocular trauma & Ocular Procedures	Ocular Trauma	C1	LGIS	MCQs,
	• Blunt			
	• Penetrating			
	• Chemical Burns			
	• Laceration			
	Ocular Procedures	C1		
	• Cataract surgeries			
	• Glaucoma Surgeries			
	• Laser And refractive Surgeries			
Cornea	Corneal Ulcer	C1	LGIS	MCQs,
	• Bacterial			
	• Viral			
	• Fungal			
Conjunctivitis	• Define conjunctivitis	C1	LGIS	MCQs,
	• Discuss the causes & types			
	• Explain management in detail			

List of Special Senses Module Vertical Courses Lectures

SECTION – IV

Spiral Courses

Content

- **Longitudinal Themes**
    - **The Holy Quran Translation**
    - **Pak Studies/Islamiyat**
    - **Family Medicine**
    - **Behavioral Sciences**
    - **Biomedical Ethics**
    - **Early Clinical Exposure (ECE)**

Family Medicine

Topic	At the End of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Approach to a patient with earache	• Define earache.	C1	LGIS	MCQs
	• Discuss various types of earache.	C2		
	• Discuss the signs and symptoms of a patient with earache.	C2		
	• Discuss the workup for diagnosis of different types of earache.	C2		
	• Discuss management of Various types of earache.	C2		
	• Appreciate approach to a patient with earache.	C3		

Biomedical Ethics & Professionalism

Topics	At the end of session students should be able to:	Learning Domains	Teaching Strategy	Assessment Tools
Ethical dilemmas practice involving breach in principle of justice	• Analyze ethical dilemmas in healthcare practice involving breach in principle of justice. • Explain what procedures adopted to maintain the principle of justice in challenging situations. • Identify situations in which a doctor may have to take decisions in the best interests of the patient considering the principle of justice	C3 C2 C1	Short video demonstration on violation of Ethical principle of beneficence and non-maleficence from suit CBEC Video resources Students' deliberations and reflections Reflective writing	• Assignment based assessment involving real life case scenarios under aggregate Marks. (Internal Assessment) • Assignment to be uploaded on LMS

Behavioural Sciences

Topic	At The End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Perception	• To be able to define perception and basic perceptual abilities. • To identify abnormalities of perceptions and their role in disease causation	C2	LGIS	MCQs,
Sleep and arousal	• To be able to understand the physiology of sleep. Disorders of sleep and their management	C2	LGIS	MCQs,

Introduction to Spiral Courses

The Holy Quran Translation

A course of Islamic Studies provides students with a comprehensive overview of the fundamental aspects of Islam, its history, beliefs, practices, and influence on society and familiarize students with a solid foundation in understanding the religion of Islam from an academic and cultural perspective. Ethics, in integrated form will shape the core of the course to foster among students the universal ethical values promoted by Islam.

Bioethics

Biomedical ethics, also known as bioethics, is a field of study that addresses the ethical, social, and legal issues arising from medicine and the life sciences. It applies moral principles and decision-making frameworks to the practice of clinical medicine, biomedical research, and health policy. Biomedical ethics seeks to navigate the complex ethical dilemmas posed by advances in medical technology, research methodologies, and healthcare practices. Key areas of focus include patient rights and autonomy, confidentiality, informed consent, end-of-life care, resource allocation, and the ethics of genetic engineering, among others.

Biomedical ethics within medical universities plays a pivotal role in shaping the moral framework through which future healthcare professionals navigate the complex and often challenging decisions they will face in their careers. This critical discipline integrates ethical theories and principles with clinical practice, research, and healthcare policy, fostering a deep understanding of the ethical dimensions of medicine. By embedding biomedical ethics into the curriculum, Rawalpindi medical university equips students with the tools to critically analyze and address ethical dilemmas, ranging from patient confidentiality and informed consent to end-of-life care and the equitable distribution of healthcare resources.

This education goes beyond theoretical knowledge, encouraging students to apply ethical reasoning in practical scenarios, thus preparing them for the moral complexities of the medical field. Biomedical ethics also promotes a culture of empathy, respect, and integrity, ensuring that future medical practitioners not only excel in their technical skills but also uphold the highest ethical standards in patient care and research. Through seminars, case studies, and interdisciplinary collaborations, students are encouraged to engage in ethical discourse, reflecting on the societal impact of medical advancements and the responsibility of medical professionals to society. This foundational aspect of medical education cultivates a generation of healthcare professionals committed to ethical excellence, patient advocacy, and the pursuit of equitable healthcare for all.

Professionalism

Professionalism in medicine refers to the set of values, behaviors, and relationships that underpin the trust the public has in doctors and other healthcare professionals. It encompasses a commitment to competence, integrity, ethical conduct, accountability, and putting the interests of patients above one's own. Professionalism involves adhering to high standards of practice, including maintaining patient confidentiality, communicating effectively and respectfully with patients and colleagues, and continually engaging in self-improvement and professional development. It also includes a responsibility to improve access to high-quality healthcare and to contribute to the welfare of the community and the betterment of public health. In essence, professionalism in medicine is foundational to the quality of care provided to patients and is critical for maintaining the trust that is essential for the doctor-patient relationship.

Rawalpindi Medical University emphasizes the importance of professionalism in medicine, integrating it throughout its curriculum to ensure that students embody the core values of respect, accountability, and compassion in their interactions with patients, colleagues, and the community. This focus on professionalism is designed to prepare students for the complexities of the healthcare environment, instilling in them a deep sense of responsibility to their patients, adherence to ethical principles, and a commitment to continuous learning and improvement. Through a combination of theoretical learning, practical training, and mentorship, RMU encourages its students to exemplify professionalism in every aspect of their medical practice. Workshops, seminars, and clinical rotations further reinforce these values, providing students with real-world experiences that highlight the importance of maintaining professional conduct in challenging situations. RMU's approach to professionalism not only shapes competent and ethical medical professionals but also contributes to the broader mission of improving healthcare standards and patient outcomes. By prioritizing professionalism, Rawalpindi Medical University plays a crucial role in advancing the medical profession and ensuring that its graduates are well-equipped to meet the demands of a rapidly evolving healthcare landscape with honor and integrity.

Communication Skills

Communication skill for health professionals involves the ability to effectively convey and receive information, thoughts, and feelings with patients, their families, and other healthcare professionals. It encompasses a range of competencies including active listening, clear and compassionate verbal and non-verbal expression, empathy, the ability to explain medical conditions and treatments in an understandable way, and the skill to negotiate and resolve conflicts. Effective communication is essential for establishing trust, ensuring patient understanding and compliance with treatment plans, making informed decisions, and providing holistic care. It directly impacts patient satisfaction, health outcomes, and the overall efficiency of healthcare delivery

At Rawalpindi Medical University (RMU), the development of communication skills is regarded as a fundamental aspect of medical education, recognizing its critical importance in enhancing patient care, teamwork, and interdisciplinary collaboration. RMU is dedicated to equipping its students with exceptional communication abilities, enabling them to effectively interact with patients, their families, and healthcare colleagues. The curriculum is thoughtfully designed to incorporate various interactive and experiential learning opportunities, such as role-playing, patient interviews, and group discussions, which allow students to practice and refine their communication skills in a supportive environment.

By integrating communication skills training throughout its programs, RMU not only enhances the interpersonal competencies of its future healthcare professionals but also contributes to improving the overall quality of healthcare delivery. Graduates from RMU are distinguished not just by their clinical expertise but also by their ability to connect with patients and colleagues, making them highly effective and compassionate practitioners.

Behavioral Sceinces

Behavioral sciences in medicine focus on understanding and addressing the psychological and social aspects of health and illness. This interdisciplinary field combines insights from psychology, sociology, anthropology, and other disciplines to enhance medical care and patient outcomes. It explores how behavior, emotions, and social factors influence health, disease, and medical treatment. By incorporating behavioral science principles into medical practice, healthcare professionals can better understand patients' perspectives, improve communication, and promote positive health behaviors, ultimately contributing to more comprehensive and effective patient care.

Family Medicine

Family medicine is a medical specialty dedicated to providing comprehensive health care for people of all ages and genders. It is characterized by a long-term, patient-centered approach, building sustained relationships with patients and offering continuous care across all stages of life. It focuses on treating the whole person within the context of the family and the community, emphasizing preventive care, disease management, and health promotion.

The Family Medicine Curriculum at Rawalpindi Medical University (RMU) marks a significant stride towards holistic healthcare education, aiming to prepare medical graduates for the comprehensive and evolving needs of family practice. This curriculum is designed to offer a broad perspective on healthcare, focusing on preventive care, chronic disease management, community health, and the treatment of acute conditions across all ages, genders, and diseases. Emphasizing a patient-centered approach, the curriculum ensures that students develop a deep understanding of the importance of continuity of care, patient advocacy, and the ability to work within diverse community settings.

RMU's Family Medicine Curriculum integrates theoretical knowledge with practical experience. Students are exposed to a variety of learning environments, including community health centers, outpatient clinics, and inpatient settings, providing them with a well-rounded understanding of the different facets of family medicine. This hands-on approach is complemented by interactive sessions, workshops, and seminars that cover a wide range of topics from behavioral health to geriatric care, ensuring students are well-equipped to address the comprehensive health needs of individuals and families.

Artificial Intelligence

To realize the dreams and impact of AI requires autonomous systems that learn to make good decisions. Reinforcement learning is one powerful paradigm for doing so, and it is relevant to an enormous range of tasks, including robotics, game playing, consumer modeling and healthcare. This class will provide a solid introduction to the field of reinforcement learning and students will learn about the core challenges and approaches, including generalization and exploration. Through a combination of lectures, and written and coding assignments, students will become well versed in key ideas and techniques for RL. Assignments will include the basics of reinforcement learning as well as deep reinforcement learning — an extremely promising new area that combines deep learning techniques with reinforcement learning. In addition, students will advance their understanding and the field of RL through a final project.

Integrated Undergraduate Research Curriculum

The integrated undergraduate research curriculum (IUGRC) of RMU occupies a definite space in schedule of each of the five years in rational and incremental way. It has horizontal harmonization as well as multidisciplinary research work potentials. In the first-year teachings are more introductory & inspirational rather than instructional. The teachings explain what & why of research and what capacities are minimally required to comprehend research & undertake research. Some research dignitaries' lecture are specifically arranged for sharing their experiences and inspiring the students. Students are specifically assessed through their individual compulsory written feedback (reflection) after the scheduled teachings end.

Entrepreneurship

Entrepreneurship is the process of designing, launching, and running a new business, which typically starts as a small enterprise offering a product, process, or service for sale or hire. It involves identifying a market opportunity, gathering resources, developing a business plan, and managing the business's operations, growth, and development.

Entrepreneurship in medical universities represents a burgeoning field where the innovative spirit intersects with healthcare to forge advancements that can transform patient care, medical education, and healthcare delivery. This unique amalgamation of medical expertise and entrepreneurial acumen empowers students, faculty, and alumni to develop groundbreaking medical technologies, healthcare solutions, and startups that address critical challenges in the health sector. By integrating entrepreneurship into the curriculum, Rawalpindi Medical university is not only expanding the traditional scope of medical education but also fostering a culture of innovation and problem-solving. This enables future healthcare professionals to not only excel in clinical skills but also in business strategies, leadership, and innovation management.

Such initiatives often lead to the creation of medical devices, digital health platforms, and therapeutic solutions that can significantly improve patient outcomes and make healthcare more accessible and efficient. Through incubators, accelerators, and partnerships with the industry, medical universities are becoming hotbeds for healthcare innovation, driving economic growth, and contributing to the broader ecosystem of medical research and entrepreneurial success.

Digital Literacy Module

Digital literacy means having the skills one needs to live, learn, and work in a society where communication and access to information is increasingly through digital technologies like internet platforms, social media, and mobile devices.

Early Clinical Exposure (ECE)

Early clinical exposure helps students understand the relevance of their preclinical studies by providing real-world contexts. This can enhance motivation and engagement by showing students the practical application of their theoretical knowledge. Early exposure allows students to begin developing essential clinical skills from the start of their education. This includes not only technical skills but also crucial soft skills such as communication, empathy, and professionalism. Direct interaction with patients early in their education helps students appreciate the complexities of patient care, including the psychological and social aspects of illness. Early exposure to various specialties can aid students in making informed decisions about their future career paths within medicine.

Early clinical experiences contribute to the development of a professional identity, helping students see themselves as future physicians and understand the responsibilities and ethics associated with the profession. This can help reduce the anxiety associated with clinical work by familiarizing students with the clinical environment. It can build confidence in their abilities to interact with patients and healthcare professionals. Engaging with real-life clinical situations early on encourages the development of critical thinking and problem-solving skills, which are essential for medical practice. It helps bridge the gap between theoretical knowledge and practical application, leading to a more integrated and holistic approach to medical education. It allows students to observe and understand how healthcare systems operate, including the challenges and limitations faced in different settings.: Early patient interaction emphasizes the importance of patient-centered care from the outset, underscoring the importance of treating patients as individuals with unique needs and backgrounds. Practical experiences can enhance long-term retention of knowledge as students are able to connect theoretical learning with clinical experiences.: Early clinical experiences often involve working in multidisciplinary teams, which fosters a sense of collaboration and understanding of different roles within healthcare.

In summary, early clinical exposure in medical education is pivotal for the holistic development of medical students, providing them with a strong foundation of practical skills, professional attitudes, and a deep understanding of patient-centered care.

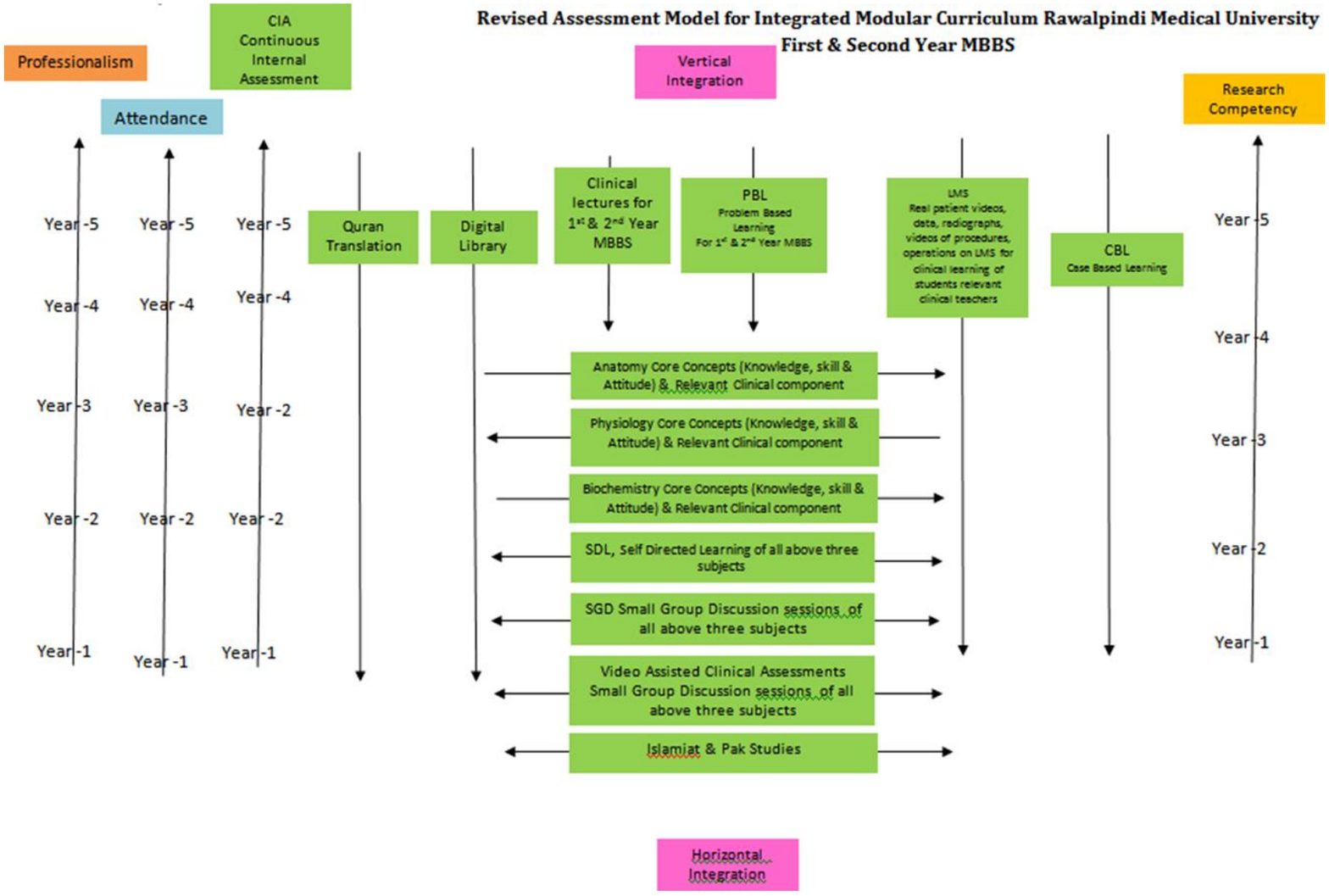
List of Special Senses Module Spiral Courses Lectures

SECTION - V

Assessment Policies

Contents

- **Assessment plan**
- **Types of Assessment:**
- **Modular Examinations**
- **Block Examination**
- **Table 4: Assessment Frequency & Time in CNS Module**



Gauge for Continuous Internal Assessment (CIA)

Red Zone	High Alert	Yellow Zone	Green Zone	Excellent	Extra Ordinary
0 - 25%	26 - 50%	51 - 60%	61 – 70%	71 – 80%	81 - 100%

60% and above is passing marks.

Gauge for attendance percentage

Red Zone	High Alert	Yellow Zone-1	Yellow Zone-2	Green Zone	Excellent
0 - 25%	26 - 50%	51 - 60%	61 – 74%	*75 – 80%	81 - 100%

90% is eligibility criteria for appearing professional examination.

Assessment plan

University has followed the guidelines of Pakistan Medical and Dental Council for assessment. Assessment is conducted at the mid modular,modular and block levels.

Types of Assessment:

The assessment is formative and summative.

Formative Assessment	Summative Assessment
Formative assessment is taken at modular (2/3rd of the module is complete) level through MS Teams. Tool for this assessment is best choice questions and all subjects are given theshare according to their hour percentage.	Summative assessment is taken at the mid modular (LMS Based),modular and block levels.

Modular Assessment

Theory Paper	Viva Voce
There is a module examination at the end of first module of each block. The content of the whole teaching of the module are tested in this examination. It consists of paper with objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module. (Annexure I attached)	Structured table viva voce is conducted including the practical content of the module.

Block Assessment

On completion of a block which consists of two modules, there is a block examination which consists of one theory paper and a structured viva with OSPE.

Theory Paper	Block OSPE
There is one written paper for each subject. The paper consists of objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module.	This covers the practical content of the whole block.

Table 4-Assessment Frequency & Time in Special Senses Module

Block	Sr #	Module – 1 Special Senses Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-III	1	Weekly LMS Based Assessments (Anatomy, Physiology & Biochemistry)	Formative	2 Hours	3 Hours 45 Minutes	3 Hours	2 Formative	6 Summative
	2	End Module Examinations (SEQ, SAQ, EMQ & MCQs Based)	Summative	2 Hours				
	3	Audio Visual (AV) OSPE (10 slides) 5 minutes per slide	Summative	50 Minutes				
	4	Anatomy Structured and Clinically Oriented Viva	Summative	10 Minutes				
	5	Physiology Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Assessment of Clinical Lectures & Spiral Curriculums	Formative	60 Minutes				

Learning Resources

Subject	Resources
Anatomy	**A. Gross Anatomy** 1. Gray's Anatomy by Prof. Susan Standring 42th edition, Elsevier. 2. Clinical Anatomy for Medical Students by Richard S. Snell 10th edition. 3. Clinically Oriented Anatomy by Keith Moore 9th edition. 4. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III **B. Histology** 1. B. Young J. W. Health Wheather's Functional Histology 6th edition. 2. Medical Histology by Prof. Laiq Hussain 7th edition. **C. Embryology** 1. Keith L. Moore. The Developing Human 11th edition. 2. Langman's Medical Embryology 14th edition. **D. Website** 1. https://my.clevelandclinic.org/health/articles/9117-male-reproductive-system 2. https://teachmeanatomy.info/pelvis/female-reproductive-tract/ 3. https://www.kenhub.com/en/start/pelvis-and-perineum **E. Youtube** 1. https://www.youtube.com/watch?v=G0ZuCilCu3E 2. https://www.youtube.com/watch?v=50iuBgTQCrQ **F. HEC Digital Library** 1. https://www.sciencedirect.com/science/article/pii/S0015028220304350 2. https://link.springer.com/article/10.1007/s11356-021-16581-9 3. https://link.springer.com/chapter/10.1007/978-3-030-30766-0_25 4. https://onlinelibrary.wiley.com/doi/abs/10.1111/and.13712
Physiology	**A. Textbooks** 1. Textbook of Medical Physiology by Guyton and Hall 14th edition. 2. Ganong 'S Review of Medical Physiology 26th edition. **B. Reference Books** 1. Human Physiology by Lauralee Sherwood 10th edition. 2. Berne & Levy Physiology 7th edition. 3. Best & Taylor Physiological Basis of Medical Practice 13th edition. 4. Guyton & Hall Physiological Review 3rd edition. **C. Website** **1.** https://teachmephysiology.com/reproductive-system/ (Reproductive physiology)

	2. https://courses.lumenlearning.com/wm-biology2/chapter/the-ovarian-cycle-the-menstrual-cycle-and-menopause/ 3. https://zerotofinals.com/obgyn/reproductivesystem/physiologyinpregnancy/ https://www.ibbiotech.com/en/info/sperm-capacitation/ **D. Youtube** 1. https://youtu.be/2_owp8kNMus (Female Reproductive system) 2. https://youtu.be/V9a2AQSJIMc (Dr Najeeb Lectures) https://youtu.be/rYVGjbzmAtg (Dr Najeeb lectures) **E. HEC Digital Library** 1. https://www.sciencedirect.com/science/article/abs/pii/S1532045621000296 2. https://www.sciencedirect.com/science/article/abs/pii/S001502822200485X **F. Physiology Journals** 1. https://rupress.org/jgp/article/5/4/441/30794/THE-RATE-OF-DECLINE-OF-MILK-SECRETION-WITH-THE 2. https://www.annualreviews.org/doi/abs/10.1146/annurev.ph.36.030174.001515?journalCode=physiol 3. https://zerotofinals.com/obgyn/reproductivesystem/physiologyinpregnancy/ https://www.msdmanuals.com/home/women-s-health-issues/normal-pregnancy/stages-of-development-of-the-fetus
Biochemistry	**Textbooks** 1. Harper's Illustrated Biochemistry 32th edition. 2. Lipponcott biochemistry 8th edition **B. Reference Books** 1.Lehninger Principle of Biochemistry 8th edition. 2. Biochemistry by Devlin 7th edition. **C. Website** • https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-function • https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-functionn • https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/purine-synthesis • https://www.sciencedirect.com/topics/medicine-and-dentistry/purine-metabolism-disorder • https://www.cliffsnotes.com/study-guides/biology/biochemistry-ii/purines-and- • https://www.healio.com/hematology-oncology/learn-genomics/genomics-primer/regulation-of-gene-expression-in-eukaryote **D. Youtube**

	• https://www.youtube.com/watch?v=A5u_TY1A0t8 • https://www.youtube.com/watch?v=A5u_TY1A0t8 • https://www.youtube.com/watch?v=VXWyWzbigrg • https://www.youtube.com/watch?v=e2KFVvI8Akk • https://www.youtube.com/watch?v=n7Uec8Jtr4E • https://www.youtube.com/watch?v=J9jhg90A7Lw **E. HEC Digital Library** • https://www.ncbi.nlm.nih.gov/books/NBK29/ • https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3243375/ • https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4215161/ • https://www.ncbi.nlm.nih.gov/pmc/articles/PMC378357/ • https://www.nature.com/scitable/topicpage/regulation-of-transcription-and-gene-expression-in-1086/ **F. Biochemistry Journals** • https://academic.oup.com/bmb/article/11/2/126/256755 • https://www.sciencedirect.com/topics/medicine-and-dentistry/gonadal-hormone

SECTION - VI

Time Table

Integrated Clinically Oriented Modular Curriculum for Second Year MBBS

Special Senses Module Time Table

Second Year MBBS

Session 2023-2024

Batch- 50

Special Senses Module Team

Module Name	:	Special Senses Module
Duration of module	:	04 Weeks
Coordinator	:	Dr. Minahil Haq
Co-coordinator	:	Dr. Romessa Naeem
Reviewed by	:	Module Committee

Module Committee		
15.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar
16.	Director DME	Prof. Dr. Ifra Saeed
17.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf
18.	Chairperson Physiology	Prof. Dr. Samia Sarwar
19.	Chairperson Biochemistry	Dr. Aneela Jamil
20.	Focal Person Anatomy Second Year MBBS	Dr. Maria Tasleem
21.	Focal Person Physiology	Dr. Sidra Hamid
22.	Focal Person Biochemistry	Dr. Aneela Jamil
23.	Focal Person Pharmacology	Dr. Zunera Hakim
24.	Focal Person Pathology	Dr. Asiya Niazi
25.	Focal Person Behavioral Sciences	Dr. Saadia Yasir
26.	Focal Person Community Medicine	Dr. Afifa Kulsoom
27.	Focal Person Quran Translation Lectures	Dr. Uzma Zafar
28.	Focal Person Family Medicine	Dr. Sadia Khan

Module Task Force Team		
6.	Coordinator	Dr. Minahil Haq (Senior Demonstrator of Anatomy)
7.	DME Focal Person	Dr. Farzana Fatima
8.	Co-coordinator	Dr. Sadia Baqir (Senior Demonstrator of Anatomy)
9.	Co-Coordinator	Dr. Romessa (Demonstrator of Biochemistry)
10.	Co-coordinator	Dr. Fareed Ullah Khan (Senior Demonstrator of Physiology)

DME Implementation Team		
5.	Director DME	Prof. Dr. Ifra Saeed
6.	Assistant Director DME	Dr Farzana Fatima
7.	DME Implementation Team	Prof. Dr. Ifra Saeed Dr. Farzana Fatima Dr. Saira Aijaz
8.	Editor	Muhammad Arslan Aslam

Discipline wise Details of Modular Contents

Block	Subjects	Embryology	Histology	Histology Practical SKL. Lab.	Gross Anatomy	CBL	SDL
\ III	• Anatomy	• Development of Eye • Development of Pharyngeal arches • Development of Ear	• Histology of Eye • Histology of Ear	• Cornea • Retina • External and Internal ear	• Facial and superior aspect of cranium (Norma frontalis, Norma verticalis) • External surface of cranial base (Norma basalis) • Lateral and occipital aspect of cranium (Norma lateralis, occipitalis) • Mandible • Temporomandibular joint • Face • Scalp • Orbit boundaries and Extraocular muscles • Vessels and nerves of orbit • Eyeball • Eyelid and lacrimal apparatus • Parotid and temporal region • Infratemporal fossa • Pterygopalatine fossa • External and middle ear • Inner ear • Nose and paranasal sinuses	• Oculomotor nerve palsy • Extra Dural hemorrhage	• Norma frontalis, verticalis and basalis • Lateralis and occipitalis, TMJ & Mandible Orbit boundaries • Extraocular muscles • Vessels and Nerves of orbit • Temporal and Infra temporal region, Pterygopalatine fossa • External and middle ear
	• Physiology	• Physiology of Ear & Eye					
	• Biochemistry	• Receptors, Second messengers, Neurotransmitters, Vitamin A role in vision					
	Spiral Courses						
	• The Holy Quran Translation	•					
	• Islamiayat	• Imaniat (Hadith) • Zimidaari aur taluqaat • Uswa-e-hasna					
	• Pak Studies	• Pakistan ki jughrafiyai ahmiyat aur difai haisiyat					

		• Pakistan k hamsaya mumalik se taluqaat • Pakistan k qudrati wasail-maadniyaat
	• Biomedical Ethics / Professinalism	• Ethical dilemmas Involving breach in Justice
	• Behavioral Sciences	• Perception
	• Radiology & Artificial Intelligence	• General radiologic concepts
	• Family Medicine	• Approach to a patient with earache
	Vertical Integration	
	• Surgery	• Plastic surgery
	• ENT	• Nasal polyp & Sinusitis & Diseases of External Nose • Otitis Media Ear Discharge &Hearing Problems in Children • Facial fractures
	• Medicine	• Management Of Covid-19 Sense of Smell
	• Eye	• Refractive Errors Strabismus • Ocular trauma & Ocular Procedures • Conjunctivitis Chalazion • Cataract & Glaucoma & Anti glaucoma drugs
	Early Clinical Exposure (ECE)	
	• Medicine	• Hyperthyroidism • Hypothyroidism • Cushing Syndrome
	• Surgery	• Thyroid Nodule • Multi nodular Goiter • CA Thyroid • Graves Diseases
	• Eye	• Blindness • Visual field defect • Cataract
	• Otolaryngology	• Deafness • Hearing tests • Nasal Obstruction

Categorization of Modular Contents

Anatomy

Category A*	Category B**	Category C***			
		Demonstrations / SGD	**CBL**	**SKL/Practical's**	**Self-Directed Learning (SDL)**
• Special Embryology	• Special Histology	• Facial and superior aspect of cranium (Norma frontalis, Norma verticalis) • External surface of cranial base (Norma basalis) • Lateral and occipital aspect of cranium (Norma lateralis, occipitalis) • Mandible • Temporomandibular joint • Face • Scalp • Orbit boundaries Extraocular muscles • Vessels and nerves of orbit • Eye ball • Eyelid and lacrimal apparatus • Parotid and temporal region • Infratemporal fossa • Pterygopalatine fossa • External and middle ear • Inner ear • Nose and paranasal sinuses	• Oculomotor nerve palsy • Extra Dural hemorrhage	• Cornea • Retina • External and internal ear	• Norma frontalis, verticalis and basalis • Lateralis and occipitalis, TMJ & Mandible • Orbit boundaries & Extraocular muscles • Vessels and Nerves of orbit • Temporal and Infra temporal region, Pterygopalatine fossa • External and middle ear

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrator

Teaching Staff / Human Resources of Department of Anatomy

Sr. #	Designation of Teaching Staff / Human Resource	Total number of teaching staff
1.	Professor of Anatomy department	01
2.	Assistant professor of Anatomy department (AP)	01
3.	Demonstrators of Anatomy department	04

Contact Hours (Faculty)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	2 * 09 = 18 hours
2.	Small Group Discussions (SGD)	2*15 + 1*4= 34 hours
3.	Practical / Skill Lab	1.5 * 15 = 22.5 hours

Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	1 * 9 = 09 hours
2.	Small Group Discussions (SGD)	2*15 + 1*4= 34 hours
3.	Practical / Skill Lab	1.5 * 3 = 4.5 hours
4.	Self-Directed Learning (SDL)	2 * 3 = 06 hours

Physiology

Category A	Category B	Category C
Photochemistry of vision &Physiological basis for photo transduction **(By Prof. Dr. Samia Sarwar / Dr. Uzma)**	Introduction to Physiology of Eye & Optics of vision. General Principles of optics, Physiological basis for errors of refraction **(By Dr. Uzma)**	**CBL:**
Physiology of accommodation and clinical abnormalities **(By Prof. Dr. Samia Sarwar / Dr. Uzma)**	Introduction to Physiology of external ear, Middle ear **(By Dr. Fareed)**	**PBL:**
	Fluid system of the eye Intraocular pressure, Function of the Structural Elements of the Retina **(By Dr. Uzma)**	**Practical:** 1. Estimation of Visual Acuity 2. Examination of 8th Cranial Nerve (vestibular function) 3. Performance of Hearing Test (cochlear function)
	Functions of Inner ear, Physiology of Hearing **(By Dr. Fareed)**	**CBL:**
	Hearing abnormalities, Tuning fork tests and audiometry **(By Dr. Aneela)**	**SGD:** 1. Physiology of Vision 2. Physiology of hearing & Balance 3. Sense of Taste & Smell
	Light & dark adaptation, Color vision, Neural functions of the retina, Central neurophysiology of vision, Neural pathways for analysis of visual information **(By Dr. Uzma)**	**SDL: (ON CAMPUS)** **1.** Introduction to Physiology of external ear, Middle ear **2.** Functions of Inner ear, Physiology of Hearing **3.** Hearing abnormalities, Tuning fork tests and audiometry **(OFF CAMPUS)** **4.** Introduction to Physiology of Eye & Optics of vision. General Principles of optics, Physiological basis for errors of refraction **5.** Fluid system of the eye Intraocular pressure, Function of the Structural Elements of the Retina **6.** Photochemistry of vision &Physiological basis for photo transduction **7.** Vestibular system **8.** Sense of Taste and pathophysiology **9.** Sense of Smell and pathophysiology
	Vestibular system **(By Dr. Sidra)**	
	Lesions of visual pathway and its effects on field of vision, Movements of eyeball along with neural control **(By Dr. Uzma)**	
	Sense of Taste and pathophysiology **(By Dr. Kamil)**	
	Sense of Smell and pathophysiology **(By Dr. Kamil)**	

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resources of Department of Physiology

Sr. #	Designation of Teaching Staff / Human Resource	Total number of teaching staff
1.	Professor of Physiology department	01
2.	Assistant professor of Physiology department (AP)	01
3.	Associate professor of Physiology department	01 (DME)
4..	Demonstrators of Anatomy department	07
5.	Residents of physiology department (PGTs)	08

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	12 * 1= 12 hours
2.	Small Group Discussions (SGD) Case based learning (CBL)	1.5 * 3 = 4.5 hours
3.	Problem based learning (PBL)	--
4.	Practical / Skill Lab	1.5 * 3 = 4.5 hours
5.	Self- Directed Learning	3x1=3hours (on campus) + 6x1=6hours (off campus) = 9hours

Biochemistry

Category A*	Category B**	Catogery C***			
LGIS	**LGIS**	**PBL**	**CBL**	**Practical's**	**SGD**
• Neurotransmitter • Second Messenger	• Receptors • G-Proteins • Role of Vitamin A in Vision		Night Blindness	• Lipid Profile • Urine Report Revision • Spectrophotometer Revision	• Neurotransmitters • G-Proteins

Category A*: By HOD and Assistant Professor

Category B:** By All (HOD, Assistant Professors, Senior Demonstrators)

Category C*:** (By All Demonstrators)

Teaching Staff / Human Resource of Department of Biochemistry

Sr. #	Designation of Teaching Staff / Human Resource	Total number of teaching staff
1	Assistant professor of biochemistry department (AP)	01
2	Demonstrators of biochemistry department	07

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours (Faculty)	Total Hours (student)
1.	Large Group Interactive Session (LECTURES)	2 * 5= 10hours	05
2.	Small Group Discussions (SGD)	1.5 * 5 = 7.5hours=22.5 hrs	4.5
3.	Problem Based Learning (PBL)	Zero	zero
4.	Practical / Skill Lab	1.5 * 5= 7.5hours=22.5 hrs	4.5
5.	Self-Directed Learning (SDL)	----------	05

Special Senses Module (First Week)
(12-09-2024 To 18-09-2024)

Date / Day	8:00am-9:20am	9:20am – 10:10am		10:10am-10:30am	10:30am-11:20am		11:20am-12:10pm		12:10pm-12:30pm	12:30pm – 2:00pm	Home Assignments(2HRS)
12-09-2024 Thursday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		Break	ANATOMY LGIS		BEHAVIORAL SCIENCES		Break	SGD/DISSECTION	SDL Physiology Introduction to Physiology of Eye & Optics of vision. General Principles of optics, Physiological basis for errors of refraction
		Introduction to Physiology of Eye & Optics of vision. General Principles of optics, Physiological basis for errors of refraction	Introduction to Physiology of external ear, Middle ear		Histology of Eye-I	Development of Eye-I	Perception			Facial and superior aspect of cranium (Norma frontalis & Norma verticalis)	
		Dr. Uzma (Even)	Dr. Fareed (Odd)		Assist. Prof. Dr. Maria (Even)	Prof. Dr. Ifra Saeed (Odd)	Dr. Mahmood Ali (even)	Dr. Sarah Afzal (Odd)			
13-09-2024 Friday	8:00 AM – 9:00 AM	9:00 AM – 10:00 AM		10:00 – 11:00AM			11:00AM – 12:00PM		Break	SDL Anatomy Norma frontalis, verticalis and basalis	
	SURGERY	PHYSIOLOGY LGIS		ISLAMIAYAT			ANATOMY LGIS				
	Plastic surgery	Introduction to Physiology of external ear, Middle ear	Introduction to Physiology of Eye & Optics of vision. General Principles of optics, Physiological basis for errors of refraction	Imaniat (hadith)			Development of Eye-I	Histology of Eye-I			
	Dr. Hassnain	Dr. Fareed (Even)	Dr. Uzma (Odd)	Mufti Naem Sherazi (Even)			Prof. Dr. Ifra Saeed (Even)	Assist. Prof. Dr. Maria (Odd)			
14-09-2024 Saturday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		Break	BIOMEDICAL ETHICS CLUB ACTIVITY		SGD/DISECTION		Break	CBL/DISSECTION	SDL Physiology Fluid system of the eye Intraocular pressure, Function of the Structural Elements of the Retina
		Fluid system of the eye Intraocular pressure, Function of the Structural Elements of the Retina	Functions of Inner ear, Physiology of Hearing		Ethical dilemmas Involving breach in Justice		Mandible			Lateral and occipital aspect of cranium (Norma lateralis & occipitalis) Extra Dural hemorrhage	
		Dr. Uzma (Even))	Dr Fareed (Odd)								
16-09-2024 Monday	Eid Milad-un-Nabi (12th Rabi-ul- Awwal 1446 A.H)										
17-09-2024 Tuesday	Practical & CBL/SGD Topic mentioned at the end	BIOCHEMISTRY (LGIS)		Break	FAMILY MEDICINE		SGD/DISECTION		Break	SGD/DISECTION	SDL Anatomy Norma lateralis and occipitalis, TMJ & Mandible
		Receptors	Neurotransmitters		Approach to a patient with earache		Face			Temporomandibular joint	
		Dr. Uzma (Even)	Dr. Aneela (Odd)		Dr. Sadia (even)	Dr. Amna (Odd)					
18-09-2024 Wednesday	Practical & CBL/SGD Topic mentioned at the end	RADIOLOGY		Break	BIOCHEMISTRY (LGIS)		PAK STUDIES		Break	SGD/DISECTION	SDL Biochemistry Receptors
		General radiologic concepts			Neurotransmitters	Receptors	Pakistan ki jughrafiyai ahmiyat aur difai haisiyat			Scalp	
		Dr. Quratalain (even)	Dr. Riffat (Odd)		Dr. Aneela (Even)	Dr. Uzma (Odd)	Qari Aman Ullah (Odd)				

Table No. 1 (Time: 12:20pm – 02:00pm)

Batch Distribution for Practical Skills (all subjects) CBL / Small Group Discussion (Biochemistry and Physiology)

Sr. No	Batch	Roll No.
1.	A	01-70
2.	B	71-140
3.	C	141-210
4.	D	211-280
5.	E	281-onwards

Topics for Skill Lab with Venue

- Cornea (Anatomy Histology Practical) Venue-Histology laboratory-Dr. Tariq Furqan
- (Biochemistry Practical) Lipid Profile Venue- Biochemistry laboratory
- Examination of Visual Acuity (Physiology Practical) Venue – Physiology Lab

Topics for SGDs / CBL with Venue

- Physiology SGD: Physiology of Vision (Venue: Lecture Hall No 5)
- Biochemistry SGD: Neurotansmitter
- Anatomy CBL: Extradural Hemorrhage

Schedule for Practical / Small Group Discussion

Day	Histology Practical		Biochemistry Practical		Supervised by HOD	Physiology Practical		Physiology SGD		Supervised by HOD	Biochemistry SGD	
	Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name
Monday	C	Supervised by HOD	B	Dr. Rahat		E	Dr. Kamil	A	Dr. Aneela		D	Dr. Uzma
Tuesday	D		C	Dr. Nayab		A	Dr. Aneela	B	Dr. Shazia		E	Dr. Almas
Wednesday	E		D	Dr. Uzma		B	Dr. Shazia	C	Dr. Nayab		A	Dr. Romessa
Thursday	B		A	Dr. Almas		D	Dr. Iqra	E	Dr. Iqra		C	Dr. Nayab
Saturday	A		E	Dr. Romessa		C	Dr. Nayab	D	Dr. Kamil		B	Dr. Rahat

Table No. 2 Batch Distribution and Venues for Anatomy Small Group Discussion SGDs / Dissections

Batches	Roll No	Anatomy Teacher	Venue	
A	01-90	Dr. Gaiti Ara	New Lecture Hall Complex # 01	Supervised by Prof. Dr. Ayesha Yousaf
B	91-180	Dr. Minahil Haq	New Lecture Hall Complex # 04	
C	181-270	Dr. Tariq Furqan	Anatomy Lecture Hall 04	
D	271 onwards	Dr. Sadia Baqir	Anatomy Lecture Hall 03	

Table No. 3 Batch Distribution with Venues and Teachers Name for Problem Based Learning (PBL) Sessions

Sr No.	Batches	Roll No	Venue	Teachers	Sr No.	Batches	Roll No	Venue	Teachers
1.	A1	(01-35)	Lecture Hall no.05 Physiology	Dr. Sana Latif (Demonstrator Biochemistry)	6.	C2	(176-210)	Lecture Hall no.04 (Basement)	Dr. Nayab Zonish (PGT Physiology)
2.	A2	(36-70)	Lecture Hall #.04 (1st Floor Anatomy)	Dr. Farah (Demonstrator of Physiology)	7.	D1	(210-245)	Lecture Hall no.02 (Basement)	Dr. Iqra Ayub (PGT Physiology)
3.	B1	(71-105)	Anatomy Museum (First Floor Anatomy)	Dr. Rohina Khalid (Demonstrator Biochemistry)	8.	D2	(246-280)	Conference Room (Basement)	Dr. Muhammad Usman (PGT Physiology)
4.	B2	(106-140)	Lecture Hall no.03 (First Floor)	Dr. Gaiti Ara (Senior Demonstrator of Anatomy)	9.	E1	(281-315)	New Lecture Hall no.01	Dr. Ramsha (PGT Physiology)
5.	C1	(141-175)	Lecture Hall no.05 (Basement)	Dr. Ali Zain (PGT Physiology)	10	E2	(315 onwards)	Lecture Hall no.04	Dr. Jawad Hassan (Demonstrator Physiology)

Table No. 6 Venues for Large Group Interactive Session (LGIS)

Odd Roll Numbers	New Lecture Hall Complex Lecture Theater # 01
Even Roll Number	New Lecture Hall Complex Lecture Theater # 04

Special Senses Module (Second Week)
(19-09-2024 To 25-09-2024)

Date / Day	8:00am-9:20am	9:20am – 10:10am	10:10am-10:30am	10:30am-11:20am	11:20am-12:10pm	12:10pm-12:30pm	12:30pm – 2:00pm	Home Assignments(2HRS)
19-09-2024 Thursday	**Practical & CBL/SGD** Topic mentioned at the end	**ENT** Nasal polyp& Sinusitis & Diseases of External Nose Dr. Sundas Masood (even) / Dr. Tabasum (Odd)	Break	**PHYSIOLOGY LGIS** Photochemistry of vision &Physiological basis for photo transduction / Hearing abnormalities, Tuning fork tests and audiometry Prof. Dr. Samia /Dr. Uzma (Even) / Dr. Aneela (Odd)	**BIOCHEMISTRY (LGIS)** Role Of Vitamin A In Vision / G-Proteins Dr.Almaas(Even) / Dr. Uzma/ Dr. Aneela (Odd)	Break	**CBL/ DISSECTION** Orbit Extraocular muscles (ooculomotor nerve palsy)	SDL Anatomy Orbit boundaries Extraoccular muscles
20-09-2024 Friday	**8:00 AM – 9:00 AM** **EYE** Ocular trauma & Ocular Procedures Dr. Wajeeha (even) / Dr. Sidra Naseem(Odd)	**9:00 AM – 10:00 AM** **PHYSIOLOGY LGIS** Functions of Inner ear, Physiology of Hearing / Fluid system of the eye Intraocular pressure, Function of the Structural Elements of the Retina Dr. Fareed (Even) / Dr. Uzma (Odd)		**10:00 AM – 11:00AM** **ISLAMIAT** Zimidaari aur taluqaat Mufti Naem Sherai (Even) / Qari Aman Ullah (Odd)	**11:00AM – 12:00PM** **BIOCHEMISTRY (LGIS)** G-Proteins / Role Of Vitamin A In Vision Dr. Uzma/ Dr. Aneela (Even) / Dr. Almaas (Odd)		SDL Anatomy Vessels and Nerves of orbit	
21-09-2024 Saturday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS** Hearing abnormalities, Tuning fork tests and audiometry / Photochemistry of vision &Physiological basis for photo transduction Dr. Aneela (Even) / Prof. Dr. Samia / Dr. Uzma(Odd)	Break	**ANATOMY (LGIS)** Histology of Eye-II / Development of Eye-II Assist. Prof. Dr. Maria (Even) / Prof. Dr. Ifra Saeed (Odd)	**JOINT SESSION /EYE** Cataract & Glaucoma & Anti glaucoma drugs Dr. Ambreen (even) / Dr. Bilal Odd)	Break	**SGD/DISSECTION** Vessels and Nerves of Orbit	SDL Physiology Photochemistry of vision &Physiological basis for photo transduction
23-09-2024 Monday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS** Light & dark adaptation, Color vision, Neural functions of the retina, Central neurophysiology of vision, Neural pathways for analysis of visual information / Vestibular system Dr. Uzma (Even) / .Dr. Sidra (odd)		**ANATOMY (LGIS)** Development of Eye-II / Histology of Eye-II Prof. Dr. Ifra Saeed (Even) / Assist. Prof. Dr. Maria (Odd)	**EYE** Conjuctivitis Chalazion Dr. Salman (even) / Dr. Fatima (Odd)		**SGD/DISSETION** Eyeball	SDL physiology Vestibular system
24-09-2024 Tuesday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS** Vestibular system / Light & dark adaptation,Color vision, Neural functions of the retina, Central neurophysiology of vision, Neural pathways for analysis of visual information .Dr. Sidra (Even) / Dr.Uzma (Odd)		**ANATOMY (LGIS)** Histology of Ear / Development of Pharyngeal Apparatus Assist. Prof. Dr. Maria (Odd) / Prof. Dr. Ifra Saeed (Even)	**SGD/DISECTION** Parotid & Temporal region		**SGD/DISSECTION** Eyelids and Lacrimal apparatus	SDL Biochemistry G-Proteins
25-09-2024 Wednesday	**Practical & CBL/SGD** Topic mentioned at the end	**ANATOMY (LGIS)** Development of Pharyngeal Apparatus / Histology of Ear Prof. Dr. Ifra Saeed (Odd) / Assist. Prof. Dr. Maria (Even)		**BIOCHEMISTRY (LGIS)** Second messenger system / Second messenger system Dr . Uzma (Even) / Dr Aneela (Odd)	**PAK STUDIES** Pakistan k hamsaya mumalik se taluqaat / Aqliayt ka Tahafooz ` Qari Aman Ullah (Even) / Mufti Naem Sherai(Odd)		**SGD/DISECTION** Dissection	SDL Biochemistry Role Of Vitamin A In Vision

Table No. 1 (Time: 12:20pm – 02:00pm)

Batch Distribution for Practical Skills (all subjects)
CBL / Small Group Discussion (Biochemistry and Physiology)

Sr. No	Batch	Roll No.
1.	A	01-70
2.	B	71-140
3.	C	141-210
4.	D	211-280
5.	E	281-onwards

Topics for Skill Lab with Venue

- Retina (Anatomy Histology Practical) Venue-Histology laboratory-Dr. Tariq Furqan
- (Biochemistry Practical) Urine Report Venue- Biochemistry laboratory
- Examination of 8th Cranial Nerve (Vestibular function) (Physiology Practical) Venue – Physiology Lab

Topics for SGDs / CBL with Venue

- Physiology SGD: Physiology of hearing & Balance (Venue: Lecture Hall No 5)
- Biochemistry SGD: G-Proteins
- Anatomy CBL: Oculomotor Nerve Palsy

Schedule for Practical / Small Group Discussion

Day	Histology Practical		Biochemistry Practical		Supervised by HOD	Physiology Practical		Physiology SGD		Supervised by HOD	Biochemistry SGD	
	Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name
Monday	C	Supervised by HOD	B	Dr. Rahat		E	Dr. Kamil	A	Dr. Aneela		D	Dr. Uzma
Tuesday	D		C	Dr. Nayab		A	Dr. Aneela	B	Dr. Shazia		E	Dr. Almas
Wednesday	E		D	Dr. Uzma		B	Dr. Shazia	C	Dr. Nayab		A	Dr. Romessa
Thursday	B		A	Dr. Almas		D	Dr. Iqra	E	Dr. Iqra		C	Dr. Nayab
Saturday	A		E	Dr. Romessa		C	Dr. Nayab	D	Dr. Kamil		B	Dr. Rahat

Table No. 2 Batch Distribution and Venues for Anatomy Small Group Discussion SGDs / Dissections

Batches	**Roll No**	**Anatomy Teacher**	**Venue**
A	01-90	Dr. Gaiti Ara	New Lecture Hall Complex # 01
B	91-180	Dr. Minahil Haq	New Lecture Hall Complex # 04
C	181-270	Dr. Tariq Furqan	Anatomy Lecture Hall 04
D	271 onwards	Dr. Sadia Baqir	Anatomy Lecture Hall 03

Supervised by Prof. Dr. Ayesha Yousaf

Table No. 3 Batch Distribution with Venues and Teachers Name for Problem Based Learning (PBL) Sessions

Sr No.	Batches	Roll No	Venue	Teachers	Sr No.	Batches	Roll No	Venue	Teachers
1.	A1	(01-35)	Lecture Hall no.05 Physiology	Dr. Sana Latif (Demonstrator Biochemistry)	6.	C2	(176-210)	Lecture Hall no.04 (Basement)	Dr. Nayab Zonish (PGT Physiology)
2.	A2	(36-70)	Lecture Hall #.04 (1st Floor Anatomy)	Dr. Farah (Demonstrator of Physiology)	7.	D1	(210-245)	Lecture Hall no.02 (Basement)	Dr. Iqra Ayub (PGT Physiology)
3.	B1	(71-105)	Anatomy Museum (First Floor Anatomy)	Dr. Rohina Khalid (Demonstrator Biochemistry)	8.	D2	(246-280)	Conference Room (Basement)	Dr. Muhammad Usman (PGT Physiology)
4.	B2	(106-140)	Lecture Hall no.03 (First Floor)	Dr. Gaiti Ara (Senior Demonstrator of Anatomy)	9.	E1	(281-315)	New Lecture Hall no.01	Dr. Ramsha (PGT Physiology)
5.	C1	(141-175)	Lecture Hall no.05 (Basement)	Dr. Ali Zain (PGT Physiology)	10	E2	(315 onwards)	Lecture Hall no.04	Dr. Jawad Hassan (Demonstrator Physiology)

Table No. 6 Venues for Large Group Interactive Session (LGIS)

Odd Roll Numbers	New Lecture Hall Complex Lecture Theater # 01
Even Roll Number	New Lecture Hall Complex Lecture Theater # 04

Special Senses Module (Third Week)
(26-09-2024 To 02-10-2024)

Date / Day	8:00am-9:20am	9:20am – 10:10am		10:10am-10:30am	10:30am-11:20am		11:20am-12:10pm	12:10pm-12:30pm	12:30pm – 2:00pm	Home Assignments(2HRS)
26-09-2024 Thursday	Practical & CBL/SGD Topic mentioned at the end	**PHYSIOLOGY LGIS**		Break	**EYE**		**SGD/DISSECTION**	Break	**SGD/DISSECTION**	Anatomy SDL Temporal and Infra temporal region, Pterygopalatine fossa
		Lesions of visual pathway and its effects on field of vision, Movements of eye ball along with neural control	Sense of Taste and pathophysiology		Refractive Errors Strabismus		Dissection		Infratemporal fossa-I	
		Dr. Uzma (Even)	Dr. Kamil (Odd)		Dr. Sidra Jabeen (Even)	Dr. Maria (Odd)				
27-09-2024 Friday	8:00 AM – 9:00 AM	9:00 AM – 10:00 AM			10:00 – 11:00AM		11:00AM – 12:00PM			
	ENT	**PHYSIOLOGY LGIS**			**ISLAMIAT**		**SGD/DISSECTION**			
	Otitis Media Ear Discharge &Hearing Problems in Children	Sense of Taste and pathophysiology	Lesions of visual pathway and its effects on field of vision, Movements of eye ball along with neural control		Uswa-e-hasna		Dissection		SDL Biochemistry 2nd Messenger System	
	Dr. Haitum (Even) / Dr. Arshad (Odd)	Dr. Kamil (Even)	Dr. Uzma (Odd)		Mufti Naem Sherai (Even)	Qari Aman Ullah (Odd)				
28-09-2024 Saturday	Practical & CBL/SGD Topic mentioned at the end	**PHYSIOLOGY LGIS**		Break	**ANATOMY LGIS**		**ISLAMIAT**	Break	**SGD/DISSECTION**	Anatomy SDL External and middle ear
		Physiology of accommodation and clinical abnormalities	Sense of Smell and pathophysiology		Development of Ear	Development of Nose	Halal ke Ahmiat		Infratemporal fossa-II	
		Prof.Dr. Samia Sarwar/ Dr Uzma (Even)	Dr. Kamil (Odd)		Assist. Prof. Dr. Maria (Even)	Prof. Dr. Ifra Saeed (Odd)	Mufti Naeem Shirazi			
30-09-2024 Monday	Practical & CBL/SGD Topic mentioned at the end	**PHYSIOLOGY LGIS**			**ANATOMY LGIS**		**ENT**		**SGD/DISSECTION**	SDL Physiology Sense of Taste and pathophysiology
		Sense of Smell and pathophysiology	Physiology of accommodation and clinical abnormalities		Development of Nose	Development of Ear	Facial fractures		Pterygopalatine fossa	
		Dr Kamil (Even)	Prof.Dr. Samia Sarwar/ Dr Uzma (Odd)		Prof. Dr. Ifra Saeed (Even)	Assist. Prof. Dr. Maria (odd)	Dr. Nida (Even) / Dr. Ashar (Odd)			
01-10-2024 Tuesday	Practical & CBL/SGD Topic mentioned at the end	**PHYSIOLOGY SDL NO.01**			**ANATOMY LGIS**		**SGD/DISSECTION**		**SGD/DISSECTION**	SDL Physiology Sense of Smell and pathophysiology Online clinical Evaluation
		Introduction to Physiology of external ear, Middle ear			Development of Palate	Development of Palate	Inner ear		External and middle ear	
		Dr.Fareed (Even)	Dr Afsheen (Odd)		Prof. Dr. Ifra Saeed (Odd)	Assist. Prof. Dr. Maria (Even)				
02-10-2024 Wednesday	Practical & CBL/SGD Topic mentioned at the end	**PAKSTUDIES**			**PHYSIOLOGY SDL No. 02**		**SGD/DISECTION**		**SGD/DISECTION**	
		Pakistan k qudrati wasail-maadniyaat / Zaraat			Functions of Inner ear, Physiology of Hearing		Cross Sectional Anatomy		Nose and paranasal sinuses	
		Qari Aman Ullah (Even)	Mufti Naem Sherazi (Odd)		Dr. Fareed (Even)	Dr Ali Zain (Odd)				

Table No. 1 (Time: 12:20pm – 02:00pm)

Batch Distribution for Practical Skills (all subjects) CBL / Small Group Discussion (Biochemistry and Physiology)

Sr. No	Batch	Roll No.
1.	A	01-70
2.	B	71-140
3.	C	141-210
4.	D	211-280
5.	E	281-onwards

Topics for Skill Lab with Venue

- External & Internal Ear (Anatomy Histology Practical) Venue- Histology laboratory-Dr. Tariq Furqan
- (Biochemistry Practical) Revision of Spectrophotometer Venue- Biochemistry laboratory
- Performance of Hearing Test (cochlear function) (Physiology Practical) Venue – Physiology Lab

Topics for SGDs / CBL with Venue

- Physiology SGD: Physiology of Taste & Smell (Venue: Lecture Hall No 5)
- Biochemistry CBL: Night Blindness

Schedule for Practical / Small Group Discussion

Day	Histology Practical		Biochemistry Practical		Supervised by HOD	Physiology Practical		Physiology SGD		Supervised by HOD	Biochemistry SGD	
	Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name
Monday	C	Supervised by HOD	B	Dr. Rahat		E	Dr. Kamil	A	Dr. Aneela		D	Dr. Uzma
Tuesday	D		C	Dr. Nayab		A	Dr. Aneela	B	Dr. Shazia		E	Dr. Almas
Wednesday	E		D	Dr. Uzma		B	Dr. Shazia	C	Dr. Nayab		A	Dr. Romessa
Thursday	B		A	Dr. Almas		D	Dr. Iqra	E	Dr. Iqra		C	Dr. Nayab
Saturday	A		E	Dr. Romessa		C	Dr. Nayab	D	Dr. Kamil		B	Dr. Rahat

Table No. 2 Batch Distribution and Venues for Anatomy Small Group Discussion SGDs / Dissections

Batches	Roll No	Anatomy Teacher	Venue	
A	01-90	Dr. Gaiti Ara	New Lecture Hall Complex # 01	Supervised by Prof. Dr. Ayesha Yousaf
B	91-180	Dr. Minahil Haq	New Lecture Hall Complex # 04	
C	181-270	Dr. Tariq Furqan	Anatomy Lecture Hall 04	
D	271 onwards	Dr. Sadia Baqir	Anatomy Lecture Hall 03	

Table No. 3 Batch Distribution with Venues and Teachers Name for Problem Based Learning (PBL) Sessions

Sr No.	Batches	Roll No	Venue	Teachers	Sr No.	Batches	Roll No	Venue	Teachers
1.	A1	(01-35)	Lecture Hall no.05 Physiology	Dr. Sana Latif (Demonstrator Biochemistry)	6.	C2	(176-210)	Lecture Hall no.04 (Basement)	Dr. Nayab Zonish (PGT Physiology)
2.	A2	(36-70)	Lecture Hall #.04 (1st Floor Anatomy)	Dr. Farah (Demonstrator of Physiology)	7.	D1	(210-245)	Lecture Hall no.02 (Basement)	Dr. Iqra Ayub (PGT Physiology)
3.	B1	(71-105)	Anatomy Museum (First Floor Anatomy)	Dr. Rohina Khalid (Demonstrator Biochemistry)	8.	D2	(246-280)	Conference Room (Basement)	Dr. Muhammad Usman (PGT Physiology)
4.	B2	(106-140)	Lecture Hall no.03 (First Floor)	Dr. Gaiti Ara (Senior Demonstrator of Anatomy)	9.	E1	(281-315)	New Lecture Hall no.01	Dr. Ramsha (PGT Physiology)
5.	C1	(141-175)	Lecture Hall no.05 (Basement)	Dr. Ali Zain (PGT Physiology)	10	E2	(315 onwards)	Lecture Hall no.04	Dr. Jawad Hassan (Demonstrator Physiology)

Table No. 6 Venues for Large Group Interactive Session (LGIS)

Odd Roll Numbers	New Lecture Hall Complex Lecture Theater # 01
Even Roll Number	New Lecture Hall Complex Lecture Theater # 04

Tentative Schedule for LMS Based Weekly Online Assessments for Second Year MBBS (Special Senses Module) Batch 50

The online assessment for Special Senses Module for Second Year MBBS will be as per following schedule:

Class	Module	Day & Date	Time of Assessment	Focal person	Department Responsible
Second Year MBBS	Special Senses Module	Tuesday 17th September,2024	9:00 pm-9:30pm	Prof. Dr Ayesha Yousaf	Anatomy
		Wednesday 18th September,2024	9:00 pm-9:30pm	Prof. Dr Samia Sarwar	Physiology
		Thursday 19th September,2024	9:00 pm-9:30pm	Dr Aneela Jamil	Biochemistry
		Monday 23rd September,2024	9:00 pm-9:30pm	Prof. Dr Ayesha Yousaf	Anatomy
		Tuesday 24th September,2024	9:00 pm-9:30pm	Prof. Dr Samia Sarwar	Physiology
		Wednesday 25th September,2024	9:00 pm-9:30pm	Dr Aneela Jamil	Biochemistry

Note: All dates are subject to date.

Special Senses Module (Fourth Week)
(03-10-2024 To 09-10-2024)

Date / Days	08:00am – 02:00pm
03-10-2024 Thursday	Assessment Week
04-10-2024 Friday	
05-10-2024 Saturday	
07-10-2024 Monday	
08-10-2024 Tuesday	
09-10-2024 Wednesday	

Note: Timetable Subject to Change According to The Current Circumstances.

SECTION-VII

Table of Specification (TOS) For Special Senses Module Examination

Blue Print of Assessment for First Year & Second Year MBBS

Table of Specification

Tools of Asssessment: Cognitive: MCQ- Multiple Choice Questions, EMQs- Extended Matching Questions, SAQ- Short Answer Questions, SEQ- Short Essay Questions Psychomotor: AvOSPE- Audio Visual Assisted Objective Structured Pactical Examination, labOSPE- Laboratory Based Objective Structured Practical Examination, IOSPE- Integrated Objective Structured Practical Examination, COSPE- Clinically Oriented Objective Structed Practical Examination Affect: AED Reflective Writing- Artificial Intelligence, Entraprenureship, Digital Literacy based reflective writing, OSVE- Objective Structured Viva Assessment

Domains: C-Core Subject (70%) Levels C1-C2, HV- Horizontal & Vertical Integration (20%) Levels C2-C3, S- Spiral Integration (10%) Levels C2-C3

End of Module Assessment	Subject	Theory (Cognitive) Assessment																			Practical (Skill & Attitude) Assessment										Grand Total	Total Time of Module Assessment
		MCQs					EMQs			SAQs					SEQs				Marks	Total Marks Theory	Total Time	AV OSPE					Time	AED Reflective Writing	OSVE			Total Practical Marks		
		C	HV	S	Total	Marks	C	Total	Marks	C	HV	S	Total	Marks	C	HV	S	Total				C	HV	S	Total	Marks			Viva	Copy	Total			
First Module	Anatomy	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
	Physiology	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
	Biochemistry	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
Formative- Weekly LMS Based Assessment of 30 MCQs (10 MCQs per Subject)																																	
End of Module Assessment	Subject	Theory (Cognitive) Assessment																			Practical (Skill & Attitude) Assessment										Grand Total	Total Time of Module Assessment
		MCQs					EMQs			SAQs					SEQs				Marks	Total Marks Theory	Total Time	AV OSPE					Time	AED Reflective Writing	OSVE			Total Practical Marks		
		C	HV	S	Total	Marks	C	Total	Marks	C	HV	S	Total	Marks	C	HV	S	Total				C	HV	S	Total	Marks			Viva	Copy	Total			
Second Module	Anatomy	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
	Physiology	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
	Biochemistry	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
Formative- Weekly LMS Based Assessmen tof 30 MCQs (10 MCQs per Subject)																																	

Block	Subjects	LMS Based Assessment					OSPE						Grand Total	Total Block Time
		MCQs					LabOSPE	IOSPE	COSPE	Total	Marks	Time		
		C	HV	S	Total	Time	C	HV	S					
BLOCK	Anatomy	21	6	3	30	30 min	14	4	2	20	60	6 HRS	90	6.5 HRS
	Physiology	21	6	3	30	30 min	14	4	2	20	60	6 HRS	90	6.5 HRS
	Biochemistry	21	6	3	30	30 min	14	4	2	20	60	6 HRS	90	6.5 HRS

50% Questions/OSPE Stations/Viva Stations will be from Foundation Module and 50% Questions will be from MSK-1 Module

For Each assessment student will have to individually pass Theory and Practical components

Weekly LMS Assessment			
Subjects	Anatomy	Physiology	Biochemist
No of MCQs*	30	30	30
Marks/MCQ	30	30	30
*MCQ=1 Mark each, 1 min each			

Marks per Item

MCQ=1	EMQ= 5	SAQ= 5	SEQ= 9	AVOSPE= 5		OSPE= 3

OSPE Time=1 Round of 40 Students =80 min

3 Round of 40 Students =240 min

OSVE=Time per student=5mins

Annexure I

(Sample MCQ, SAQ, SEQ Papers, AV OSPE, OSPE & Video Assisted OSPE)

Note: These sample papers aim to facilitate comprehension. However, it's important to note that the content and format of actual assessment papers may differ.

Sample Paper of MCQs
Department of Anatomy

1. During the 4th week of development, mesenchyme for pharyngeal arches comes from which of following sources? (1 Point)
    a. Neural crest cells
    b. Lateral plate mesoderm
    c. Paraxial mesoderm
    d. Ectodermal placods
    e. All of above
2. A teenager was fond of hearing loud rock music he is liable to suffer from (1 Point)
    a. Nerve deafness
    b. Presbycusis
    c. Conductive deafness
    d. Sensorineural deafness
    e. Otosclerosis
3. Established function of external ear (1 Point)
    a. Attenuation
    b. Accentuation
    c. Impedance matching
    d. Determination of direction
    e. Determination of loudness
4. Medial palpebral ligament is attached to the frontal process of (1 Point)
    a. Frontal
    b. Zygomatic
    c. Maxilla
    d. Temporal
    e. Nasal
5. The stroma of cornea (1 Point)
    a. Makes up 30% of the corneal thickness.
    b. Has collagen bundles arranged at right angles.
    c. Is highly vascular.
    d. Has cells called hyalocytes.
    e. Has hydration maintained by surface epithelium

Sample Paper of SEQs
Department of Anatomy

1. a. Give the boundaries and contents of infratemporal fossa (3)
   b. Tabulate the attachments and actions of extra occular muscles. (2)

2. a. Describe the formation of nasal septum, Discuss its blood supply with clinical significance. (3)
   b. Give connections of submandibular ganglion with special reference to its secretomotor fibers. (2)

1. Cannaliculus innominatus is situated between foramen (1 Point)
    a. Rotudum and ovale
    b. Ovale and spinosum
    c. Mastoid and styloid process
    d. Sphenoid and Vesalius
    e. Sacerum and ovale
2. Olfactory receptors have a unique capability that they: (1 Point)
    a. Do not adapt.
    b. Do not regenerate.
    c. Are hyperpolarized.
    d. Make electrotonic junctions.
    e. Make gap junctions
3. Which of the following substances is present in high concentration in the urine of patients with pheochromocytomas? (1 Point)
    a. Epinephrine.
    b. Metanephrine.
    c. Norepinephrine.
    d. Dopamine.
    e. 3- methyoxy-4-OH-Mandelic acid
4. On turning head to the right, the impulse traffic: (1 Point)
    a. Increases in Right VIII nerve.
    b. Decreases in Right VIII nerve.
    c. Increases in Left VIII nerve.
    d. Decreases in Left VII nerve.
    e. No change
5. On irrigating right auditory canal with cold water nystagmus is: (1 Point)
    a. Towards left side
    b. Towards right side
    c. Not seen
    d. Vertical
    e. Rotational

Department of Biochemistry

1. Which one of the following is fat soluble vitamin? (1 Point)
    a. vitamin A
    b. vitamin C
    c. vitamin B1
    d. vitamin B6
    e. vitamin B9
2. Auditory loss in a 70-year-old man is best called. (1 Point)
    a. Nerve deafness
    b. Presbycusis
    c. Conductive deafness
    d. Sensorineural deafness
    e. Otosclerosis
3. Taste receptors are: (1 Point)
    a. Modified neural cells.
    b. Also found in respiratory epithelium
    c. Modified epithelial cells.
    d. Have a half life of 8 weeks.
    e. Cannot regenerate
4. Superior and inferior lateral arteries are the branches of (1 Point)
    a. Facial artery
    b. External carotid artery
    c. Maxillary artery
    d. Lingual artery
    e. Transverse facial artery
5. Hair cell in vestibular apparatus are type of (1 Point)
    a. Teleceptors
    b. Exteroceptors
    c. Mechanoreceptors
    d. Nociceptors
    e. Photoceptors

SEQ

Q. Explain synthesis and fate of catecholamines. 05

Sample Paper of EMQs

Options:

A. Conductive hearing loss

B. Sensorineural hearing loss

C. Mixed hearing loss

D. Otitis media

E. Otosclerosis

F. Noise-induced hearing loss

G. Presbycusis

H. Meniere's disease

I. Acoustic neuroma

J. Tympanic membrane perforation

Questions:

1. A 65-year-old male presents with gradually progressive bilateral hearing loss. He reports difficulty hearing in noisy environments. There is no history of ear infections or trauma.

What is the most likely diagnosis?

2. A 40-year-old female presents with episodes of vertigo, tinnitus, and fluctuating hearing loss in her left ear. The episodes last several hours and are associated with a feeling of fullness in the ear.

What is the most likely diagnosis?

3. A 30-year-old construction worker reports progressive hearing loss and tinnitus in both ears. He has been exposed to loud machinery noise for several years without ear protection.

What is the most likely diagnosis?

4. A 5-year-old child is brought in by his parents due to decreased hearing in the right ear. Examination reveals a bulging, erythematous tympanic membrane with effusion.

What is the most likely diagnosis?

5. A 50-year-old male presents with unilateral hearing loss and a constant ringing sound in his right ear. MRI reveals a mass at the cerebellopontine angle.

What is the most likely diagnosis?

Answers:

1. **G. Presbycusis**
2. **H. Meniere's disease**
3. **F. Noise-induced hearing loss**
4. **D. Otitis media**

I. Acoustic neuroma

Department of Bioethics

1. ----Includes rules of conduct that may be used to regulate our activities concerning the biological world.
   a. Bio-piracy
   b. Biosafety
   c. Bioethics
   d. Bio-patents
   e. Bio-logistic

2. The right of patients having self-decision is called.
   a. Justice
   b. Autonomy
   c. Beneficence
   d. Veracity
   e. Fidelity

3. Following is not code of ethics.
   a. Integrity
   b. Objectivity
   c. Confidentiality
   d. Behaviour
   e. Autonomy

4. -------in the context of medical ethics, if it's fair and balanced
   a. Justice
   b. Autonomy
   c. Beneficence
   d. Veracity
   e. Fidelity

5. ------Principle requiring that physicians provide, positive benefits
   a. Justice
   b. Autonomy
   c. Beneficence
   d. Veracity
   e. Fidelity

OSPE
Department of Anatomy

Section I: Core Concept

A. Gross Anatomy (Special Senses)

Station No. 1 **Time Allowed: 2 mins**

I. Identify Red on Cadaver and give its action (1)

II. Identify Green on Cadaver (1)

Section I: Core Concept

A. Gross Anatomy (Special Senses)

Station No. 2 **Time Allowed: 2 mins**

I. Identify Red on model and give the formation of plexus on it (1)
II. Identify Green on model (1)

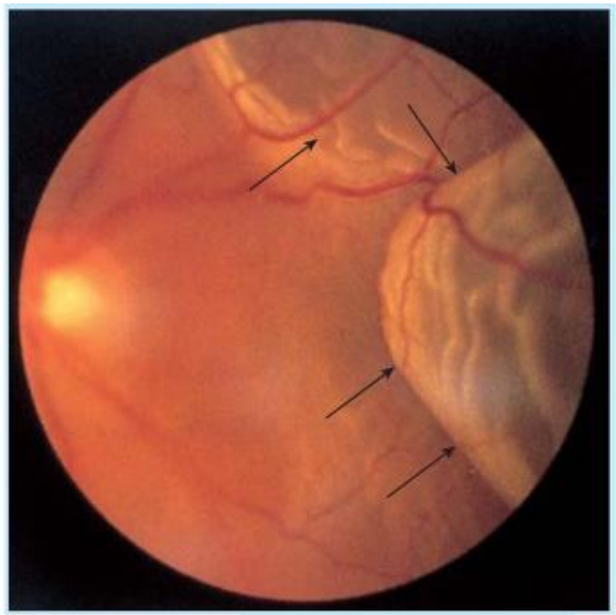
Slide 2

A 65-year-old male with a history of trauma to the left eye presented with a one day complaint of flashing lights and a gray curtain.

Q1. What is the most likely diagnosis? (1)

Q2. In this case fluid accumulates between which two layers? (2)

Q3. To visualize the shown image image, which instrument is used to confirm the diagnosis (2)



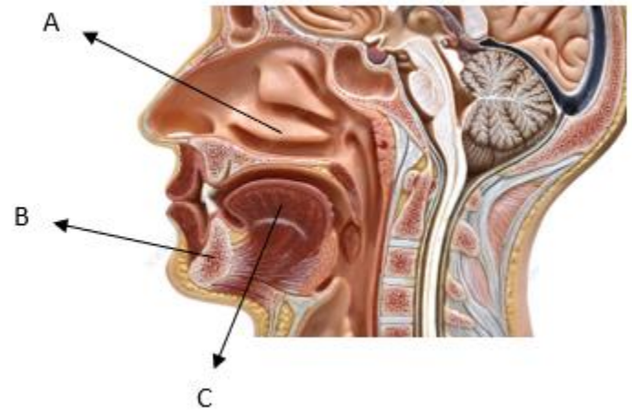
AV OSPE

Department of Anatomy

Cross Sectional

Q.1 Identify

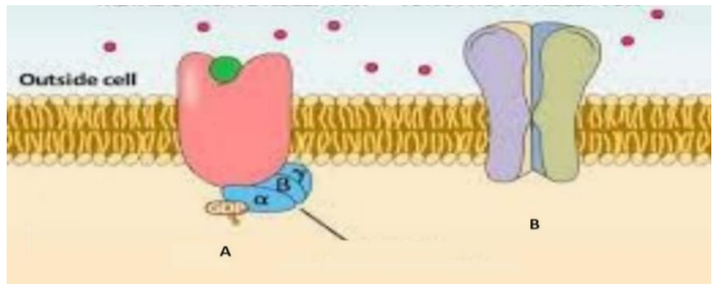
1. A
2. B
3. C



Q.2 Give Embryological Source of C?

1) A (1)
2) B (1)

AV OSPE
Department of Biochemistry



Q1-Identify the type of receptors. 02

1) A (1)
2) B (1)
3) C (1)

Q2-Give example of receptor

3) A (1)
4) B (1)