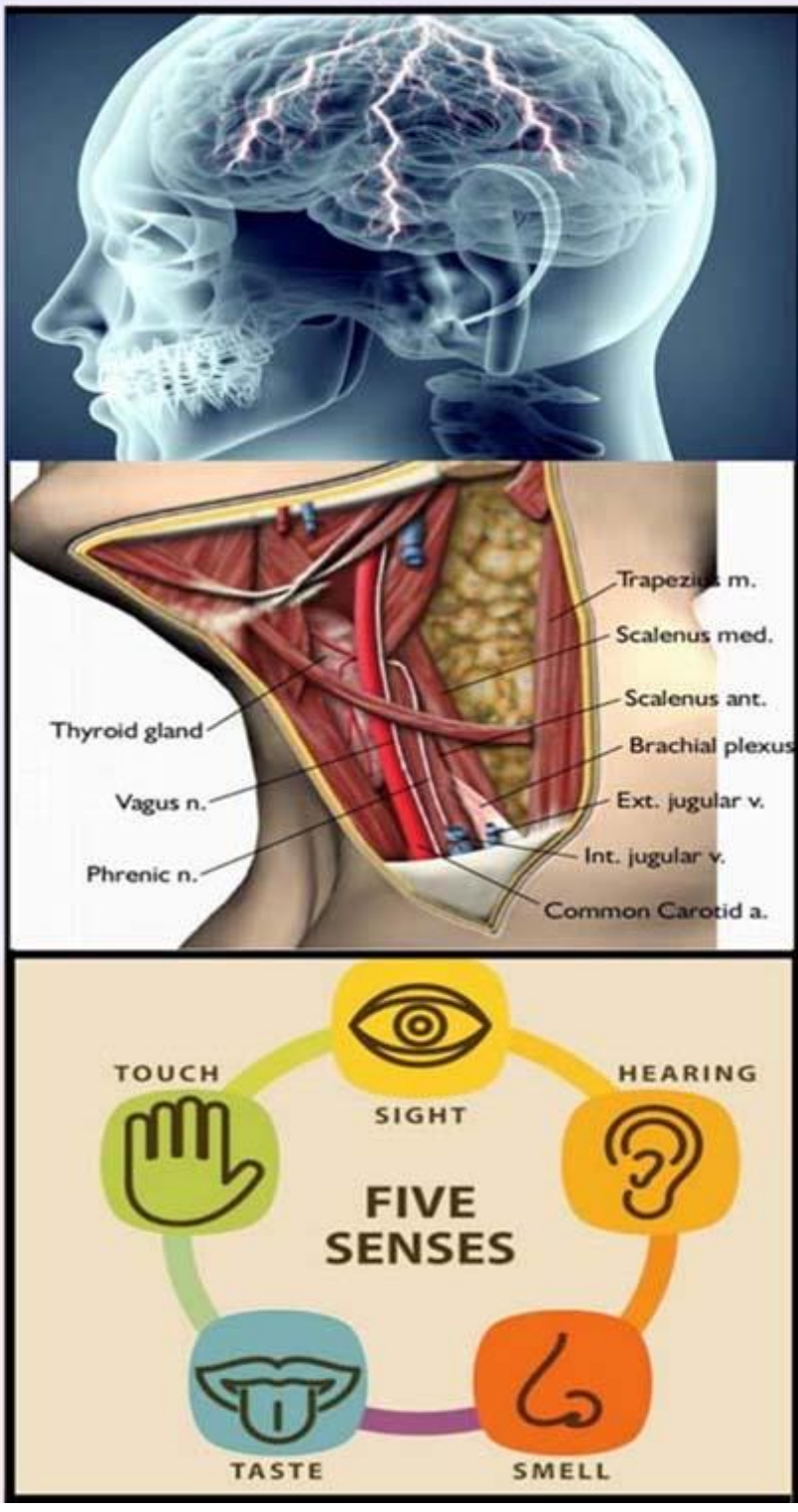
STUDY GUIDE- SECOND YEAR MBBS

20th April - 8th July 2026

Duration: 7 Weeks

HEAD & NECK & SPECIAL SENSES MODULE



LIAQUAT NATIONAL HOSPITAL AND MEDICAL COLLEGE

Institute for Postgraduate Medical Studies & Health Science

STUDY GUIDE FOR HEAD & NECK & SPECIAL SENSES-1 MODULE

Module name: **Head & Neck & Special Senses** *Year:* ***Two***

Duration: ***7 weeks (20th April to 8th July 2026)***

Time table hours: **Lectures, Case-Based Learning (CBL), Flipped Classroom, Self-Directed Learning, Practical, Skills, Demonstrations**

MODULE INTEGRATED COMMITTEE

MODULE COORDINATOR:	• Prof. Saima Athar (**Anatomy**)
CO-COORDINATORS:	• Dr. Amina Raza (**Biochemistry**)

DEPARTMENTS & RESOURCE PERSONS FACILITATING LEARNING

BASIC HEALTH SCIENCES	CLINICAL AND ANCILLARY DEPARTMENTS
ANATOMY Prof. Zia-ul-Islam	***FAMILY MEDICINE*** Dr. Rabeeya Saeed
BIOCHEMISTRY Prof. Dr. Faiza Waseem	***OPHTHALMOLOGY*** Dr. Ata ur Rehman
PHYSIOLOGY Prof. Syed Hafeezul Hassan	***RADIOLOGY*** Prof. Dr. Muhammad Ayub Mansoor
DEPARTMENT OF HEALTH PROFESSIONS EDUCATION • Prof. Nighat Huda • Prof. Sobia Ali • Dr. AfifaTabassum • Dr. Yusra Nasir • Dr. Asra Zia • Dr. Maryam Fatima	
LNH & MC MANAGEMENT • Prof. KU Makki, Principal LNH&MC • Dr. Shaheena Akbani, Director A.A & R.TLNH&MC	
STUDY GUIDE COMPILED BY: Department of Health Professions Education	

INTRODUCTION

WHAT IS A STUDY GUIDE?

Itisanaidto:

- Inform students how the student learning program of themodule has been organized
- Help students organize and manage their studies throughout the module
- Guide students on assessment methods, rules, and regulations

THE STUDY GUIDE:

- Communicates information on the organization and management of the module.
  This will help the student to contact the right person in case of any difficulty.
- Defines the objectives which are expected to be achieved at th end of the module.
- Identifies the learning strategies such as lectures, small group teachings, clinical skills, demonstration, tutorial and case based learning that will be implemented to achieve the module objectives.
- Provides a list of learning resources such as books, computer-assisted learning programs, web-links, and journals, for students to consult to maximize their learning.
- Highlights information on the contribution of continuous and semester examinations on the student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's Achievement of objectives.
- Focuses on information about examination policy, rules, and regulations.

CURRICULUM FRAME WORK:

Students will experience an integrated curriculum similar to previous modules**.**

INTEGRATED CURRICULUM:

Comprises system-based modules such as Head and Neck & Special senses, Neurosciences and Endocrinology which links basic science knowledge to clinical problems. Integrated teaching means that subjects are presented as a meaningful whole. Students will beable to have a better understanding of basic sciences when they repeatedly learn about clinical examples.

Case-based discussions, computer-based assignments, early exposure to clinics, wards, and skills acquisition in the skills lab and physiotherapy department are characteristics of the integrated teaching program.

LEARNING METHODOLOGIES:

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

- Interactive Lectures
- Small Group Discussion
- Case-Based Learning
- Practicals
- Skills session
- Flipped Classroom
- Self-Directed Learning

INTERACTIVE LECTURES:

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

SMALL GROUP DISCUSSION (SGD):

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

CASE-BASEDLEARNING: A small group discussion format where learningis focused on a series of questions based on a clinical scenario. Students discuss and answer the questions by applying relevant knowledge gained in clinical and basic health sciences during the module.

PRACTICAL: Basic science practicals related to anatomy, biochemistry, pathology, pharmacology, and physiology are scheduled for student learning.

SKILLS SESSION: Skills relevant to respective modules are observed and practiced where applicable in the skills laboratory or Department of Physiotherapy.

FLIPPED CLASSROOM: A flipped classroom is a **type of blended learning** where students are introduced to content at home and practice working through it at

classroom. This is the reverse of the more common

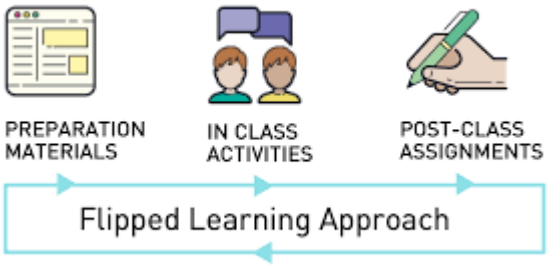
the practice of introducing new content to classrooms, then

assigning homework and projects to be completed by the

students in dependently at home.

The concept behind the flipped classroom is to rethink when students have access to the resources they need most. If the problem is that students need help doing the work rather than being introduced to the new thinking behind the work, then the solution the flipped classroom takes is to reverse that pattern.

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



MODULE: HEAD & NECK & SPECIAL SENSES

INTRODUCTION:

The head and neck and special senses is an introductory module that provides knowledge about the vital structures present in the head and neck region, their functions, and clinical correlations. These include the head and skull, organs for special senses (eyes, ears, nose, and tongue), cranial nerves, great vessels, and the thyroid gland. This module will give the students basic knowledge about the structures present in the head and neck region along with their important functions and abnormalities which can lead to various diseases.

COURSE OBJECTIVES AND STRATEGIES

At the end of the module the students will be able to:

ANATOMY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Bones of the skull	Interactive Lecture
• Describe different bones and sutures of the skull	
• Describe the anatomical position of skull	
• Discuss the different sutures of skull	
• Enumerate the Norma's of skull	
2. Norma Frontalis, vertical, fontanelles with their clinical correlation	Interactive Lecture
• Name the different views (Norma) of skull	
• Describe the features of Norma frontalis and Verticalis	
• List the bones and their parts which contribute to norma frontalis and verticalis.	
• Describe the different bony landmarks on norma frontalis and verticalis.	
• Relate the foramina with their respective contents.	
• Discuss the clinical importance of the Sutures and fontanelles of norma verticalis and frontalis.	
3. Pharyngeal apparatus & its anomalies	Interactive Lecture
• Define pharyngeal arches, pouches, clefts, and membranes	
• Describe the derivatives of each arch (Muscle, bones, cartilage)	
• Describe the fate of pouches, clefts, and membranes	
• Describe the common anomalies of the pharyngeal apparatus	
4. Norma Lateralis	Interactive Lecture
• Recognize different bony landmarks of norma lateralis	
• Describe the different parts of Sphenoid & Temporal bone.	
• Identify the sutures	
• Relate the foramina with their respective contents	
• Disscus the clinical significance of its bony features.	
5. Norma Basalis (anterior and middle part)	Interactive Lecture
• List the bones forming the base of the skull	
• Describe an anterior and middle part of the base of the skull	
• Identify different foramina present at the base of the skull	
• Name the structures passing through these foramina	
6. Norma Basalis (Posterior part) & occipitalis	Interactive Lecture
• List the bones forming the base of skull	
• Describe posterior part of base of skull and Norma occipitalis	
• Describe different foramina present at the base of skull	
• Name the structures passing through these foramina	
7. Scalp & its layers	Interactive Lecture
• Describe the extent/boundaries and five layers of the scalp	
• Describe the occipitofrontalis muscle & its innervation	
• Describe the nerves, vessels of scalp, lymphatic and their clinical correlates	
8. Temporal Fossa & Temporomandibular Joint	Interactive Lecture
• Describe the boundaries of the temporal fossa	
• List the contents of the temporal fossa	

• Describe the temporalis muscle, its innervation, and action	
• Describe the Temporomandibular joint, its type, and its articular surfaces	
• Describe the ligaments attached and movements performed at the Temporomandibular joint	
9. Infratemporal Fossa	Interactive Lecture
• Describe the boundaries of the Infratemporal fossa	
• List the contents of the Infratemporal fossa	
• Describe the muscle, nerves and vessels of infratemporal fossa	
• Describe the Otic ganglion and its connections	
10. Pterygopalatine Fossa	Interactive Lecture
• Describe the contents and boundaries of Pterygopalatine fossa	
• Explain the connections and location of Pterygopalatine ganglion.	
• List the openings in Pterygopalatine fossa	
11. Development of face & its anomalies	Interactive Lecture
• Describe the formation of facial prominences	
• Define nasal placode and nasal pit & nasolacrimal groove	
• Describe the development of face.	
• Discuss the formation of different parts of the face from the prominences	
• Discuss most common anomalies of face	
12. Face (Muscles, Nerves: Extra Cranial Part of V &VII)	Interactive Lecture
• Enumerate the muscles and innervation of the face	
• Discuss the action of muscles of face	
• Discuss the course and distribution of CN-V and extracranial part of CN- VII and extra cranial part of CN VII	
• Describe the disorders and applied anatomy of face (Bell's palsy)	
13. Arteries, veins & lymphatic of the face	Interactive Lecture
• Describe the arterial supply of the face	
• Discuss the major veins of face.	
• Explain the lymphatic drainage of the face	
• Discuss the clinical importance of vascular and lymphatic drainage of face.	
14. Gross anatomy of the mandible and hyoid bone	Interactive Lecture
• Describe parts of the mandible	
• List attachments on each part of the mandible	
• Identify the foramen on the mandible.	
• List the structures passing through these foramina	
• Enumerate the joints formed by mandible	
• Describe the ossification of the mandible	
• Discuss the applied anatomy of the mandible	
• Describe the location and vertebral level of the hyoid bone	
• Describe the parts of the hyoid bone	
• Explain the attachments on the hyoid bone	
15. Parotid Gland and Parotid Region	Interactive Lecture
• Describe the boundaries of the parotid region	
• Describe the structure of Parotid gland	
• Discuss shape, size and course of parotid duct.	
• Describe the arrangement of structures traversing the gland.	
• Describe the secretomotor innervation of Parotid gland	
• Discuss the clinical complications, stone formation and parotitis.	
16. Orbital cavity and its contents	Interactive Lecture

• Describe the boundaries, orbital fascia & content of orbital cavity.	
• Enumerate the relations of the orbital cavity	
• Describe the location, relations, and connections of ciliary ganglion	
• Define the disorders associated with ciliary ganglion	
17. Development of eye	Interactive Lecture
• Describe the development of the eye and formation of retina.	
• List the sources from which parts of eye develops.	
• Describe the steps of development of retina, lens, choroid, ciliary body, cornea, iris, eyelid and lacrimal apparatus.	
• Discuss the common congenital anomalies of the eye	
18. Gross Anatomy and Histology of Eyelid & Lacrimal Apparatus	Interactive Lecture
• Explain the Innervation and blood supply of eyelids	
• Describe parts of the lacrimal apparatus	
• Describe the histological features of Eyelid and its glands	
• Relate the diseases of lacrimal apparatus	
19. Eyeball and Extraocular Muscles	Interactive Lecture
• Explain the gross anatomical features of the eye ball	
• Discuss different coats and compartments of the eyeball	
• Explain the neurovascular supply and lymphatic drainage of the eyeball	
• Discuss the related clinical anatomy.	
20. Extraocular Muscles	Interactive Lecture
• Describe the attachment, innervation and action of extraocular muscles.	
• Discuss the related clinical anatomy.	
21. Histology of Eye Ball	Interactive Lecture
• Identify the histological features of the eyeball	
• Describe the histological feature of each coat of the eyeball	
• Describe the histology of the cornea and lens	
• Discuss the arrangement and composition of the layers of the retina	
22. Gross Anatomy of the external nose, boundaries, blood & nerve supply	Interactive Lecture
• Describe the features of the external nose	
• List the bones forming the boundaries of nasal cavity	
• Describe the blood & nerve supply of nose	
• Discuss the formation of anastomoses at little's area and its clinical importance	
23. Histology of Nasal Cavity, respiratory & olfactory epithelia	Interactive Lecture
• Discuss the histological features of nasal cavity.	
• Discuss the features of olfactory and respiratory mucosa	
• Describe the cells of olfactory and respiratory epithelium	
24. Para nasal air sinuses	Interactive Lecture
• List the para nasal air sinuses	
• Describe their location, important relations,drainage, and nerve supply	
• Discuss the clinical significance of para-nasal air sinuses	
25. Development of nose & para nasal sinuses	Interactive Lecture
• Describe the development of different parts of the nose and para-nasal sinuses	
• Describe congenital anomalies associated with their development	
26. Gross anatomy & histology of the oral cavity	Interactive Lecture
• Discuss the boundaries and divisions of the oral cavity	
• Describe the vestibule and oral cavity proper with their contents	
• Describe the general features, classification, and organization of oral mucosa	

27. Histology of the oral cavity	Interactive Lecture
• Describe the general features, classification, organization of oral mucosa.	
• Discuss the type and components of oral epithelium	
• Discuss the histology of lips, cheek and gums	
28. Gross anatomy of the tongue	Interactive Lecture
• Identify the gross anatomical features of the tongue	
• Describe the intrinsic muscles and extrinsic musculature of the tongue and their movements	
• Discuss the blood supply, innervation, and lymphatic drainage of the tongue and the clinical conditions associated with it	
29. Histology of tongue.	Interactive Lecture
• Describe the histological features of anterior 2\3rd and posterior 1/3rd of tongue.	
• Describe the variation of epithelium on different parts of tongue.	
• Discuss the types of lingual papillae and their relation with taste buds.	
• Discuss the location and type of secretion of lingual glands.	
30. Development of Tongue & salivary glands	Interactive Lecture
• Describe the development of the tongue	
• Discuss the congenital anomalies associated with the development of tongue	
• Explain the development of salivary glands.	
• Discuss the embryonic development of the secretory part, duct system, and stroma	
31. Hard and Soft Palate	Interactive Lecture
• Discuss the boundaries, muscle attachments, and mucosal coverings of the hard and soft palate	
• Discuss the function of the hard and soft palate during the process of mastication and deglutition	
• Discuss the blood supply and nerve supply of hard and soft palate	
• Discuss gag reflex	
32. Development of palate	Interactive Lecture
• Describe palatal development during the seventh to ninth weeks of gestation	
• Explain the embryonic basis of cleft lip and palate	
• Discuss the clinical correlation palate.	
33. Gross: External and Middle Ear	Interactive Lecture
• Discuss the division of the ear into the external, middle, and internal ear	
• Describe the parts of the external ear and the boundaries & content of the middle ear cavity	
• Discuss the functions of the external and middle ear as an organ for hearing	
• Define the clinical conditions associated with external and middle ear	
34. Histology: External and Middle Ear	Interactive Lecture
• Explain the histological features of external ear.	
• Explain the histological features of middle ear	
35. Gross & Histology: Internal Ear	Interactive Lecture
• Describe the parts of the internal ear	
• Describe the histological features of the parts of the internal ear	
• Describe the semicircular canals, utricle and saccule of inner ear	
• Describe the cochlea	
• Describe the internal structure of these canals.	
• Discuss the functions of the internal ear as an organ for hearing and balance	
• Discuss the clinical conditions associated with internal ear	
36. Development of Ear	Interactive Lecture
• Explain the development of external, middle, and internal ear	
• Discuss congenital deafness and other anomalies of the ear	

37. Cranial Nerves I - VI & their clinical correlation	Interactive Lecture
• Explain the functional component and nuclei of these nerves	
• Describe the intra and extra-cranial pathway	
• Describe the areas innervated by these nerves.	
• Explain the lesion of each cranial nerve.	
• Discuss the clinical presentation of these lesions	
38. Cranial Nerves VII to XII & their clinical correlation	Interactive Lecture
• Discuss the functional components of these cranial nerves.	
• Describe their course through the cranial cavity.	
• Discuss the areas innervated by these nerves.	
• Explain the lesion of each cranial nerve.	
• Discuss the clinical presentation of these lesions	
39. Cervical Vertebrae	Interactive Lecture
• Describe general features of cervical vertebrae	
• Differentiate between the typical & atypical cervical vertebrae.	
• Describe the joints between the cervical vertebrae.	
• Describe the movement which occur in the region of the cervical vertebrae.	
40. Neck, Deep Cervical Fascia, carotid sheath, and Platysma Muscle	Interactive Lecture
• Define the layers of neck; skin superficial fascia and deep fascia	
• Describe the cutaneous supply of skin of the neck	
• Describe the different modifications of deep fascia: prevertebral, pre- tracheal, investing layers of deep fascia and carotid sheath.	
• List the contents of carotid sheath.	
• Describe the Ansa cervicalis	
• Discuss the important relations of carotid sheath.	
• Describe the platysma muscle, its innervation, and action	
41. Anterior Triangle of Neck	Interactive Lecture
• Discuss the division of triangles of the neck	
• Name the subdivisions of the anterior triangle	
• Describe the boundaries and contents of sub-divisions of the anterior triangle i.e. Sub mental, Sub-mandibular, Muscular & Carotid	
42. Submandibular region & Submandibular gland	Interactive Lecture
• Describe the boundaries of the Sub-mandibular triangle	
• Name the contents of Submandibular Triangle Describe the anatomy of Submandibular salivary gland. Describe the emergence and course of Wharton's duct.	
• Describe the emergence and course of Wharton's duct.	
• Describe the location & connections of Sub-mandibular ganglion	
• Describe the location and area of drainage of Sub-mandibular lymph nodes	
43. Histology of salivary gland	Interactive Lecture
• Identify the histological slide of the salivary gland	
• Differentiate 3 major types of salivary gland	
• Describe the different types of acini	
44. Gross anatomy of thyroid & parathyroid gland	Interactive Lecture
• Explain the gross anatomy of the thyroid & parathyroid gland	
• Discuss the blood supply and nerve supply of the thyroid and parathyroid gland	
• Relate the clinical anatomy of the thyroid and parathyroid gland with the relevant conditions	
45. Development of Thyroid, Parathyroid, Larynx and Thymus	Interactive Lecture

• Describe the developmental anatomy of the thyroid, parathyroid, larynx, and thymus	
• Discuss congenital anomalies associated with their development	
46. Posterior triangle of the neck, Cervical Plexus & Cranial Nerve XI	Interactive Lecture
• Describe the boundaries of the posterior triangle of the neck	
• List the contents of the posterior triangle of the neck	
• Discuss the formation, branches, and functions of the cervical plexus	
• Discuss the origin, course, branches, and functions of cranial nerve XI	
• Discuss the clinical conditions associated with a posterior triangle of the neck, cervical plexus, and cranial nerve XI	
47. Pharynx Including Tonsils	Interactive Lecture
• Discuss the morphology, location, and extent of the pharynx	
• Explain the division of the pharynx into Nasopharynx, Oropharynx & Laryngopharynx	
• Describe the pharyngeal and palatine tonsils	
• Discuss the origin, insertion, and actions of pharyngeal muscles	
• Discuss the innervation and blood supply of the pharynx along with the associated clinical conditions	
48. Gross Anatomy of larynx	Interactive Lecture
• Explain the gross anatomy of the larynx	
• Describe the different parts of larynx	
• Describe the cartilages and muscles of larynx	
• Describe the vocal folds and vocal cords.	
• Describe the actions of various muscles and their nerve supply	
• Discuss the blood supply, nerve supply, and clinical anatomy of the larynx	
49. Histology of larynx	Interactive Lecture
• Describe the histological features of the larynx	
• Describe the epithelium in different areas	
50. Nerves & vessels of head and neck	Interactive Lecture
• Describe the vessels of head & neck.	
• Describe the Formation of cervical nerves and its branches	
51. Surface anatomy of head and neck (Facial Artery and Parotid Gland)	Interactive Lecture
• Trace the course of the facial artery in the face	
• Palpate the Parotid gland	
• Identify the landmarks of borders and surfaces of the parotid gland	
• Trace the course and opening of the parotid duct	
52. Histology of Eye Ball	Practical
• Identify the histological features of eyeball	
• Describe the histological feature of each coat of eye ball	
• Describe the histology of cornea and lens	
• Discuss the arrangement and composition of the layers of retina	
53. Histology of salivary gland:	Practical
• Identify the histological features of salivary gland	
• Differentiate 3 major types of salivary gland	
• Describe the different types of acini	
54. Histology of Nasal Cavity, respiratory & olfactory epithelia	Practical
• Identify various histological parts under light microscope	
• Identify respiratory and olfactory epithelium.	
• Describe the cells of respiratory and olfactory epithelium.	
55. Histology of Tongue	Practical

• Identify the characteristic features of tongue under microscope	
• Describe different types of lingual papillae	
• Describe lingual glands.	

BIOCHEMISTRY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Introduction to nutrition	Interactive Lecture
• Discuss nutrition, nutrients, BMI, RDA and RMR	
• Discuss the biochemical importance of a Balanced diet	
• Discuss the basic food groups	
• List the essential nutrients and their importance in the diet	
• Discuss the dietary sources and recommendations for micronutrients	
2. Nutritional importance of dietary carbohydrates	Interactive Lecture
• Explain the biochemical importance of dietary carbohydrate	
• Discuss a Balanced diet	
• Classify the types of dietary carbohydrates	
• Discuss the significance of simple and complex dietary carbohydrates	
• Explain the Glycemic index and Glycemic load	
• Describe the biochemical complications of Obesity	
• Discuss metabolic syndrome and its complications	
3. Nutritional importance of dietary proteins	Interactive Lecture
• Classify Proteins according to their nutritional importance and give examples	
• List the biochemical functions of proteins in the body	
• Explain recommended dietary requirements of protein in different age groups	
• Describe the Amino acid pool & Nitrogen balance	
• Describe Protein-energy malnutrition (Marasmus & Kwashiorkor)	
4. Nutritional importance of dietary lipids	Interactive Lecture
• Classify Lipids according to their nutritional importance and give examples	
• Explain the biochemical functions of dietary lipids	
• Discuss the sources and recommended daily allowance of dietary lipids	
• Discuss the biochemical mechanism of the development of atherosclerosis	
• Discuss the clinical significance of dietary lipids (Metabolic syndrome, Atherosclerosis)	
5. Vitamin A	Interactive Lecture
• Explain the chemical structure of Vitamin A	
• Classify the different types of Vitamin A	
• Explain the biochemical functions of Vitamin A	
• Discuss the role of vitamin A in the visual cycle	
• List the sources and daily requirements of Vitamin A	
• Discuss the clinical significance of Vitamin A deficiency and toxicity	
6. Overview of Dietary Minerals	Interactive Lecture
• List and classify the dietary minerals with their biochemical importance	

• Describe their sources and daily recommended allowances	
• Explain their biochemical functions	
• Discuss the clinical significance of mineral deficiency and toxicity	
7. Balanced diet	Tutorial
• Discuss the clinical importance of a balanced diet	
• Interpret clinical conditions correlated with their laboratory investigations	
8 .Vitamin A	Tutorial
Discuss the clinical importance of vitamin A	
Interpret clinical conditions correlated with their laboratory investigations	
9. Deficiencies of minerals (e.g. Iron, calcium)	Tutorial
• Discuss the clinical importance of minerals(e.g. Iron, Calcium)	
• Interpret clinical conditions correlated with their laboratory investigations	
10. Obesity	Tutorial
• Discuss the clinical importance of Obesity	
• Interpret clinical conditions correlated with their laboratory investigations	
11. Protein Calorie Malnutrition (PCM), Marasmus and Kwashiorkor	Tutorial
• Discuss the clinical importance of PCM, Marasmus, and Kwashiorkor	
• Interpret clinical conditions correlated with their laboratory investigations.	
12. Metabolic syndrome, Atherosclerosis	Tutorial
• Discuss the clinical importance of Metabolic syndrome & Atherosclerosis	
Interpret clinical conditions correlated with their laboratory investigations	
13. Calculation of Body Mass Index (BMI)	Practical
• Explain the significance of the calculation of Body Mass Index	
• Explain the method to calculate BMI	
• Calculate the BMI	
• Interpret the significance of the calculated BMI	
• Interpret clinical conditions correlated with their laboratory	
14. Interpretation of glycemic index	Practical
• Define Glycemic Index and Glycemic Load	
• Compare the Glycemic index of different carbohydrates	
• Interpret the significance of GI & GL	
• Outline the method for calculation of GI of various food items	
• Interpret clinical conditions correlated with their laboratory investigations	

PHYSIOLOGY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Optics of the eye	Interactive Lecture
• Explain the basic physiology of the eye & its refractive surfaces	
• Discuss the physical principles of optics	
• Describe the mechanism of accommodation & its control	
2. Formation & circulation of aqueous humor	Interactive Lecture
• Describe the formation and circulation of aqueous humor	

• Explain the mechanism of regulation of intraocular pressure	
• Define glaucoma & its types	
•Explain the pathophysiology of glaucoma.	
3. Visual acuity & errors of refraction	Interactive Lecture
• Define visual acuity	
• Describe the errors of refraction (Myopia, hyperopia, astigmatism & their correction by using different lens systems	
4. Accommodation	
• Describe the mechanism of accommodation and its control	
• Discuss the disorders related to accommodation eg presbyopia	
5. Photo-transduction	Interactive Lecture
• Describe the physiology of retinal layers	
• Explain the photochemistry of vision (rhodopsin – retinal cycle)	
•Describe the mechanism of activation of Rods and cones	
6. Visual pathway & its lesions	Interactive Lecture
• Explain the neural circuitry of the Retina	
• Describe the physiology of the visual pathway	
• Name the optic lesion associated with the visual pathway	
7. Eye movements & its control	Interactive Lecture
• Explain the muscular control of eye movement	
• Describe the fixation movements of the eye	
• Define accommodation reflex & pupillary light reflex	
• Discuss the disorders of eye movements eg squint	
8. Sense of hearing, mechanism of hearing	Interactive Lecture
• Describe the physiology of hearing & function of tympanic membrane & ossicular system	
• Define impendence matching & attenuation reflex	
• Explain the conduction of sound waves in the cochlea	
• Describe the function of the organ of Corti	
9. Vestibular apparatus and vertigo	Interactive Lecture
• Describe the components of vestibular system and their functions	
• Explain the causes of vertigo	
10. Auditory pathway	Interactive Lecture
• Explain the auditory nervous pathway & abnormalities associated with it	
• Describe the function of the cerebral cortex in hearing	
11. Gustatory reflex and associated abnormalities	Interactive Lecture
• Describe the primary sensations of taste and associated disorders	
• Explain the mechanism of taste perception and its transmission into central nervous system	
12. Olfactory pathway and associated abnormalities	Interactive Lecture
• Mention the primary sensations of smell and associated disorders	
• Describe the stimulation of olfactory cells & its transmission into central nervous system	
13. Disorders of Eye:	Tutorial
• Discuss the various causes of common eye disorders, i.e. Glaucoma, Cataract and Squint.	

14. Hearing Disorders:	Tutorial
• Explain the different types of deafness and its causes.	
15. Visual acuity & color vision	Practical
• Define visual acuity using Snellen's chart	
• Examine the color vision of a subject using Ishihara eye chart	
• Discuss the errors of refraction	
• Describe the different types of color blindness	
16. Perimetry	Practical
• Describe various parts of the Perimeter and their uses	
• Determine the normal fields of vision using perimeter	
• Interpret the perimeter chart of a patient and tell if any abnormality is present	
• Define physiological blind spot	
17. Hearing test	Practical
• Describe the principle of various tuning fork tests: Rinne, Weber and Schwabach tests.	
• Elaborate bone conduction and air conduction	
• Identify conductive and sensor neural deafness based on the interpretation of tuning fork tests	
18. Sense of Smell	Practical
• Identify the smell of given substances	
• Discuss the abnormalities associated with perception of smell	
• Describe the mechanism of accommodation & its control	
11. Sense of taste	Practical
• Identify the taste of given substances.	
• Discuss the abnormalities associated with sense of taste.	
• List different types of olfactory sensation	
• Explain the olfactory pathway	

FAMILY MEDICINE

TOPICS & OBJECTIVES	LEARNING STRATEGIES
Clinical presentation of common nasal diseases	Practical / Small Group Discussions
• list the common diseases of the nasal cavity (rhinitis, nasal obstruction,epistaxis)	
• Describe the clinical presentation of common diseasesof the nasal cavity Discuss the nasal manifestations of covid 19	
• Describe the clinical presentation of common diseases of oral cavity(oral thrush/ulcers,oral cancers)	
• Describe the clinical presentation of common diseases of the throat (Tonsilitis and Pharyngitis).	
• Discuss the reason for loss of taste in covid 19.	
Medical consent and Patient confidentiality	Interactive lecture/SDL
Basics of Immunization	SDL
Adult Immunization	SDL/Tutorial
Medical Ethics	Interactive lecture/SDL

OPHTHALMOLOGY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
Discuss the causes of Red Eye	Interactive Lecture/ OPD visit
Discuss basic clinical presentation of common eye disease	

RADIOLOGY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
Interpret CT & MRI of Head and Neck	Practical

LONGITUDINAL THEMES

Leadership, Professionalism and BioEthics (LeaPE), Patient Safety and Research	LEARNING STRATEGIES
Objectives and reading material are uploaded on Moodle for each longitudinal theme	Interactive lectures/ Small Group sessions

LEARNING RESOURCES

SUBJECT	RESOURCES
ANATOMY	**A. GROSS ANATOMY** 1. K.L. Moore,Clinically Oriented Anatomy 2. Neuro Anatomy by Richard Snell 3.https://www.kenhub.com/en/dashboard **B. HISTOLOGY** 1. B. YoungJ.W.Health Wheather's Functional Histology **C. EMBRYOLOGY** 1. KeithL. Moore.The Developing Human 2. Langman's Medical Embryology
BIOCHEMISTRY	**TEXT BOOKS** 1. Harper's Illustrated Biochemistry 2. Lippincott's Illustrated Reviews of Biochemistry 3. Lehninger Principle of Biochemistry 4. Biochemistry by Devlin 5. Essentials of Medical Biochemistry by Mushtaq Ahmed (2 Volumes)
PHYSIOLOGY	**A. TEXT BOOKS** 1. Textbook Of Medical Physiology by Guyton And Hall 2. Ganong ' S Review of Medical Physiology 3. Human Physiology by Lauralee Sherwood 4. Berne & Levy Physiology 5. Best & Taylor Physiological Basis of Medical Practice **B. REFERENCE BOOKS** 1. Guyton & Hall Physiological Review 2. Essentials Of Medical Physiology by Jaypee 3. Text book Of Medical Physiology by InduKhurana 4. Short Textbook Of Physiology by Arthur 5. NMS Physiology

ASSESSMENT METHODS:

- **Best Choice Questions(BCQs)** also known as MCQs (Multiple Choice Questions)
- **Objective Structured Practical/Clinical Examination (OSPE or OSCE)**

Internal Evaluation

- Students will be assessed comprehensively through multiple methods.
- 20% marks of internal evaluation will be added to JSMU final exam. That 20% may include class tests, assignments, practicals, and the internal exam which will all have specific marks allocation.

Formative Assessment

Individual departments may hold a quiz or short answer questions to help students assess their learning. The marks obtained are not included in the internal evaluation

For JSMU Examination Policy, please consult the JSMU website!

More than 75% attendance is needed t
sit for the internal and final examinatio

LNH&MC EXAMINATION RULES & REGULATIONS

- Students must report to the examination hall/venue, 30 minutes before theexam.
- **The exam will begin sharply at the giventime.**
- No student will be allowed to enter the examination hall after 15 minutes of the scheduled examinationtime.
- Students must sit according to their roll numbers mentioned on theseats.
- **Cell phones are strictly not allowed in the examination hall.**
- If any student is found with the cell phone in any mode (silent, switched off, or on) he/she will not be allowed to continue their exam.
- No students will be allowed to sit in the exam without University Admit Card, LNMC College ID Card, and Lab Coat
- Students must bring the following stationary items for the exam: Pen, Pencil, Eraser, and Sharpener.
- In discipline in the exam hall/venue is not acceptable. Students must not possess any written material or communicate with their fellow students.

SCHEDULE:

<table>
<tr><th>WEEKS</th><th>2nd YEAR</th><th>MONTH</th></tr>
<tr><td rowspan="3">7 WEEKS</td><td rowspan="3">HEAD AND NECK & SPECIAL SENSES MODULE</td><td>20th April 2026</td></tr>
<tr><td>Eid Ul Azha / Summer Holidays
24th May to 28th June</td></tr>
<tr><td>8th July 2026</td></tr>
<tr><td colspan="3">16th & 18th July 2026
Mid-Term Examination*</td></tr>
</table>

*Final dates will be announced later