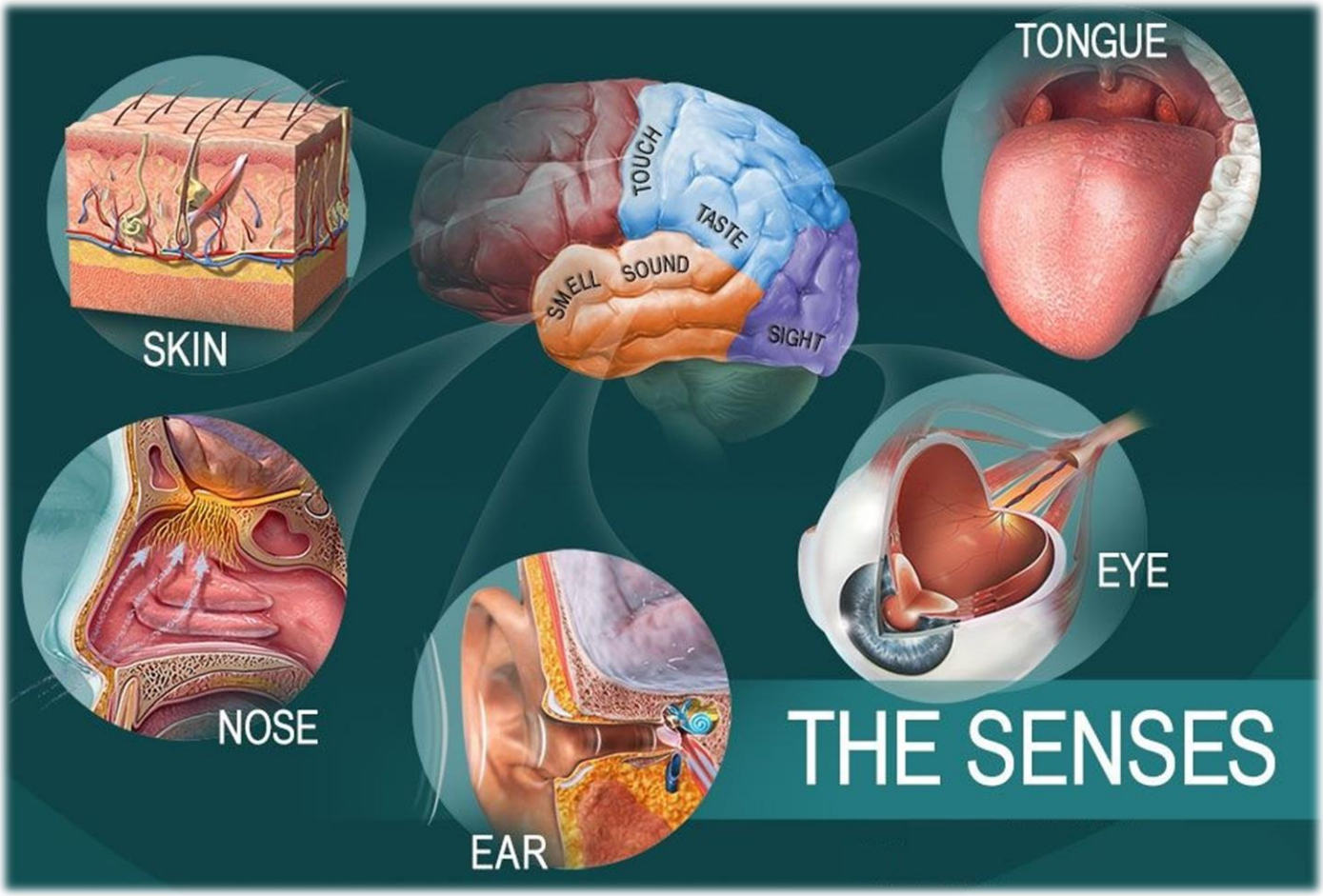
STUDY GUIDE

SPECIAL SENSES- IMODULE

SECOND YEAR MBBS

30th March – 18th April 2020
Duration: 3 Weeks



LIAQUAT NATIONAL HOSPITAL AND MEDICAL COLLEGE
Institute for Postgraduate Medical Studies and Health Science

STUDY GUIDE FOR SPECIAL SENSES-IMODULE

Module name: ***Special Senses-I*** *Year:* ***Two*** *Duration:* ***3 weeks*** *(****March*** *-* ***April 2020)***

Timetable hours: **Interactive Lectures, Case-Based Learning (CBL), Self-Study, Practical, Skills, Demonstrations, Visit to Wards and Laboratory**

MODULE INTEGRATED COMMITTEE

MODULE COORDINATOR:	Prof. Syed Hafeezul Hassan (**Physiology**)
CO-COORDINATORS:	Dr. Saira Mansoor (**Community Medicine**)

DEPARTMENTS' and RESOURCE PERSONS' FACILITATING LEARNING

BASIC HEALTH SCIENCES

ANATOMY

Professor Zia-ul-Islam

BIOCHEMISTRY

Dr. Kashif Nisar

PHYSIOLOGY

Professor Syed HafeezulHassan

DEPARTMENT OF HEALTHCARE EDUCATION

- Professor Nighat Huda
- Dr. Sobia Ali
- Dr. Afifa Tabassum
- Dr. M. Suleman Sadiq Hashmi
- Dr. Mehnaz Umair

LNHandMC MANAGEMENT

- Professor KU Makki, Principal LNHandMC
- Dr. Shaheena Akbani, Director A.A and R.T LNHandMC

STUDY GUIDE COMPILED BY: Department of Health Professions Education

INTRODUCTION

WHAT IS A STUDY GUIDE?

It is an aid to:

- Inform students how student learning program of the semester-wise module 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 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 the 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, journals, for students to consult in order 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 pertaining to examination policy, rules and regulations.

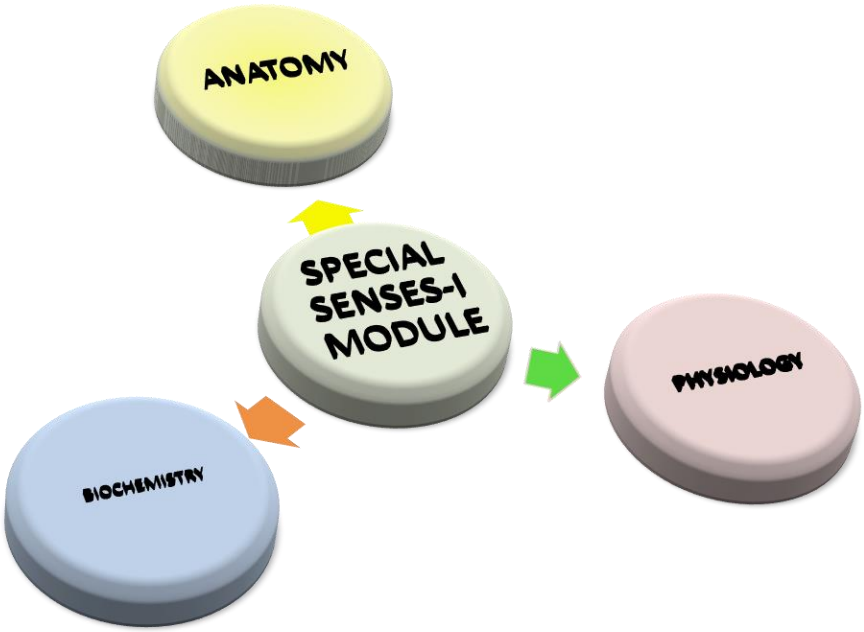
CURRICULUM FRAMEWORK

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

INTEGRATED CURRICULUM comprises of system-based modules such as Head and Neck, Nervous system-I and Endocrinology-I which links basic science knowledge to clinical problems. Integrated teaching means that subjects are presented as a meaningful whole. Students will be able to have better understanding of basic sciences when they repeatedly learn in relation to clinical examples.

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

INTEGRATING DISCIPLINES OF SPECIAL SENSES – I MODULE



LEARNING METHODOLOGIES

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

- Interactive Lectures
- Hospital / Clinic visits
- Small Group Discussion
- Case- Based Learning
- Practicals
- Skills session
- Self Study

INTERACTIVE LECTURES

In large group, 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.

HOSPITAL VISITS: In small groups, students observe patients with signs and symptoms in hospital or clinical settings. This helps students to relate knowledge of basic and clinical sciences of the relevant module.

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

CASE- BASED LEARNING: A small group discussion format where learning is focused around a series of questions based on a clinical scenario. Students' discuss and answer the questions applying relevant knowledge gained in clinical and basic health sciences during the module.

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

SKILLS SESSION: Skills relevant to respective module are observed and practiced where applicable in skills laboratory.

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

MODULE: SPECIAL SENSES-I

INTRODUCTION

Special senses is part of nervous system which is used to perceived the world around. The Special Senses-1 is a basic module is designed to provide in-depth information about how humans perceive sensations of vision, hearing, smell, taste and touch. Students will learn about the gross and microscopic structures and their related functions.

Students will also be able to understand how abnormalities at a macro and/ or micro levels produce loss of sensations

Diseases related to vision and hearing are very common in every society. Right from errors of refraction to blindness, visual disturbances take up a small yet significant percentage of the burden of diseases. Hearing loss and ear infections are also very common. The understanding of these sensations, hence, becomes imperative at the early stage of medical studies. This module will be directly linked with Special Senses-2 in the 2nd spiral where students will study not only the pathology but also management of various common conditions.

COURSE OBJECTIVES AND STRATEGIES

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

ANATOMY

OBJECTIVES	TEACHING STRATEGY
Eyelid and Lacrimal Apparatus	Interactive Lectures/Small Group Discussion
1. Discuss Eyelid and its parts	
2. Explain the Innervation and blood supply of eyelids	
3. Describe parts of lacrimal apparatus	
4. Discuss the diseases of lacrimal apparatus	
Eye Ball and Extraocular Muscles	
5. Explain the gross anatomical features of eye ball	
6. Discuss different coats and compartment of the eyeball	
7. Explain the neurovascular supply and lymphatic drainage of the eye ball	
8. Enlist the extra-ocular muscles	
9. Discuss the attachments and nerve supply of these muscles	
10. Explain the actions of Extraocular muscles along with related clinical anatomy	
Norma Occipitalis and posterior part of Basalis (Demonstration)	
11. Enlist the Bones forming the posterior aspect and base of skull	
12. Describe the details of posterior part of base of skull	
13. Describe different foramina and structures passing through them	
Development of eye	
14. Describe the development of eye and formation of retina	
15. List the structures which develop from optic cup, neural crest cells and surface ectoderm	
16. Explain the development of iris, ciliary bodies, lens, cornea, eyelid and Lacrimal gland	
17. Discuss the common congenital anomalies of eye	
Gross Anatomy of External Nose, Boundaries, Blood and Nerve Supply (Demonstration)	
18. Describe the features of external nose	
19. Name the boundaries of nasal cavity	
20. Describe the blood and nerve supply of nose	
21. Discuss the formation of anastomoses at little's area and its clinical importance	
Histology of Nasal Cavity, respiratory and olfactory epithelia	
22. Describe the epithelia of nasal cavity	
23. Discuss the features of olfactory and respiratory epithelium	
24. Describe the cells of olfactory and respiratory epithelium	

Para nasal Air Sinuses	Interactive Lectures/Small Group Discussion
25. List the para nasal air sinuses	
26. Describe their location, important relations, drainage and nerve supply	
27. Discuss the clinical significance of para nasal air sinuses	
Development of nose and Para nasal sinuses	
28. Describe development of different parts of nose and of para nasal sinuses	
29. Describe congenital anomalies associated with development of nose and paranasal sinuses	
Gross and Histology: External and Middle Ear	
30. Discuss the division of ear into external, middle and internal ear	
31. Describe the parts of external ear, boundaries and content of middle Ear cavity	
32. Explain the histological features of parts of external and middle ear	
33. Discuss the functions of external and middle ear as an organ for hearing	
34. Define the clinical conditions associated with external and middle ear	
Gross and Histology: Internal Ear	
35. Describe the parts of internal ear	
36. Describe the histological features of parts of internal ear	
37. Discuss the functions of internal ear as an organ for hearing and balance	
38. Discuss the clinical conditions associated with internal ear	
Development of Ear	
39. Explain the development of external, middle and internal ear	
40. Discuss congenital deafness and other anomalies of auricular and rest of the ear	
Integrated lecture on Auditory pathway	
41. Discuss the components of auditory pathway	
42. Describe the function of different parts of auditory pathway	
43. Describe the clinical conditions associated with auditory pathway	
44. Describe the vestibule and oral cavity proper with their contents	
Histology of Eye Ball	Practicals
45. Identify the histological features of eyeball	
46. Describe the histological feature of each coat of eye ball	
47. Describe the histology of cornea and lens	
48. Discuss the arrangement and composition of the layers of retina	
Histology of Nasal Cavity, respiratory and olfactory epithelia	
49. Identify various parts on slides	
50. Describe histological characteristics of each par	
Histology: External and Middle Ear	
51. Identify the various parts, gross and microscopic	
52. Explain the characteristic features of each part/ section	

Histology: Internal Ear	Practical
53. Identify the various parts, gross and microscopic	
54. Explain the characteristic features of each part/ section	

BIOCHEMISTRY

OBJECTIVES	*TEACHING STRATEGY*
Vitamin A and visual cycle	
Explain the biochemical importance of vitamin A and its role in visual cycle	Interactive Lecture/Small Group Discussion

PHYSIOLOGY

OBJECTIVES	*TEACHING STRATEGY*
Optics Of Eye	
1. Explain the basic physiology of eye and its refractive surfaces	Interactive Lectures/Small Group Discussion
2. Discuss the physical principles of optics	
3. Describe the mechanism of accommodation and its control	
Formation and circulation of aqueous humor	
4. Describe the formation and circulation of aqueous humor	
5. Explain the mechanism of regulation of intraocular pressure	
6. Define glaucoma and its treatment	
Visual Acuity and Errors Of Refraction	
7. Define visual acuity	
8. Describe the errors of refraction (Myopia, hyperopia, astigmatism and their correction by using different lens systems	
Photo-transduction	
9. Describe the physiology of retinal layers	
10. Explain photochemistry of vision (rhodopsin - retinal)	
11. Describe the mechanism of activation of Rods	
12. Explain the photochemistry of color vision	
Visual Pathway and Its Lesion	
13. Explain the neural circuitry of the Retina	
14. Describe the physiology of visual pathway	
15. Name the optic lesion associated with visual pathway	
Eye movements and its control.	
16. Explain the muscular control of eye movement	
17. Describe the fixation movements of eye	
18. Define accommodation reflex and pupillary light reflex	

Sense of hearing, mechanism and auditory pathway	
19. Describe the physiology of hearing and function of tympanic membrane and ossicular system.	Interactive Lectures/Small Group Discussion
20. Define impendence matching and attenuation reflex	
21. Explain the conduction of sound waves in the cochlea.	
22. Describe the function of the organ of corti	
23. Explain the auditory nervous pathway and abnormalities associated with it.	
24. Describe the function of cerebral cortex in hearing.	
Sense Of Taste and Smell	
25. List the primary sensation of taste	
26. Explain the mechanism of taste perception and its transmission into central nervous system	
27. List the primary sensation of smell	
28. Describe the stimulation of olfactory cells and its transmission into central nervous system	
Visual acuity and color vision	Practical
29. Perform visual acuity using Snellen's eye chart in a subject provided.	
30. Define visual acuity	
31. Interpret the visual acuity recording using Snellen's eye chart	
32. List other methods of recording visual acuity	
33. Demonstrate the refractive errors and their correction	
34. Examine the color vision of a subject using Ishiara eye chart	
35. Discuss the errors in color vision	
Perimetry	
36. Describe various parts of Perimetry and their uses	
37. Perform the technique of plotting visual field	
38. Interpret perimeter chart of a patient be able to tell any abnormality if present	
39. Demonstrate the method of plotting the usual field of individual eye and necessary precautions to be taken	
40. Interpret a given perimeter chart	
41. Enumerate lesions of the visual pathway by performing Perimetry	
Hearing test	
42. Explain the mechanism of hearing and auditory pathway	
43. Describe the principle of various tuning fork tests	
44. Demonstrate the performance of Rinne's, Weber's and ABC tests and precautions needed to be observed	
45. Identify conductive and sensorineural deafness based on the result and interpretation of various tuning fork tests	

Smell and taste	Interactive Lectures/Small Group Discussion
46. List the basic sensation of smell	
47. Examine the sense of smell in a subject provided	
48. Identify the abnormalities associated with perception of smell	
49. Map the pathway of sense of smell	
50. List the basic modalities of taste	
51. Examine the senses of taste on the gives samples	
52. Identify the abnormalities associated with sense of taste	

RESEARCH

OBJECTIVES	*TEACHING STRATEGY*
Performing Literature Search using Databases	Small Group Discussion
1. Perform literature search by following a scientific method	
Writing background and rationale of study	
2. Write the background which should lead to the rationale for the study	
Basic Epidemiologic Study Designs-1 and 2	
3. Explain the basic study designs used in research	

LEARNING RESOURCES

SUBJECT	*RESOURCES*
ANATOMY	**A. GROSSANATOMY** 1. K.L. Moore, Clinically Oriented Anatomy 2. Neuro Anatomy by Richard Snell **B. HISTOLOGY** 1. B. Young J. W. Health Wheather's Functional Histology **C. EMBRYOLOGY** 1. Keith L. Moore. The Developing Human 2. Langman's Medical Embryology
BIOCHEMISTRY	**A. TEXTBOOKS** 1. Harper's Illustrated Biochemistry 2. Lehninger Principle of Biochemistry 3. Biochemistry by Devlin
COMMUNITY MEDICINE	**A. TEXTBOOKS** 1. Community Medicine by Parikh 2. Community Medicine by MIllyas 3. Basic *Statistics* for the Health Sciences by Jan WKuzma
PHYSIOLOGY	**A. TEXTBOOKS** 1. Textbook Of Medical Physiology by Guyton AndHall 2. Ganong ' S Review of Medical Physiology 3. Human Physiology by Lauralee Sherwood 4. Berne and Levy Physiology 5. Best and Taylor Physiological Basis of Medica lPractice **B. REFERENCEBOOKS** 1. Guyton and Hall Physiological Review 2. Essentials Of Medical Physiology by Jaypee 3. Textbook Of Medical Physiology by InduKhurana 4. Short Textbook Of Physiology by Mrthur 5. NMS Physiology

OTHER LEARNING RESOURCES

Hands-on Activities/ Practical	Students will be involved in Practical sessions and hands-on activities that link with the Special Senses-I module to enhance the learning.
Labs	• Utilize the lab to relate the knowledge to the specimens and models available.
Skill Labs	• A skills lab provides the simulators to learn the basic skills and procedures. This helps build the confidence to approach the patients.
Videos	Video familiarize the student with the procedures and protocols to assist patients.
Computer Lab/CDs/DVDs/Internet Resources:	To increase the knowledge students should utilize the available internet resources and CDs/DVDs. This will be an additional advantage to increase learning.
Self Study	Self Study which generally means studying without direct supervision. During this session one learns by himself/herself to search for information to solve cases, read through different resources and discuss among the peers and with the faculty to clarify the concepts.

ASSESSMENTMETHODS:

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

BCQs:

- A BCQ has a statement or clinical scenario of four options (likely answers).
- **Correct answer carries one mark, and incorrect 'zero mark'. There is NO negative marking.**
- Students mark their responses on specified computer-based sheet designed for LNHMC.

OSCE:

- All students rotate through the same series of stations in the same allocated time.
- At each station, a brief written statement includes the task. Student completes the given task at one given station in a specified time.
- Stations are observed, unobserved, interactive or rest stations.
- In unobserved stations, flowcharts, models, slide identification, lab reports, case scenarios may be used to cover knowledge component of the content.
- Observed station: Performance of skills /procedures is observed by assessor
- Interactive: Examiner/s ask questions related to the task within the time allocated.
- In Rest station, students in the given time not given any specific task but wait to move to the following station.

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, assignment, practicals and the internal exam which will all have specific marks allocation.

Formative Assessment

Individual department may hold quiz or short answer questions to help students assess their own learning.

The marks obtained are not included in the internal evaluation

For JSMU Examination Policy, please consult JSMU website!

	More than75% attendanceisneeded tositfor theinternaland final examinations	

LNHandMC EXAMINATION RULES and REGULATIONS

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

SCHEDULE:

WEEKS	2nd YEAR	DATES
WEEK 1	HEAD and NECK MODULE	30th Dec 2019
WEEK 2		
WEEK 3		
WEEK 4		
WEEK 5		31stJan 2020
WEEK 1	NEUROSCIENCES MODULE	3rd Feb 2020
WEEK 2		
WEEK 3		
WEEK 4		
WEEK 5		
WEEK 6		28th March 2020
WEEK 1	SPECIAL SENSES - I MODULE	30th March 2020
WEEK 2		
WEEK 3		18th April 2020*
WEEK 1	ENDOCRINE-I MODULE	20th April 2020*
WEEK 2		
WEEK 3		
WEEK 4		May 2020*
	Revision Classes (Earlier Modules)	2020*

* Final dates will be announced later.