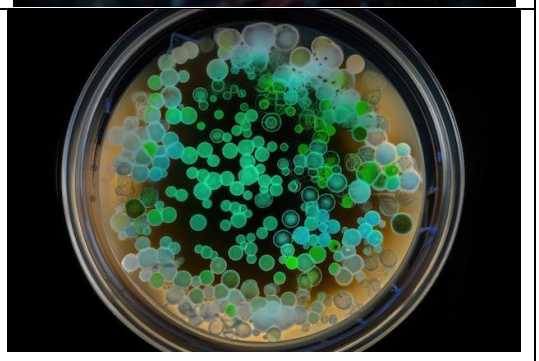
IBN-E-SINA UNIVERSITY MIRPURKHAS

STUDENT'S STUDY GUIDE
HEAD & NECK AND SPECIAL SENSES MODULE
SECOND PROFESSIONAL MBBS

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1. DISCLAIMER

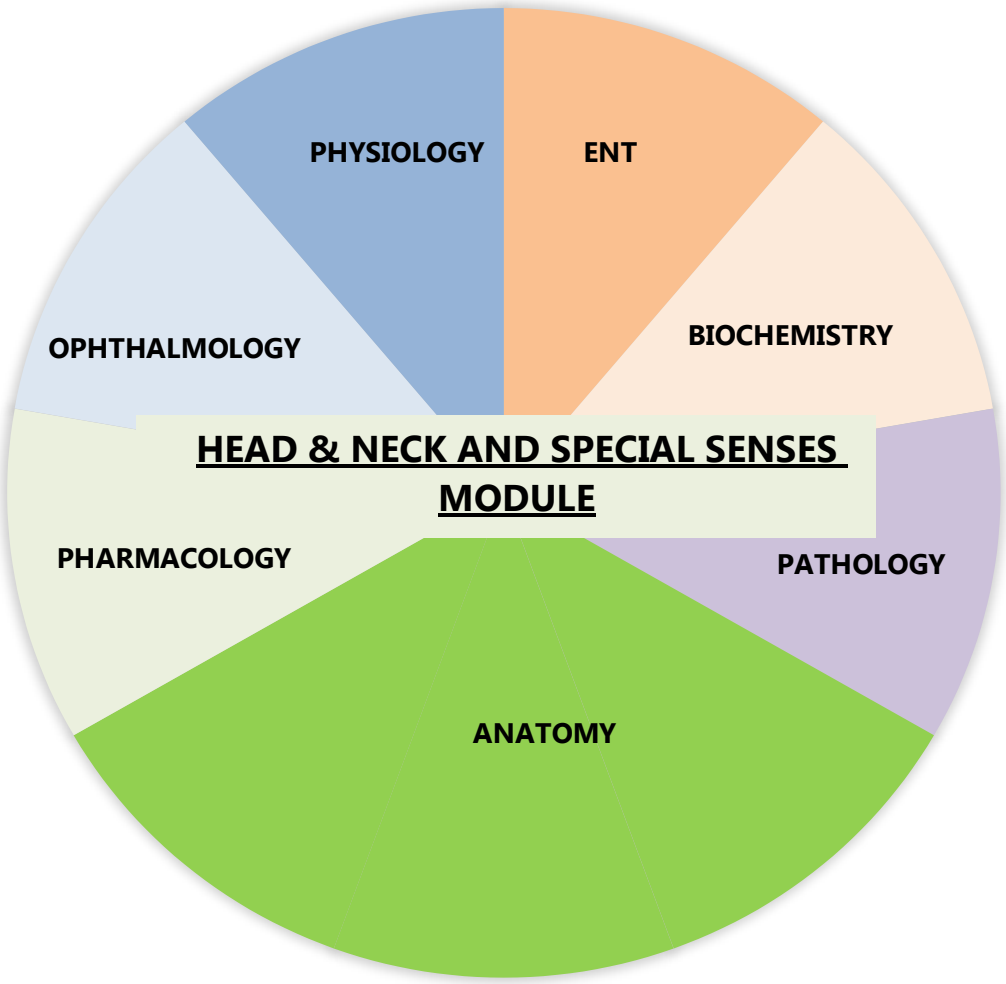
- Developing a study guide is a dynamic process and undergoes iteration according to the needs and priorities.
- This study guide is subjected to the change and modification over the whole academic year.
- However, students are advised to use it as a guide for respective modules.
- The time tables are for guiding purpose. It is to advise that final timetables are always displayed over the notice boards of each lecture hall.
- Students are encouraged to provide feedback via coordinator

2. CURRICULUM FRAMEWORK

An educational strategy known as integrated curriculum places a strong emphasis on interdisciplinary learning, in which students gain knowledge by integrating it from several topic areas. By integrating many subjects and disciplines into a cohesive curriculum, this method seeks to give students a more relevant and interesting learning experience. Integrated curriculum means that subjects are presented as a meaningful whole for better understanding of basic sciences in relation to clinical experience and application.

Integrated curriculum comprises of system-based modules such as Head & neck and special senses, Nervous System-I, Git and Liver-I, Endocrinology-I, Renal & Excretory-I and Reproductive System-I modules which link basic science knowledge to clinical problems.

INTEGRATING DISCIPLINES OF HEAD & NECK AND SPECIAL SENSES MODULE



3. MODULE OVERVIEW

HEAD & NECK AND SPECIAL SENSES MODULE DETAILS

Course	MBBS
Year	Second professional
Duration	7 weeks
Learning Outcomes	The competent Medical Practitioner
Competencies covered	To develop medical professionals who are well - versed, adept, and have the right mindset.
Module Assessment	End module formative assessment
Teaching Methods	Interactive Lectures, Demonstrations, Case Based Learning, Practical Lab, Small Group Discussions, Self-Study Sessions, E-Learning, Clinical rotations
Assessment Methods	MCQs, SEQs, OSPE, VIVA

HEAD & NECK AND SPECIAL SENSES MODULE COMMITTEE

Sr. No	Names	Department	Designation
MODULE COORDINATOR			
1.	Dr. Saqib Baloch	Anatomy	Assistant Professor
2.	Dr. Shahab Hanif	Anatomy	Assistant Professor
COMMITTEE MEMBERS			
1.	Prof: Dr. Syed Razi Muhammad	Surgery	Chancellor ISU
2.	Prof: Dr. Shams Ul Arfeen Khan	Biochemistry	Vice Chancellor ISU
3.	Prof: Dr. Aijaz Ahmed Memon	Surgery	Pro Vice Chancellor ISU

4. WHAT IS STUDY GUIDE

It is an aid to Inform students how student learning program of the module has been organized, tohelp students organize and manage their studies throughout the module and 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.

Module objectives.

— Provides a list of learning resources such as books, computer-assisted learning programs, weblinks, and journals, for students to consult in order to maximize their learning.

— Highlights information on the contribution of continuous on the student's overall performance.

— Includes information on the assessment methods that will be held to determine every student's performance.

Achievement of objectives.

- Focuses on information pertaining to examination policy, rules and regulations.

5. LEARNING METHODOLOGIES

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

- Interactive Lectures
- Small Group Discussion
- Case- Based Learning (CBL)
- Skills session
- Practicals
- Self-Directed Study

- **INTERACTIVE LECTURES:**

  Large group discussions are not the same as traditional lecture formats. When a teacher or instructor uses images, radiographs, patient interaction recordings, etc. to discuss a topic or typical clinical scenario, the lecture becomes interactive. When they are given tiny activities to do that allow them to apply the knowledge they have learned throughout the session and are asked questions, students actively participate in the learning process.

- **SMALL GROUP DISCUSSIONS (SGDS):**

  With the use of SGD, students can take an active role in their education, clarify ideas, develop psychomotor skills, and develop a positive attitude. Discussion themes, patient interviews, and clinical cases are used to design sessions in an organized manner. Pupils are inspired to express their ideas, apply the fundamental knowledge they have learned from lectures and independent study, and are encouraged to share their notions. In small groups, role play is a useful technique for acquainting pupils with real-world scenarios. Probing questions, rephrasing, and summarizing are used by the teacher to assist make the concepts obvious.

- **CASE-BASED LEARNING (CBL):**

  Learning is centered around a sequence of questions based on a clinical scenario in this small group discussion format. Students create new information by discussing and responding to the questions using pertinent prior knowledge from the clinical and fundamental health sciences modules. The relevant department will give the CBL.

- **SKILL SESSIONS:**

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

- **PRACTICALS:**

  Basic science practical related to Anatomy, Physiology and Biochemistry have been schedule for student learning.

- **SELF STUDY:**

  Self-directed learning is a process in which students take charge, either on their own or with assistance from others. Students chart their learning objectives and determine their areas of need for learning. They select and employ their own learning methodologies, and they independently assess the learning objectives.

6. INTRODUCTION

The head and neck module covers both the morphological structures of the head and neck as well as the physiological aspects of certain structures, such as the physiology of the specific senses of the eyes (vision), ears (hearing and balancing), nose (olfaction), and mouth (taste). Despite not being a separate system, the head and neck region contains vital organs such as the mouth, larynx, ears, nose, and eyes, thus understanding it as a whole is crucial. These are all close to one another, and illnesses that affect one of them frequently have a consequential effect on other organs. Head, face, and neck injuries are linked to high rates of both morbidity and mortality.

The goal of the second-year MBBS head and neck module (HNM) is to integrate basic and clinical sciences. Students studying fundamental sciences will be able to explain the gross and microscopic anatomy of the head, neck, eyes, and ears as well as pertinent biochemistry, pathology, and neurophysiology. Students will be able to apply their knowledge from a meaningful clinical viewpoint with the assistance of integration with pertinent clinical sciences areas. The fundamentals of the anatomy and physiology of the head and neck's constituent parts are covered in this module.

6.1 RATIONALE

Important anatomical features of the head and neck include the larynx, pharynx, oral cavity, ears, nose, and eyes. Both the anatomy and function of these structures should be thoroughly understood by students. Conditions affecting these structures, such as tonsillitis, rhinitis, sore throats, red eyes, etc., are highly prevalent. A student would be able to assist patients in their community who suffer from these prevalent ailments if they had expertise of basic science and pertinent clinical knowledge acquired through clinical lectures and case-based scenarios. As a result, individuals may contribute to society and act as a responsible community member.

6.2 IBN E SINA UNIVERSITY (ISU) VISION:

To become a world-leading organization in rural health and social care research, training, recruitment and best evidence-based practice.

6.3 IBN E SINA UNIVERSITY (ISU) MISSION:

Our Mission is to inspire hope, and contribute to health and well-being by providing the best care to every patient through integrated clinical practice, education and research. To provide a focal point for the development and collation of high-quality research pertinent to rural health and wellbeing. To improve the training, recruitment and retention of a professional workforce within rural communities. To be recognized as an exemplar in rural health and wellbeing on the international stage. To establish a network of individuals and groups that support research, innovation and development in rural health and social care

7. LEARNING OBJECTIVES

7.1 Knowledge / Cognitive Domain

It involves knowledge and the development of intellectual skills. By the end of this module, the students should be able to:

1. Overview the head and neck regions
2. Identify the derivatives of pharyngeal arches and pouches
3. Identify the abnormalities of pharyngeal arches and pouches
4. Identify the features of the vault & base of skull
5. Recognize the importance of scalp in the region of head
6. Identify the views of skull
7. Enumerate the contents of orbital region
8. Correlate the structures of eye with its functions
9. Identify the disorders of optical system at different levels
10. Explain the biochemical functions of vitamin A and effects of vitamin Adeficiency on vision
11. Describe the major and minor salivary glands
12. Enumerate the structures of the temporal region
13. Recognize the importance of mandibular region in the face of an individual
14. Identify the structures of ear & histological features of ear
15. Identify the parts of auditory pathway and describe the mechanism oftransmission of sound
16. Describe mechanism of balance how the body regulate balance
17. Identify the structures of nose & Para-nasal Sinuses
18. Identify the structure and function of oral cavity &related disorders
19. Describe sense of olfaction with relation to anatomical & biochemicalfunction of related structures
20. Describe the deep structures in the neck.
21. Enumerate 12 cranial nerves Explain clinical effects of injury to each cranialnerve

7.2 Skills / Psychomotor Domain:

Includes physical movement, co-ordination and the use of motor skill areas. For this Module, these include:

1. Observation and Assistance
2. Performing the skill under supervision
3. Performing the skill independently

4. Obtain a comprehensive history of patient with gastrointestinal and hepatobiliary disorders.

7.3 Attitude / Affective Domain:

It Involves our feelings, emotions and attitudes. By the end of this module, the students should be able to:

1. Comply with standard laboratory procedures
2. Engage in professional classroom and practical work.
3. Work as a team to effectively communicate with instructors, staff, and pears.
4. Act with professionalism and moral principles when interacting with teachers, personnel, cadavers, and patients.
5. Work well as a team to communicate with instructors and pears.
6. Show that you have the capacity to evaluate your performance.

7.4 Outcomes of Head & Neck and Special Senses Module

1. Knowledgeable
2. Skillful
3. Community Heath Promoter
4. Problem-solver
5. Professional
6. Researcher
7. Leader and Role Model

8. THEMES FOR HEAD & NECK AND SPECIAL SENSES MODULE

SNO	Theme	Duration
1	**Fractures of the Skull & Scalp injuries**	1 week
2	**Facial injuries and the bell's palsy**	1 week
3	**Disorders of the salivary glands and neck lesions**	1 week
4	**Waldeyer's ring, Tonsillitis and oral cancers**	1 week
5	**Visual field defects, Glaucoma, Role of Vitamin A**	2 weeks
6	**Deafness, vertigo, otitis media**	1 week

9. SPECIFIC LEARNING OBJECTIVES THEME WISE

THEME 1: FRACTURES OF THE SKULL & SCALP INJURIES

S. NO	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
	ANATOMY (GROSS ANATOMY)			
01	Explain the overview of neck regions Explain the overview of head surface, muscles, innervations, blood supply & venous drainage	**HN-ANA-G-1** Overview of the head and neck regions	Interactive Lecture	BCQs, SAQs, OSPE, Viva
02	Define axial skeleton Describe bones of skull and cranium Explain overview of Skull Geography & Sutures Differentiate the various views of the skull	**HN-ANA-G-2** Osteology of the Skull and the vault	Interactive lecture	BCQs, SAQs, OSPE, Viva
03	Define norma frontalis Explain the different regions of it Enumerate the muscle attachment Describe Boundaries and features of its structure.	**HN-ANA-G-3** Skull: Norma frontalis	Demonstration	BCQs, SAQs, OSPE, Viva
04	Enlist various bones in norma lateralis Describe the Cranial and facial subdivisions Define External acoustic meatus	**HN-ANA-G-4** Norma lateralis and occipitalis	Demonstration	BCQs, SAQs, OSPE, Viva
05	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 at the base Explain the attachments and relations of base of skull	**HN-ANA-G-5** Norma Basalis Anterior , middle and posterior parts	Demonstration	BCQs, SAQs, OSPE, Viva
06	Describe bones forming the cranial cavity Explain the details of anterior, middle and posterior fossae of the cranial cavity Identify different foramina and structures passing through them.	**HN-ANA-G-6** Cranial cavity	Demonstration	BCQs, SAQs, OSPE, Viva
07	Describe the meninges of the brain and spinal cord. Discuss the venous sinuses. Discuss the related clinicals.	**HN-ANA-G-7** The meninges of brain and spinal cord & the venous sinuses	Interactive lecture	BCQs, SAQs, OSPE, Viva
08	Explain the extent of scalp Describe five layers of scalp Identify the nerves and vessels of scalp Enumerate the clinical correlates	**HN-ANA-G-8** Scalp (layers, Nerves &Vessels)	Interactive Lecture	BCQs, SAQs, OSPE, Viva

09	Describe development of pharyngeal Apparatus List the Parts of pharyngeal apparatus. Describe development of pharyngeal arches. Enlist the derivatives of pharyngeal arches. Describe the related congenital anomalies.	**NS-ANA-E-1** Pharyngeal Apparatus. Pharyngeal Arches	Interactive Lecture	BCQs, SAQs, OSPE, Viva
10	Describe development of pharyngeal pouches & clefts. Enlist the derivatives of pharyngeal pouches & clefts. Describe the related congenital anomalies.	**NS-ANA-E-2** Pharyngeal pouches & clefts.	Interactive Lecture	BCQs, SAQs, OSPE, Viva
PHYSIOLOGY				
11	To perform the movements of eye ball and muscles controlling these movements Accommodation reflex & pupillary light reflex their pathway Diplopia, squint, Nystagmus, strabismus.	**HN-PHY-1** Examination of oculomotor, Trochlear and Abducent nerve	Interactive Practical	BCQs, SAQs, OSPE

THEME :2 FACIAL INJURIES AND THE BELL'S PALSY

S. NO	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
12	Describe the boundaries and contents of temporal fossa. Describe the type, formation, neurovascular supply and movements of Temporomandibular joint. Clinically correlate disorders of the TM joint. Describe the muscles of mastication.	**HN-ANA-G-9** Temporal Region & Temporo-mandibular Joint and muscles of mastication	Interactive Lecture	BCQs, SAQs, OSPE, Viva
13	Describe boundaries and contents of Pterygopalatine & Infratemporal fossae. Describe the muscles of mastication.	**HN-ANA-G-10** Pterygopalatine & Infratemporal fossae.	Interactive Lecture	BCQs, SAQs, OSPE, Viva
14	Describe Parts of mandible Explain general and special features of each part. Describe Blood and nerve supply of mandible Interpret Applied anatomy of mandible. Explain general and special features of Hyoid bone.	**HN-ANA-G-11** Mandible & Hyoid bone.	Demonstration	BCQs, SAQs, OSPE, Viva
15	Describe the boundaries of face Enumerate the muscles and innervations of face Describe the disorders and applied of face	**HN-ANA-G-12** Muscles of the facial expression	Interactive Lecture	BCQs, SAQs, OSPE, Viva
16	Describe the cutaneous supply of the head and neck regions.	**HN-ANA-G-13** Cutaneous supply of the head & neck region	Interactive Lecture	BCQs, SAQs, OSPE, Viva
17	Describe arterial supply of head and neck Major venous drainage to sinuses, Head and neck major veins.	**HN-ANA-G-14** Arteries & Veins of the Head & Neck.	Interactive Lecture	BCQs, SAQs, OSPE, Viva
18	Describe the Developmental stages of Face Explain the congenital Anomalies of face Describe the development of the nasal cavity Describe the development of the paranasal sinuses. Explain the congenital Anomalies of face	**HN-ANA-E-3** Development of Face and nose	Interactive Lecture	BCQs, SAQs, OSPE, Viva
PHYSIOLOGY				

19	To examine muscle of facial expression To define and classify Bell's facial palsy Correlate between 5th and 6th nerve Interpret the problems of trigeminal nerve injury	**HN-PHY-P-2** Examination of facial and trigeminal nerve.	Interactive Practical	BCQs, SAQs

THEME :3 DISORDERS OF THE SALIVARY GLANDS AND NECK LESIONS

S. NO	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
GROSS ANATOMY				
20	Explain the parotid region. Describe the anatomy parotid gland. Define what is otic ganglion. Interpret Applied anatomy of parotid gland	**HN-ANA-G-15** Parotid region	Interactive Lecture	BCQs, SAQs, OSPE, Viva
21	Explain the submandibular region. List the Suprahyoid muscles. Describe the submandibular gland. Describe the sublingual gland. Define what is submandibular ganglion	**HN-ANA-G-16** Submandibular region	Interactive Lecture	BCQs, SAQs, OSPE, Viva
22	Describe the deep cervical fascia Explain the four parts of deep cervical fascia and the structures it encloses: the investing layer, pretrachial fascia, prevertebral fascia &the carotid sheath. Define platysma muscle.	**HN-ANA-G-17** Deep Cervical Fascia & Platysma	Interactive Lecture	BCQs, SAQs, OSPE, Viva
23	Discuss the boundaries and divisions of the anterior triangle of neck List the subdivision of anterior triangle of neck. Describe the boundaries and contents of sub divisions of anterior triangle.	**HN-ANA-G-18** Anterior triangle of neck	Interactive Lecture	BCQs, SAQs, OSPE, Viva
24	Describe the division and boundaries of posterior triangle of neck List the contents of posterior triangle of neck Discuss the clinical conditions associated with posterior triangle of neck	**HN-ANA-G-19** Posterior triangle of neck	Interactive Lecture	BCQs, SAQs, OSPE, Viva
25	Discuss the formation and branches of cervical plexus Discuss the origin, course, branches and functions of cranial nerve XI.	**HN-ANA-G-20** cervical plexus & cranial nerve XI.	Interactive Lecture	BCQs, SAQs, OSPE, Viva
26	Name the Salivary glands and their location. Describe histology of parotid gland Describe histology of submandibular gland Describe histology of sublingual gland.	**HN-ANA-H-1** Salivary Glands	Interactive Practical	BCQs, SAQs, OSPE, Viva
PATHOLOGY				

27	To describe the etiology, pathogenesis and major subtypes of Inflammatory, non-neoplastic lesions of salivary glands	**HN-Path-1** Inflammatory and non-neoplastic lesions of salivary glands	Demonstration	BCQs, SEQs, Viva
PHYSIOLOGY				
28	To perform and interpret the function of nerves The gag reflex. To observe shrugging of shoulders with and without resistance Check movements of tongue in all directions Test the sensation of taste To assess the deviation of the tongue when extended toward the weak side	**HN-PHY-3** Examination of Glossopharyngeal Vagus , Accessory and Hypoglossal nerves.	Interactive Practical	BCQs, SEQs

THEME: 4 WALDEYER'S RING, TONSILLITIS AND ORAL CANCERS

S. NO	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
	GROSS ANATOMY			
29	Describe the anatomy of external nose. Define the boundaries of nasal cavity. Describe the lateral wall of nose. Identify & Describe Arterial &Venous supply of nose and nasal cavity. Describe Nerve supply of nose and nasal cavity	**HN-ANA-G-21** External Nose & Nasal Cavity	Demonstration	BCQs, SAQs, OSPE, Viva
30	Define & list names of paranasal sinuses Describe functions of paranasal sinuses. Identify Radiographic Protocols for sinuses Explain diseases of sinuses.	**HN-ANA-G-22** Para-nasal Sinuses	Demonstration	BCQs, SAQs, OSPE, Viva
31	Define the boundaries of oral cavity (the roof, lateral walls and floor of oral cavity). Describe the hard & soft palate. Describe the vasculature and innervation of the oral cavity & palate. Define the muscles of the soft palate.	**HN-ANA-G-23** Oral Cavity Hard and soft palate	Interactive Lecture	BCQs, SAQs, OSPE, Viva
32	Describe what is tongue and Papilla. Enumerate the Extrinsic and Intrinsic muscles of the tongue Define the sensory & motor nerve supply of the tongue.	**HN-ANA-G-24** The Tongue	Interactive Lecture	BCQs, SAQs, OSPE, Viva
33	Explain the structure, functions of various parts of pharynx & their blood supply & innervation. Interpret related applied anatomy.	**HN-ANA-G-25** Pharynx	Interactive Lecture	BCQs, SAQs, OSPE, Viva
34	Explain the structure , cartilages and functions of the various parts of larynx.	**HN-ANA-G-26** Larynx-1	Demonstration	BCQs, SAQs, OSPE, Viva
35	Describe the muscles, blood supply & innervation of the larynx. Interpret related applied anatomy.	**HN-ANA-G-27** Larynx-2	Demonstration	BCQs, SAQs, OSPE, Viva
36	Identify the microscopic features of the nose and paranasal sinuses. Discuss the respiratory epithelium. Explain the Olfactory epithelium.	**NS-ANA-H-2** Histology of the Nasal cavity	Interactive Practical	BCQs, SAQs, OSPE, Viva

37	Describe the different parts of oral cavity. Explain the histology of cheek and lip. Describe microscopic features of tongue.	**NS-ANA-H-3** Histology of Oral cavity	Interactive Practical	BCQs, SAQs, OSPE, Viva
PHYSIOLOGY				
38	Primary tastes & taste receptors Taste transduction, Taste pathway Olfactory mucosa, Smell pathway Role of smell in memory & sex	**HN-PHY-4** Chemical senses Taste & smell	Demonstration	BCQs, SAQs, OSPE, Viva
39	To examine and interpret the sense of taste and smell in a subject	**HN-PHY-5** Examination of s taste & smell sensations	Interactive Practical	BCQs, SAQs, OSPE, Viva
EAR-NOSE-THROAT (ENT)				
40	Discuss clinical significance of tonsils	**HN-ENT-1** Tonsillitis	Interactive Lecture	BCQs, SAQs, OSPE, Viva
41	Correlate causes with clinical presentation of epistaxis	**HN-ENT-2** Epistaxis	Interactive Lecture	BCQs, SAQs, OSPE, Viva

THEME :5 VISUAL FIELD DEFECTS, GLAUCOMA, ROLE OF VITAMIN A

S. NO	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
	GROSS ANATOMY			
42	Describe the boundaries of the orbit Define the openings of the orbital cavity and their contents Define the orbital fascia	**HN-ANA-G-28** The Orbit (boundaries & openings)	Demonstration	BCQs, SAQs, OSPE, Viva
43	Explain the Extrinsic muscles and their innervations Explain the structures supplied by nerves of orbital cavity. Describe the blood vessels of orbit.	**HN-ANA-G-29** Contents of the orbital cavity (Extraocular muscles, nerves & vessels)	Demonstration	BCQs, SAQs, OSPE, Viva
44	Describe the palpebral fissure Explain the different layers of the eyelid and its muscles. Enumerate the blood supply and innervations of eyelids. Illustrate lacrimal apparatus ciliary ganglion and their disorders. Interpret related applied anatomy.	**HN-ANA-G-30** Eyelids & lacrimal Apparatus & Ciliary Ganglion	Demonstration	BCQs, SAQs, OSPE, Viva
45	Enlist the coats of Eyeball. Describe the Cornea & Sclera Describe the Choroid, Ciliary body & Iris Describe the Retina	**HN-ANA-G-31** Structure of the eye Eyeball-1 (Coats)	Interactive Lecture	BCQs, SAQs, OSPE, Viva
46	Describe the Aqueous humor, Vitreous body & lens Interpret related applied anatomy.	**HN-ANA-G-32** Eyeball-2 (Contents)	Interactive Lecture	BCQs, SAQs, OSPE, Viva
47	Describe the steps of development of human eye. Explain the derivatives of different embryonic primitive eye layers. Describe the development of various layers of eye individually, along with optic nerve.	**HN-ANA-E-4** Development of Eye	Interactive Lecture	BCQs, SAQs, OSPE, Viva
48	Describe the histology of Eyelids , Conjunctiva & Lacrimal Apparatus.	**HN-ANA-H-4** Histology of Eyelids, Conjunctiva, Lacrimal Apparatus	Interactive Practical	BCQs, SAQs, OSPE, Viva
	PHYSIOLOGY			
49	Describe the physiological anatomy of eye, Its layers, Its chambers & Its systems Describe the Lens and its attachment Describe the Formation, composition, circulation & functions of aqueous humor	**HN-PHY-6** Physiological Anatomy Aqueous humor	Interactive Lecture	BCQs, SAQs, OSPE, Viva

50	Describe the physical principles of optics Describe accommodation reflex & its control Describe the refracting surfaces of eye Describe the errors of refraction and their correction	**HN-PHY-7** Optics of vision	Interactive Lecture	BCQs, SAQs OSPE, Viva
51	Describe the functional anatomy of retina Describe the special features of photoreceptors i.e. rods & Cones Describe the neuronal circuits within retina Discuss Importance of Pigmented Layer of the Retina (albinos) Describe Blind spot & Fovea & their importance	**HN-PHY-8** Retina	Demonstration	BCQs, SAQs, OSPE, Viva
52	Describe the basic mechanism of photo-transduction Describe the structure of rhodopsin and its bleaching by light Describe the role of Bipolar and ganglion cells in photo-transduction Describe the steps involved in photo-transduction	**HN-PHY-9** Photo-transduction	Interactive Lecture	BCQs, SAQs, OSPE, Viva
53	Name the three primary color Describe Young - Helmholtz - theory of color vision. Describe color vision pathway Describe color blindness and tests to detect it Describe the mechanism of dark adaptation Describe the mechanism of light adaptation Describe night blindness & its cause	**HN-PHY-10** Color vision Duplicity of vision & adaptation	Demonstration	BCQs, SAQs, OSPE, Viva
54	Describe visual pathway & its order neurons Describe the lesions of visual pathway Describe functions of superior colliculi and lateral geniculate body. Describe visual cortex Describe structure & function of lacrimal gland	**HN-PHY-11** Visual pathway & its lesions Lacrimal apparatus	Interactive Lecture	BCQs, SAQs, OSPE, Viva
55	To demonstrate visual acuity of eye using Snelling eye chart in a subject provided To interpret the visual acuity recording To examine the color vision of a subject using ishiara eye chart. To perform the technique of plotting visual field. Read and interpret a given perimeter chart. Examine pupillary reflexes	**HN-PHY-12** examination of the Optic nerve	Interactive Practical	BCQs, SAQs, OSPE, Viva
	BIOCHEMISTRY			
56	Sources, RDA, Active forms, Absorption, Functions	**HN-BIO-1** Vitamin A (I)	Interactive Lecture	BCQs, SAQs, OSPE, Viva

57	Deficiency states & Hypervitaminosis. Visual Cycle	**HN-BIO-2** Vitamin A (II)	Interactive Lecture	BCQs, SAQs, OSPE, Viva
OPHTHALAMOLOGY				
58	Define & Describe Refractive Errors, Emmetropia, Hypermetropia, Astigmatism	**HD-OPH-1** Errors of refraction, presbyopia and their correction	Interactive Lecture	BCQs, SAQs, OSPE, Viv
59	Describe Distribution of cranial nerves Explain Functional classification of cranial nerves, their pathways Explain Clinical features related to the disorders	**HD-OPH-2** Cranial nerve palsy affecting the eye and pupillary disorder	Interactive Lecture	BCQs, SAQs, OSPE, Viv
60	Blockage of drainage (Glaucoma) Discuss the Anatomy of angle, production and drainage of Aqueous	**HD-OPH-3** Glaucoma & its treatment	Interactive Lecture	BCQs, SAQs, OSPE, Viv
61	Define cataract Describe the types of cataract Discuss its management	**HN-OPH-4** Cataract & its treatment	Interactive Lecture	BCQs, SAQs, OSPE, Viv
PHARMACOLOGY				
62	To describe principles of pharmacological treatment. To describe the adverse effects of drug used To describe the mechanism of action of drug used	**HN- PHARMA- 1** Pharmacological treatment of glaucoma	Interactive Lecture	BCQs, SAQs, OSPE, Viv
63	To observe effect of Atropine on frogs eye	**HN- PHARMA-2** Effects of Atropine	Interactive Practical	BCQs, SAQs, OSPE, Viv
64	To observe effect of Pilocarpine on frogs eye	**HN- PHARMA-3** Effects of Pilocarpine	Interactive Practical	BCQs, SAQs, OSPE, Viv

THEME 6: DEAFNESS, VERTIGO, OTTITIS MEDIA

S. NO	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
	GROSS ANATOMY			
65	Describe Parts of ear. Explain gross features of middle ear. Describe the applied anatomy of middle ear.	**HN-ANA-G-33** External Ear & Middle Ear	Demonstration	BCQs, SAQs, OSPE, Viva
66	Explain Organ of hearing and balance. Interpret applied anatomy of inner ear.	**HN-ANA-G-34** Inner Ear (cochlea & semicircular canals)	Demonstration	BCQs, SAQs, OSPE, Viva
67	Explain development of inner ear. Describe development of middle ear. Elaborate development of external ear	**NS-ANA-E-5** Development of Ear	Interactive Lecture	BCQs, SAQs, OSPE, Viva
68	Describe the histology of the different parts of the Ear	**HN-ANA-H-5** Histology of the Ear	Practical	BCQs, SAQs, OSPE, Viva
	PHYSIOLOGY			
69	Define sound and describe its characteristics Describe tympanic membrane as resonator Name ossicles of middle ear and their lever system Define impendence matching & describe attenuation reflex Define Masking	**HN-PHY-13** External & middle ear	Interactive Lecture	BCQs, SAQs, OSPE, Viva
70	Physiologic anatomy of cochlea & organ of Corti Describe passage of sound waves to inner ear Describe Sound transduction Describe Pitch & loudness discrimination Describe Auditory pathway	**HN-PHY-14** Inner ear	Demonstration	BCQs, SAQs, OSPE, Viva
71	Head movements Functional anatomy of vestibular apparatus To determine the role of utricle & saccule in static equilibrium. To determine the role of semicircular Ducts in Angular Acceleration.	**HN-PHY-15** Vestibular Apparatus	Interactive Lecture	BCQs, SAQs, OSPE, Viva
72	To perform and examine the Rinne's & weber's test by using a tuning fork Identify conductive and sensorineural deafness based on the result and	**HN-PHY-16** Examination of the Vestibulocochlear nerve	Interactive Practical	BCQs, SAQs, OSPE, Viva

	interpretation of tuning fork tests.			
	EAR-NOSE-THROAT (ENT)			
73	describe the causes of deafness describe the types of deafness discuss the management of deafness	**HN-ENT-3** Deafness	Interactive Lecture	BCQs, SAQs, OSPE, Viva
74	Define vertigo Describe the pathophysiology of Meniere 's disease	**HN-ENT-4** Vertigo & Meniere's disease	Interactive Lecture	BCQs, SAQs, OSPE, Viva
	RADIOLOGY			
73	Interpretate the normal features of Head X-ray (skull bones, orbits, nasal concha, sinuses, teeth and mandible)	**HN-RADIO-1** Head Radiograph	Interactive Lecture	BCQs, OSPE, Viva

9.1 TAGGED SUBJECTS

Topic	Contents	Learning Objectives	Teaching Method	Module	Hours	Assessment
PROFESSIONALISM AND BEHAVIORAL SCIENCES						
Dealing with patients	Culture, Life style, and Belief System in the society	Serve the patient as an individual, considering lifestyle, beliefs and support system	Lecture	Head and neck and Special Senses	2	MCQ
Power Dynamics	Power dynamics, bullying, harassment, its influences on interrelationship	Avoids misuse of power for personal gains.	Lecture Group Discussion/ Role Play.	Head and neck and Special Senses	1	MCQ

9.2 CLINICAL SCIENCES SUBJECTS

HEAD AND NECK AND SPECIAL SENSES MODULE				
S. No	**Clinical Sciences Subjects**	**Learning Objectives**	**Hours**	**Learning Strategy**
1.	**ISLAMIC STUDY** Dealing with human tissues, cadavers and animals in medical practice, medical risks and Islamic concepts.	Describe the importance of respecting human body, organs and tissues in light of the Islamic teachings and medical ethics. Recognize the health risks in handling cadaveric / body tissues Demonstrate respect of human body, organs and tissues while studying medical sciences and managing patients.	1 1	Lecture Lecture
2.	**PAKISTAN STUDY**	Innovations in improving health care delivery – private public partnership Prevention of diseases - strategies – medical, surgical, trauma, obstetric	1 1	Lecture Lecture
3.	**ANAESTHESIA** Patient Preparation	Preparation of Patient for general anesthesia Patient fitness and necessary lab investigations prior to anesthesia Management of airway during general anesthesia	1 1 1	Lecture Lecture Lecture
4.	**CRITICAL CARE** Nutrition	Nutritional Therapy in critically ill Parentral and enteral nutrition in ICU	1 1	Lecture Lecture
5.	**ORTHOPAEDICS & TRAUMA**	Debridement and soft tissue handling Intra articular Injections Principles of traction Application POP application, principles and techniques	1 2 2 2	Lecture Skill session Skill session Skill session
6.	**FAMILY MEDICINE** Non Communicable Disease	Hypertension Diabetes Mellitus Dyslipidaemia	1 1 1	Lecture Lecture Lecture

10. TEACHING HOURS ALLOCATION

S. No	Subject	Hours	Practical Hours
1	Anatomy	53	10
2	Physiology	18	12
3	ENT	19	-
4	Ophthalmology	4	-
5	Biochemistry	2	-
6	Pharmacology	1	-
7	Pathology	1	-
8	CBL 3 (Anatomy)*	6	-
9	CBL 6 (Physiology)*	12	-
10	CBL 1 (Biochemistry)*	2	-
11	Radiology	1	-
12	Islamic Study	2	-
13	Pakistan Study	2	-
14	Anesthesia	3	-
15	Critical Care	2	-
16	Orthopaedics and Trauma	7	-
17	Family Medicine	3	-
	Total hours	**138**	**22**

*Minimum 2 hours are allotted for each CBL session per Module

S. No	Tagged Subject	Teaching Hours
1	Professionalism and Behavioral Sciences	3
	Total hours	**3**

11. EXAMINATION AND METHODS OF ASSESSMENT

11.1 EXAMINATION RULES AND REGULATIONS

- Student must report to examination hall/venue, in time for smooth conduction of the exams.
- No student will be allowed to enter the examination hall after 10 minutes of scheduled examination time.
- No students will be allowed to sit in exam without College ID Card, and Lab Coat
- Students must sit according to their roll numbers mentioned on the seats.
- Student must bring their own stationary items (Pen, Pencil, Eraser, and Sharpener) –Sharing is prohibited
- Any disturbance or Indiscipline in the exam hall/venue is not acceptable.
- Students must not possess any written material or communicate with their fellow students
- 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 student is allowed to leave the examination hall before half the time is over, paper is handed over to the examiner and properly marking the attendance**.

11.2 ASSESSMENT

11.2.1 Internal: Total 10% (20 marks)

- Students will be assessed comprehensively through multiple methods to determine achievement of module objectives through two methods: Module examination and Graded assessment by Individual department
    - **Module Examination**: It will be scheduled on completion of each module. The method of examination comprises theory exam (which includes SEQs and MCQs) and OSPE / OSCE exam (which includes static and interactive stations).
    - **Graded Assessment by individual department**: It includes weekly MCQs tests on Survive online LMS program, viva, practical, weekly theme based assignments, post-test discussion sessions, peer assessments, presentations, small group activities such as CBL, ward activities, examinations and log books, all of which have specific marks allocation.
- Marks of both modular examination and graded assessment will constitute 10% weightage.
- 10% marks of internal evaluation will be added to the ISU annual professional exam.
- The marks distribution is based on Formative Assessment done individually by all the concerned departments. It may include:
- NOTE: **at least 75% attendance is mandatory** to appear in the annual university examination.

- Exam branch is responsible to maintain the attendance record for Main Campus in coordination with all the concerned departments.

11.2.2 University Annual Exam: Total 90%

- Annual Exam has 90% marks in total
- It includes theory and OSPE / OSCE.
- Each written paper consists of 100 MCQs and 10 SEQs and internal assessment marks will be added tothe final marks.

11.3 METHODS OF ASSESSMENT

11.3.1 Multiple Choice Questions

- Single best type MCQs having five options with one correct answer and four distractors are part of assessment.
- Total 100 MCQs are included which are formulated through the table of specification from learning objectives of Module interactive lectures.
- Time duration for MCQs will be 1 and half hour.
- MCQs are used to assess objectives covered in each module.
- Students after reading the statement / scenarios select one appropriate response from the given options.
- Correct answer carries one mark, and incorrect will be marked zero. Rule of negative marking is not applicable.
- Students attempt the MCQs exam on Computer screen on Moodle / LMS program in IT Lab.

11.3.2 Short Essay Questions (SEQs):

- Short-answer questions are structured way of asking open-ended questions that require students to create their answers based on their knowledge.
- Commonly used in examinations to assess the depth of knowledge and understanding.
- Includes 10 questions each carrying 10 marks.
- Time Duration for Essay type paper is 2 hours.
- Questions are selected from the specific learning objectives of the specific ongoing module.

11.3.3 OSPE / OSCE

- Each student will be assessed on the same content and have same time to complete the task.
- Time allocated for each station is five minutes as per Examination rules of Ibn e Sina University, Mirpurkhas
- All students are rotated through the same stations.
- OSPE / OSCE Comprises of 15 - 20 stations.
- Each station may assess a variety of diagrammatic identifications and clinical tasks. These

tasks may include history taking, physical examination, skills and application of skills and knowledge

- Stations are Interactive, observed, unobserved (static) and rest stations.
  - Interactive Stations:
    - In this station, examiner ask questions related to the task within the allocated time.
  - Observed Stations:
    - In observed stations, internal or external examiner don't interact with candidate and just observe the performance of the skills or procedures.
  - Unobserved (static) Stations:
    - It will be static stations in which there may be models, specimens, multiple identification points, X-ray, Labs reports, flowcharts, pictures, or clinical scenarios (to assess cognitive domain) with related questions for students will be used to answer on the provided answer copy.
  - Rest station
    - It is a station where there is no task given and in this time student can organize his/her thoughts

11.3.4 ASSIGNMENTS

- An online assignment on the Ibn-e-Sina University moodle uploaded according to the topic of the week.
- All assignments should be checked by the teacher who has taken the lecture on the topic during the same week.
- The assignment should cover enough material to include the requirement of the curriculum and syllabus, so the student should be able to answer the annual examination questions by revising these notes (assignments) only.
- The assignments are checked and graded also with comment to guide, motivate and encourage the students to work whole heartedly. Frequent guidance and motivation will go a long way in improving the students' performance.
- Assignments of the whole Professional year MBBS are counted as in Internal Assessment.

11.3.5 WEEKLY TESTS

- The weekly tests are conducted for all classes. The tests are conducted online and are on topics displayed on the portal (Moodle). It consists of 35 MCQs. 5 MCQs will be from the previous weeks (slightly altered to change the answer or the right option). Everyone taking lectures, submit two MCQs to the Chairperson of the department who will check and pass them to the class moderator. MCQs can also be sent directly to the class moderator, who submits the MCQs to IT department for final placement on the moodle.

- The MCQs are not merely simple recall, but test higher level of cognition. As far as possible, they test an important concept related to one of the topics of the week.

- It is different from the summative assessment (Annual or Semester Examinations) in that the goal of summative assessment is to evaluate student's learning at the end of an instructional unit by comparing it against some standard or benchmark, to decide if the student can be

promoted or not, whereas the goal of these weekly tests is to check the understanding of the students on the important concepts related to the topics that have been displayed on the portal for the week, the teachers have taught them and the students have made assignments on them.

- Results of weekly tests of the whole Professional year MBBS are counted as in Internal Assessment.

11.3.6 POST-TEST DISCUSSION (PTD)

- Every student has to prepare a special assignment where he/she selects all the questions he/she got wrong. Then he/she makes 3 boxes. In box A he/she writes the questions he/she got wrong in his/her own words, highlighting and underlining the keywords. In box B the student explains why he/she has chosen this answer. In box C the student mentions what he/she has learnt after reading the explanation and how the concept has got clear now.
- The moderator will check, assess and grade PTD
- Next day, the class moderator of the class conducts a class where he/she discusses the mistakes committed and the post-test assignments submitted in detail with the class
- PTD assignments of the whole Professional year MBBS are counted as in Internal Assessment.

12. GRADING POLICY

Marks obtained in Percentage range	Numerical Grade	Alphabetical Grade
80-100	4.0	**A+**
75-79	4.0	**A**
70-74	3.7	**A-**
67-69	3.3	**B+**
63-66	3.0	**B**
60-62	2.7	**B-**
56-59	2.3	**C+**
50-55	2.0	**C**
<50 Non gradable	0	**N**

- A student obtaining GPA less than 2.0 (50%) is declared fail or Non gradable

13. ASSESSMENT BLUEPRINT

HEAD & NECK AND SPECIAL SENSES MODULE

Assessment is based on Table of Specification (TOS)

	ASSESMENT	TOOLS	MARKS
MODULE EXAM	THEORY	MCQ's	100
		SEQ's	100
	OSPE	OSPE Static	50
		OSPE Interactive	50
		Total	300

14. RECOMMENDED BOOKS

ANATOMY

- **CLINICALLY ORIENTED ANATOMY**

KEITH.L. MOORE, ARTHUR F. DALLEY, ANNE M.R. AGUR

7TH OR LATEST EDITION

- **GRAY'S ANATOMY FOR STUDENTS**

DRAKE & VOGL & MITCHELL

3RD OR LATEST EDITION

- **CLINICAL ANATOMY BY REGIONS (REFERENCE BOOK)**

RICHARD S. SNELL

9TH EDITION

- **LAST'S ANATOMY: REGIONAL & APPLIED (REFERENCE BOOK)**

CHUMMY S. SINNATAMBY

12TH OR LATEST EDITION

- **ATLAS OF HUMAN ANATOMY**

FRANK H. NETTER

6TH EDITION

EMBRYOLOGY

- **LANGMAN'S MEDICAL EMBRYOLOGY**

T.W. SADLER

13TH EDITION

- **THE DEVELOPING HUMAN CLINICALLY ORIENTED EMBRYOLOGY (REFERENCE BOOK)**

MOORE & PERSAUD & TORCHIA

10TH EDITION

HISTOLOGY

- **MEDICAL HISTOLOGY**

LAIQ HUSSAIN SIDDIQUI
5TH OR LATEST EDITION

- **WHEATERS FUNCTIONAL HISTOLOGY**

BARBARA YOUNG
5TH EDITION

- **BASIC HISTOLOGY (TEXT AND ATLAS) (REFERENCE BOOK)**

LUIZ JUNQUEIRA, JOSE CARNEIRO
11TH OR LATEST EDITION

PHYSIOLOGY

- **GUYTON AND HALL TEXTBOOK OF MEDICAL PHYSIOLOGY**

GUYTON AND HALL
13TH EDITION

BIOCHEMISTRY

- **LIPPINCOTT'S ILLUSTRATED REVIEWS SERIES**

DENISE R. FERRIER
6TH EDITION

- **HARPERS ILLUSTRATED BIOCHEMISTRY (REFERENCE BOOK)**

VICTOR RODWELL, DAVID BENDER, KATHLEEN M. BOTHAM, PETER J. KENNELLY, P. ANTHONY WEIL
28TH EDITION

COMMUNITY MEDCINE

- **PARK'S TEXTBOOK OF PREVENTIVE AND SOCIAL MEDICINE**

K. PARK
26TH EDITION

PATHOLOGY

- **ROBBINS & COTRAN PATHOLOGIC BASIS OF DISEASE**
  VINAY KUMAR, ABUL K. ABBAS, JON C. ASTER
  10TH EDITION

PHARMACOLOGY

- **LIPPINCOTT ILLUSTRATED REVIEWS: PHARMACOLOGY**
  KAREN WHALEN, CARINDA FEILD, RAJAN RADHAKRISHNAN
  7TH EDITION

IBN-E-SINA UNIVERSITY MIRPURKHAS
FACULTY OF BASIC MEDICAL SCIENCES

Course Feedback Form

Course Title: _____

Semester/Module_____ Dates:_____

Please fill the short questionnaire to make the course better.

Please respond below with 1, 2, 3, 4 or 5, where 1 and 5 are explained.

THE DESIGN OF THE MODLUE

A. Were objectives of the course clear to you? Y ☐ N ☐

B. The course contents met with your expectations
l. Strongly disagree 5. Strongly agree ☐

C. The lecture sequence was well-planned
l. Strongly disagree 5. Strongly agree ☐

D. The contents were illustrated with
l. Too few examples 5. Adequate examples ☐

E. The level of the course was
l. Too low 5. Too high ☐

F. The course contents compared with your expectations
l. Too theoretical 5. Too empirical ☐

G. The course exposed you to new knowledge and practices
l. Strongly disagree 5. Strongly agree ☐

H. Will you recommend this course to your colleagues?
l. Not at all 5. Very strongly ☐

THE CONDUCT OF THE MODLUE

A. The lectures were clear and easy to understand
l. Strongly disagree 5. Strongly agree ☐

B. The teaching aids were effectively used
l. Strongly disagree 5. Strongly agree ☐

C. The course material handed out was adequate
l. Strongly disagree 5. Strongly agree ☐

D. The instructors encouraged interaction and were helpful
l. Strongly disagree 5. Strongly agree ☐

E. Were objectives of the course realized? Yes ☐ No ☐

F. Please give overall rating of the course

90% - l00%	( )	60% - 70%	( )
80% - 90%	( )	50% - 60%	( )
70% - 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

Please comment on the weaknesses of the course and the way it was conducted.

Please give suggestions for the improvement of the course.

Optional - Your name and contact address:

Thank you!!

IBN-E-SINA UNIVERSITY MIRPURKHAS

STUDENT'S STUDY GUIDE
NERVOUS SYSTEM-I MODULE
SECOND PROFESSIONAL MBBS



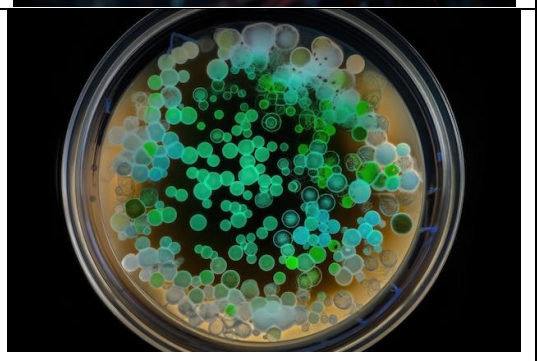




TABLE OF CONTENTS

1. DISCLAIMER

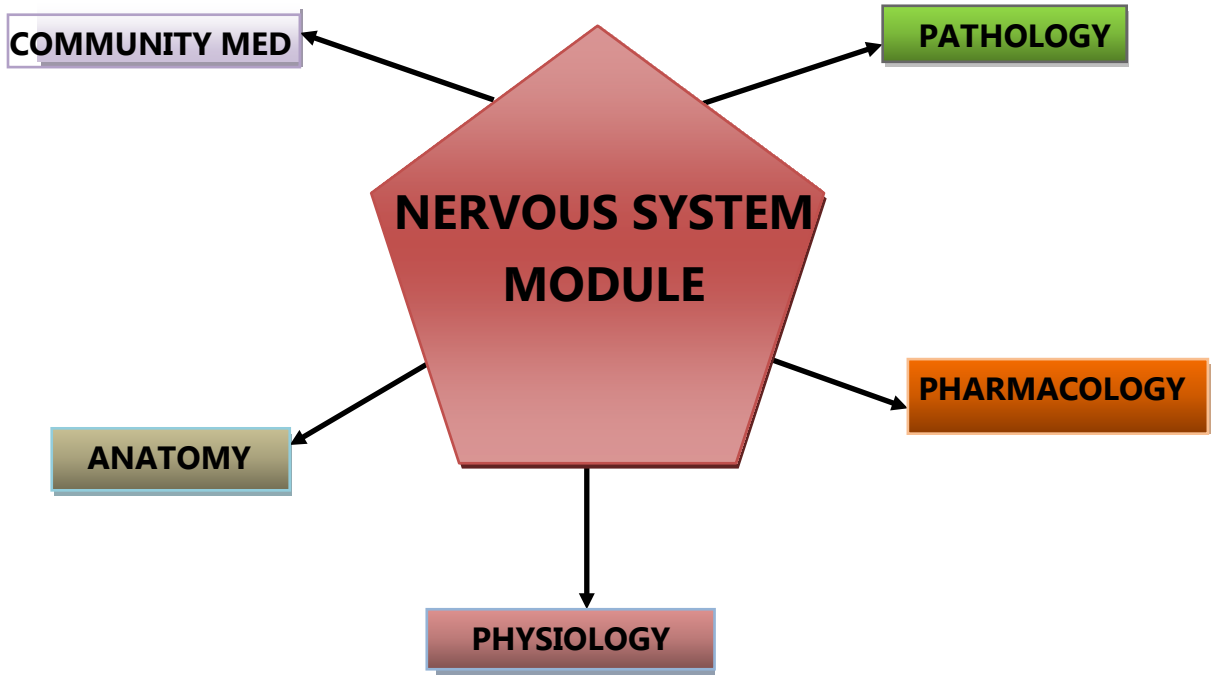
- Developing a study guide is a dynamic process and undergoes iteration according to the needs and priorities.
- This study guide is subjected to the change and modification over the whole academic year.
- However, students are advised to use it as a guide for respective modules.
- The time tables are for guiding purpose. It is to advise that final timetables are always displayed over the notice boards of each lecture hall.
- Students are encouraged to provide feedback via coordinator

2. CURRICULUM FRAMEWORK

An educational strategy known as integrated curriculum places a strong emphasis on interdisciplinary learning, in which students gain knowledge by integrating it from several topic areas. By integrating many subjects and disciplines into a cohesive curriculum, this method seeks to give students a more relevant and interesting learning experience. Integrated curriculum means that subjects are presented as a meaningful whole for better understanding of basic sciences in relation to clinical experience and application.

Integrated curriculum comprises of system-based modules such as Head & neck and special senses, Nervous System-I, Git and Liver-I, Endocrinology-I, Renal & Excretory-I and Reproductive System-I modules which link basic science knowledge to clinical problems.

INTEGRATING DISCIPLINES OF NERVOUS SYSTEM-I MODULE



3. MODULE OVERVIEW

NERVOUS SYSTEM-I MODULE DETAILS

Course	MBBS
Year	Second professional
Duration	5 weeks
Learning Outcomes	The competent Medical Practitioner
Competencies covered	To develop medical professionals who are well - versed, adept, and have the right mindset.
Module Assessment	End module formative assessment
Teaching Methods	Interactive Lectures, Demonstrations, Case Based Learning, Practical Lab, Small Group Discussions, Self-Study Sessions, E-Learning, Clinical rotations
Assessment Methods	MCQs, SEQs, OSPE, VIVA

NERVOUS SYSTEM-I MODULE COMMITTEE

Sr. No	Names	Department	Designation
MODULE COORDINATOR			
1.	Dr. Saqib Baloch	Anatomy	Assistant Professor
2.	Dr. Shahab Hanif	Anatomy	Assistant Professor
COMMITTEE MEMBERS			
1.	Prof: Dr. Syed Razi Muhammad	Surgery	Chancellor ISU
2.	Prof: Dr. Shams Ul Arfeen Khan	Biochemistry	Vice Chancellor ISU
3.	Prof: Dr. Aijaz Ahmed Memon	Surgery	Pro Vice Chancellor ISU

4. WHAT IS STUDY GUIDE

It is an aid to Inform students how student learning program of the module has been organized, tohelp students organize and manage their studies throughout the module and 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.

Module objectives.

— Provides a list of learning resources such as books, computer-assisted learning programs, weblinks, and journals, for students to consult in order to maximize their learning.

— Highlights information on the contribution of continuous on the student's overall performance.

— Includes information on the assessment methods that will be held to determine every student's performance.

Achievement of objectives.

- Focuses on information pertaining to examination policy, rules and regulations.

5. LEARNING METHODOLOGIES

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

- Interactive Lectures
- Small Group Discussion
- Case- Based Learning (CBL)
- Skills session
- Practicals
- Self-Directed Study

- **INTERACTIVE LECTURES:**

  Large group discussions are not the same as traditional lecture formats. When a teacher or instructor uses images, radiographs, patient interaction recordings, etc. to discuss a topic or typical clinical scenario, the lecture becomes interactive. When they are given tiny activities to do that allow them to apply the knowledge they have learned throughout the session and are asked questions, students actively participate in the learning process.

- **SMALL GROUP DISCUSSIONS (SGDS):**

  With the use of SGD, students can take an active role in their education, clarify ideas, develop psychomotor skills, and develop a positive attitude. Discussion themes, patient interviews, and clinical cases are used to design sessions in an organized manner. Pupils are inspired to express their ideas, apply the fundamental knowledge they have learned from lectures and independent study, and are encouraged to share their notions. In small groups, role play is a useful technique for acquainting pupils with real-world scenarios. Probing questions, rephrasing, and summarizing are used by the teacher to assist make the concepts obvious.

- **CASE-BASED LEARNING (CBL):**

  Learning is centered around a sequence of questions based on a clinical scenario in this small group discussion format. Students create new information by discussing and responding to the questions using pertinent prior knowledge from the clinical and fundamental health sciences modules. The relevant department will give the CBL.

- **SKILL SESSIONS:**

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

- **PRACTICALS:**

  Basic science practical related to Anatomy, Physiology and Biochemistry have been schedule for student learning.

- **SELF STUDY:**

  Self-directed learning is a process in which students take charge, either on their own or with assistance from others. Students chart their learning objectives and determine their areas of need for learning. They select and employ their own learning methodologies, and they independently assess the learning objectives.

6. INTRODUCTION

This is the neurology module. Welcome. This amazing module will be crucial to your future careers as physicians. With its interactive exercises, this module aims to make learning engaging and effective for you. By combining the teaching of the anatomy, physiology, and function of various nervous system structures with the biochemistry of neurotransmitters, which will be studied and evaluated collectively (Horizontal Integration), this module offers a basic understanding. It also covers the fundamental pharmacology and pathology related to disorders of the central and peripheral nervous systems, as well as their pertinent clinical applications (Vertical Integration).

We are better preparing you for your future work as a doctor by using this technique, since patients will come to you with issues that are not labeled according to a specific discipline.
We have revised the fundamental science curriculum to center it around a few significant health-related scenarios (real-life events) that second-year medical students are likely to face in order to support your integrated learning. To help you understand the material and learn more effectively, you will be required to consider the situations and take part in case-based learning sessions. It will also assist you in concentrating on the goals you have set for yourself in relation to the lectures, exercises, and tutorials that are scheduled for this module.

6.1 RATIONALE

Nervous system disorders are widespread worldwide. Morbidity and death are avoided when acute central nervous system issues, such as infections and cerebrovascular accidents, are diagnosed and treated promptly. To lessen the incidence of disability burden on the community, early diagnosis and timely treatment of degenerative and demyelinating disorders, such as multiple sclerosis and Parkinson's disease, are crucial. Diagnosis and treatment of diseases depend on an understanding of the anatomy, physiology, and interaction between the nervous system and disease pathogenesis.

6.2 IBN E SINA UNIVERSITY (ISU) VISION:

To become a world-leading organization in rural health and social care research, training, recruitment and best evidence-based practice.

6.3 IBN E SINA UNIVERSITY (ISU) MISSION:

Our Mission is to inspire hope, and contribute to health and well-being by providing the best care to every patient through integrated clinical practice, education and research. To provide a focal point for the development and collation of high-quality research pertinent to rural health and wellbeing. To improve the training, recruitment and retention of a professional workforce within rural communities. To be recognized as an exemplar in rural health and wellbeing on the international stage. To establish a network of individuals and groups that support research, innovation and development in rural health and social care.

7. LEARNING OBJECTIVES

7.1 Knowledge / Cognitive Domain

It involves knowledge and the development of intellectual skills. By the end of this module, the students should be able to:

1. Understand the major divisions and functions of the central, peripheral, and autonomic nervous systems.
2. Acknowledge the major divisions, components, and roles of the central, peripheral, and autonomic nervous systems, including the hypothalamus.
3. Analyze the different clinical manifestations of illnesses affecting the spinal cord in relation to its anatomy, organization, and function.
4. Determine the location of common lesions in the brain stem and cranial nerves by identifying the structure of the brainstem and the corresponding cranial nerves.
5. Recognize the differences between upper and lower motor neuron lesions and pyramidal and extrapyramidal disorders based on your understanding of the types and structures of fiber bundles that run through your brain and their respective roles.
6. By recognizing the surfaces, lobes, sulci, and gyri of each cerebral hemisphere, one can distinguish between the functions of the dominant and non-dominant hemispheres as well as between different regions within each hemisphere.
7. Establish a relationship between the topographic structure and function of basal nuclei and the clinical manifestation of Parkinson's disease.
8. Remember the structure and functioning of the limbic system to better understand the changes in behavior, emotions, and personality.
9. Examine the effects of elevated intracranial pressure in relation to the ventricular system, the structure of the cranio-spinal meninges, and the processes involved in the creation, flow, drainage, and chemistry of CSF in both healthy and pathological conditions.
10. Connect the various brain ischemia and ischemic myelopathy syndromes to the brain and spinal cord's vascular supply pattern and your understanding of the blood-brain barrier.
11. Use your understanding of venous drainage and dural venous sinuses to identify the consequences of venous stasis and obstruction.
12. Recognize different congenital brain and spinal cord malformations by understanding the embryological basis of neurulation, the neural tube's metamorphosis into the central nervous system, and any defects that arise during these processes.
13. Determine the neuro-anatomic cause of incoordination and ataxia by using your understanding of the cerebellar cortex, nuclei, and peduncles.
14. Describe the general structure of the nervous system as well as the anatomy of the brain and spinal cord.
15. Examine the nerve system's physiology and the neuro-metabolites' biochemistry.

16. Describe the mechanisms of cerebral bleeding, ischemia, hypoxia, and infarction.
17. Describe the strategy for a patient with neurologic symptoms and its screening.

7.2 Skills / Psychomotor Domain:

Includes physical movement, co-ordination and the use of motor skill areas. For this Module, these include:

1. Identification of nerve tissues using points of identification under a microscope. (In their histology journals, students must sketch and label microscopic slides of nervous system components. The journal will be evaluated at the end of the module.)
2. Conduct a clinical nervous system evaluation.
3. Perform various cranial nerves examination
4. Examine a patient with cerebellar disorders

7.3 Attitude / Affective Domain:

It Involves our feelings, emotions and attitudes. By the end of this module, the students should be able to:

1. Comply with standard laboratory procedures
2. Engage in professional classroom and practical work.
3. Work as a team to effectively communicate with instructors, staff, and pears.
4. Act with professionalism and moral principles when interacting with teachers, personnel, cadavers, and patients.
5. Work well as a team to communicate with instructors and pears.
6. Show that you have the capacity to evaluate your performance.

7.4 Outcomes of Nervous System-I Module

1. Knowledgeable
2. Skillful
3. Community Heath Promoter
4. Problem-solver
5. Professional
6. Researcher
7. Leader and Role Model

8. THEMES FOR NERVOUS SYSTEM MODULE

SNO	Theme	Duration
1	**Lower motor neuron lesions & the corticospinal tracts**	2 week
2	**Gait abnormalities and the thalamic disorders**	2 week
3	**Upper motor neuron lesions & the Parkinson's disease**	1 week

9. SPECIFIC LEARNING OBJECTIVES THEME WISE

THEME 1: LOWER MOTOR NEURON LESIONS & THE CORTICOSPINAL TRACT

NERVOUS SYSTEM MODULE				
S. NO	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
		NEUROANATOMY		
01	**Describe organization and components of Nervous System.** **Describe the parts of Brain and Spinal cord.** **Describe the components of Peripheral Nervous System.** **Describe the cranial and spinal nerves.** **Describe the components of Autonomic Nervous System.** **Associated clinical correlates and Imaging techniques.**	**NS-ANA-G-1** Introduction to Nervous System	Interactive Lecture	BCQs, SAQs, OSPE, Viva
02	**Describe external & internal morphology of spinal cord.** **Clinical correlates**	**NS-ANA-G-2** Structure of the Spinal cord	Interactive Lecture	BCQs, SAQs, OSPE, Viva
03	Describe different nuclei in three columns of spinal cord Clinical correlates	**NS-ANA-G-3** Nuclei of the Spinal cord	Interactive Lecture	BCQs, SAQs, OSPE, Viva
04	Describe Ascending and descending tracts. Clinical correlates	**NS-ANA-G-4** The Ascending and descending tracts of the Spinal cord	Interactive Lecture	BCQs, SAQs, OSPE, Viva
05	Describe the detailed Anatomy of medulla oblongata Describe External & Internal structure at four different levels Explain the Applied anatomy of medulla oblongata	**NS-ANA-G-5** Introduction to Brainstem (Anatomy of the Medulla Oblongata)	Interactive Lecture	BCQs, SAQs, OSPE, Viva
06	Describe the detailed Anatomy of Pons Describe External & Internal structure at two different levels of Pons Explain the Applied anatomy of Pons	**NS-ANA-G-6** Anatomy of the Pons	Interactive Lecture	BCQs, SAQs, OSPE, Viva
07	Describe the detailed Anatomy of Midbrain Describe External & Internal structure at two different levels of Midbrain Explain the Applied anatomy of Midbrain	**NS-ANA-G-7** Anatomy of the Midbrain	Interactive Lecture	BCQs, SAQs, OSPE, Viva

08	Describe the development of neural tube, and neural crest cells and their derivatives.	**NS-ANA-E-1** Development of neural tube	Interactive Lecture	BCQs, SAQs, OSPE,
09	Describe the development of spinal cord. Describe the derivatives of alar & basal plates Development of neurons, neuroglial cells and spinal nerves Explain the positional changes of spinal cord. Clinical correlates of neural tube	**NS-ANA-E-2** Development of spinal cord	Interactive Lecture	BCQs, SAQs, OSPE,
10	Describe the nervous tissue Define neuron, its structure and function & types of neurons Define neuroglia, their types and functions	**NS-ANA-H-1** Histology of the Nervous tissue (Types of Neuron and neuroglia)	Interactive Practical	BCQs, SAQs, OSPE, Viva
11	Describe the histological features of peripheral nerve and ganglia	**NS-ANA-H-2** Peripheral nerve and Ganglia	Interactive Practical	BCQs, SAQs, OSPE, Viva
NEURO-PHYSIOLOGY				
12	Definition & Organization of the nervous system Know about Physiological division of nervous system Determine Levels of nervous system	**NS-PHYS-1** Nervous system – overview	Interactive Lecture	BCQs, SEQs, OSPE, Viva
13	Discuss electrical properties of neuron Discuss generation of action potential conduction across the neuronal membrane and transmission of nerve signals List functions of neuroglial cells Discuss synthesis and physiology of cerebro spinal fluid (CSF) Define Myelin sheath Define Salutatory conduction Regeneration of nerve fibre Blood brain barrier	**NS-PHYS-2** Neurons and Neuroglias	Demonstration	BCQs, SEQs, OSPE, Viva
14	Define Synapse, types and properties of synapse Determine Structure of synapses Discuss transmission of electrical signals between neurons	**NS-PHYS-3** Synapses and neural integration	Interactive Lecture	BCQs, SEQs, OSPE ,Viva
15	Define Plan of sensory system Describe general characteristics of	**NS-PHYS-4** **Spinal**	Interactive Lecture	BCQs, SEQs, OSPE ,Viva

	Receptors Classify receptors according to location and Modalities of sensation. Define receptor potential and transduction Define Touch & its receptors Define Pressure & its receptors Define Vibration & its receptors Define Tickle & itch, its receptors	**Sensory/Somatic system and Receptors**		
16	List different types of sensory pathway, their location, tracts, sensory modalities and receptors. Discuss dorsal column medial laminiscal system, its location, receptors, tracts and sensory modalities. Discuss Antero-lateral system (spino-thalamic), its location, receptors, tracts and sensory modalities.	**NS-PHYS-5** Sensory /Ascending pathways **(DCMLP)** (Anterio lateral pathway)	Demonstration	BCQs, SEQs, OSPE ,Viva
17	To perform superficial & deep reflexes and its significance in different neurological disorders. To perform Corneal reflexes To perform Abdominal reflexes To perform Plantar reflexes To perform superficial deep reflexes and its significance	**NS-PHYS-6** Superficial reflexes and deep reflexes	Interactive Practical	BCQs, SEQs, OSPE, Viva
PHARMACOLOGY				
18	Define sedative and hypnotics Classify the drugs Discuss their mechanism of action Enlist the therapeutic uses of the drugs	**NS-Phar-1** Sedative and hypnotics	Interactive Lecture	BCQs, SAQs, OSPE, Viva
19	Classify the drugs Discuss their mechanism of action Enlist the therapeutic uses of the drugs	**NS-Phar-2** Opioid agonist and antagonist	Interactive Lecture	BCQs, SAQs, OSPE, Viva
PATHOLOGY				
20	Enlist the causes of meningitis. Discuss the CSF findings of different types of meningitis	**NS-Patho-1** Meningitis	Interactive Lecture	BCQs, SAQs, OSPE, Viva
COMMUNITY MEDICINE				
21	To discuss the epidemiology of rabies. Describe agent, host environment factors and modes of transmission. To discuss the prevention and control measures of rabies	**NS-CM-1** Rabies	Interactive Lecture	BCQs, SAQs, OSPE, Viva

THEME 2: GAIT ABNORMALITIES AND THE THALAMIC DISORDERS

S. NO	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESS MENT
	NEUROANATOMY			
22	Describe the detailed Anatomy of cerebellum Explain the anatomical & physiological divisions of cerebellum Discuss characteristic features of cerebellar cortex; gray matter, white matter & deep cerebellar nuclei.	**NS-ANA-G-8** Anatomy of the cerebellum-I	Interactive Lecture	BCQs, SAQs, OSPE, Viva
23	Explain connections of cerebellar cortex and deep cerebellar nuclei. Clinical correlates.	**NS-ANA-G-9** Anatomy of the cerebellum-II	Interactive Lecture	BCQs, SAQs, OSPE, Viva
24	Describe the structure of Diencephalon Describe divisions of Diencephalon (thalamus, hypothalamus, subthalamus, epithalamus) Explain the boundaries of diencephalon and 3rd ventricle	**NS-ANA-G-10** Introduction to Diencephalon-1	Interactive Lecture	BCQs, SAQs, OSPE, Viva
25	Narrate the functions, nuclei and connections of Thalamus. Narrate the functions, nuclei and connections of Epithalamus, subthalamus and third ventricle. Narrate the functions, nuclei and connections of hypothalamus. Clinical correlates.	**NS-ANA-G-11** Introduction to diencephalon-II (Thalamus and hypothalamus)	Interactive Lecture	BCQs, SAQs, OSPE, Viva
26	Identify the location, components & connections of limbic system. Describe clinical aspects related to limbic system.	**NS-ANA-G-12** The reticular formation and Limbic system	Interactive Lecture	BCQs, SAQs, OSPE, Viva
27	Describe topographical anatomy of cerebral gray matter, gyri, sulci and lobes of cerebral hemispheres Describe the surfaces of cerebral cortex; superolateral, inferior and medial along with specific lobes present in them.	**NS-ANA-G-13** The Cerebrum-I	Interactive Lecture	BCQs, SAQs, OSPE, Viva
28	Describe the development of medulla oblongata Describe the development of pons Describe the development of cerebellum. Describe the development of midbrain	**NS-ANA-E-3** Development of Hind brain (Myelencephalon Metencephalon and mesencephalon)	Interactive Lecture	BCQs, SAQs, OSPE, Viva

29	Describe the development of thalamus Describe the development of hypothalamus To understand the development of pituitarygland	**NS-ANA-E-4** Development of Diencephalon, Optic structures & Hypophysis	Interactive Lecture	BCQs, SAQs, OSPE, Viva
30	Describe white matter.Describe Gray Matter. Identify structures in the gray and white matter.	**NS-ANA-H-3** Histology of the Spinal Cord	Interactive Practical	BCQs, SAQs, OSPE, Viva
NEUROPHYSIOLOGY				
31	Define Pain Types, qualities and receptors Which Pathways are involved, discuss dual pathways for transmission of pain signals into CNS Define Analgesic system of brain & its physiological role What is Referred pain, differentiate btwsomatic & Visceral pain Define Methods of analgesia What are Pain abnormalities Define Hyperalgesia List pain suppression and brain opoid system. Define Headache, types and patho-physiology	**NS-PHYS-7** Pain pathways & Analgesic pathway	Interactive Lecture	BCQs, SAQs, OSPE, Viva
32	Describe Scheme of motor activity & Motor areas of the cerebral cortex To explain the motor function of spinal cord. To explain the structure & function of musclespindle. To determine the muscle, stretch reflex & its clinical applications. To explain the mechanism of Golgi tendon reflex. & its significance in controlling motoractivities. Define brown-sequard syndrome & its pathophysiology. Describe the physiology of CSF synthesis, list functions of CSF and its importance.	**NS-PHYS-8** Spinal level of Motor control & CSF	Demonstration	BCQs, SAQs, OSPE, Viva
33	To perform superficial deep reflexes and its significance	**NS-PHYS-9** Deep reflexes	Interactive Practical	BCQs, SEQs, Structured Viva
34	Define Pyramidal tracts features & itsPathway, What are lesions of UMN & clinical correlates	**NS-PHYS-10** Descending pathways-1 (Pyramidal Tract)	Interactive Lecture	BCQs, SEQs, Structured Viva

35	Define Extra pyramidal tracts features & its Pathway What are Lesions of LMN & its clinical correlates Differentiate btw Decerebrate & decorticate rigidity	**NS-PHYS-11** Descending pathways-2 (Extrapyramidal Tract)	Interactive Lecture	BCQs, SEQs, Structured Viva
36	Give the special features of cerebellum Name its physiological divisions & their function Explain the internal neuronal circuit of cerebellum and its functioning Describe the features of cerebellar lesions	**NS-PHYS-12** Cerebellum & its lesion	Interactive Lecture	BCQs, SEQs, Structured Viva
37	To perform cerebellar function tests and to identify associated disorders.	**NS-PHYS-13** Cerebral function tests	Interactive Practical	BCQs, SEQs, OSPE, Viva
PHARMACOLOGY				
38	Define epilepsy and seizures Tell the difference between epilepsy and seizures Discuss the etiology of epilepsy Elaborate the types of epilepsy Classification of anti-epileptic drugs Discuss the side effects of anti-epileptic drugs Identify the Possible mechanism of action of anti-epileptics	**CNS-Phar-3** Anti-Epileptic Drugs	Interactive Lecture	BCQs, SAQs, OSPE, Viva
39	Describe stages of general anesthesia and the anesthetic agents used Define the mode of action of different general anesthetics Classify local anesthetic drugs Define the mode of action of different local anesthetics Recognize complications related to different agents.	**CNS-Phar-4** Drugs Of General & Local Anesthesia	Interactive Lecture	BCQs, SAQs, OSPE, Viva
COMMUNITY MEDICINE				
40	To define diphtheria Describe agent, host environment factors and modes of transmission. To discuss the epidemiology and prevention of diphtheria	**CNS-CM-2** Diphtheria	Interactive Lecture	BCQs, SAQs, OSPE, Viva

THEME 3: UPPER MOTOR NEURON LESIONS & THE PARKINSON'S DISEASE

S. NO	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
	NEUROANATOMY			
41	Explain the dominance & non-dominance correlation with structure & functions of cerebral cortex Describe functional areas of cerebral cortex Discuss lesions of functional areas of cerebral cortex	**NS-ANA-G-11** Introduction to cerebral hemispheres-II (Functional areas)	**Interactive** Lecture	BCQs, SAQs, OSPE, Viva
42	Describe different types of fibers in cerebral hemisphere; association, projection & commissural fibers. Explain parts of corpus callosum and fornix. Name the parts and tracts of internal capsule. Blood supply of internal capsule Clinical correlates.	**NS-ANA-G-12** Introduction to cerebral hemispheres-III (White matter)	Interactive Lecture	BCQs, SAQs, OSPE, Viva
43	Identify the location and components of basal nuclei. Explain the connections of basal nuclei. Describe clinical aspects related to basal nuclei.	**NS-ANA-G-13** Basal nuclei and their connections	Interactive Lecture	BCQs, SAQs, OSPE, Viva
44	Define the organization, connections and distribution of the cranial nerves from cranial nerve-I to VI Clinical correlates	**NS-ANA-G-14** Cranial nerve Nuclei and their central connections-1	Interactive Lecture	BCQs, SAQs, OSPE, Viva
45	Define the organization, connections and distribution of the cranial nerves from cranial nerve-VII-XII Clinical correlates	**NS-ANA-G-15** Cranial nerve nuclei and their central connections-2	Interactive Lecture	BCQs, SAQs, OSPE, Viva
46	Describe and identify the layers of cerebellar cortex Describe and identify the cells of cerebellar cortex	**NS-ANA-H-3** Histology of Cerebellar Cortex	Interactive Practical	BCQs, SAQs, OSPE, Viva
47	Describe the organization and division of the autonomic nervous system. Define preganglionic and post ganglionic sympathetic and parasympathetic fibers	**NS-ANA-G-16** The Autonomic nervous system	Interactive Lecture	BCQs, SAQs, OSPE, Viva

48	Identify the ventricles of brain along with their location; Lateral, 3RD & 4TH ventricles of brain +choroid plexus Explain the normal CSF secretion and circulation. Define the Blood brain barrier	**NS-ANA-G-17** Ventricular System	**Interactive** Lecture	BCQs, SAQs, OSPE, Viva
49	Describe division of the arterial system intoCarotid & Vertebral Systems Identify areas of brain supplied by different branches of these arterial systems & blood supplyof areas other than cerebral cortex Explain applied aspects related to the blockage &Hemorrhage of blood vessels supplying brain & spinal cord.	**NS-ANA-G-18** Blood supply of brain and spinal cord	**Interactive** Lecture	BCQs, SAQs, OSPE, Viva
50	Describe the development of cerebral hemispheres Describe the development of basal nuclei	**NS-ANA-E-5** Development of Telencephalon	Interactive Lecture	BCQs, SAQs, OSPE,
51	Mention the development of cranial nerves To understand the functional components ofvarious cranial nerves. Describe the congenital defects of brain	**NS-ANA-E-6** Development of Cranial nerves and autonomic nervous system	Interactive Lecture	BCQs, SAQs, OSPE, Viva
52	Explain and identify the different types of cells of cerebral cortex Describe and identify the layers of cerebral cortex	**NS-ANA-H-4** Histology of cerebral cortex	Interactive Practical	BCQs, SAQs, OSPE, Viva
NEUROPHYSIOLOGY				
53	Name the basal ganglia List the functions of basal ganglia Describe the functions of caudate & putamen circuits Describe the lesions of basal ganglia (Parkinson'sdisease)	**NS-PHYS-14** Basal nuclei and its' diseases	Interactive Lecture	BCQs, SEQs, OSPE ,Viva
54	To explain vegetative functions of hypothalamusTo explain the different functions of limbic system To mention the role of hypothalamus in limbic system. To explain the functions of reward andpunishment centers. To elaborate the functions of hippocampus and amygdala. To describe the effects of kluver-Bucy syndrome.	**NS-PHYS-15** Hypothalamus & Limbic System	Demonstration	BCQs, SEQs, OSPE ,Viva

55	To examine body temperature and to related abnormalities	**NS-PHYS-16** Body temperature	interactive practical	

56	To explain the physiology of slow wave sleep & rapid eye movement (REM)sleep. To explain the basic theories of sleep Describe the names & origin of brain waves. Describe epilepsy & clinical correlates	**NS-PHYS-17** Sleep & its disorders	Interactive Lecture	BCQs, SEQs, Structured Viva
57	Define memory Give various types of memory & theirimportance Describe neural mechanism involved in memoryGive disorders of memory (Alzheimer's disease)Define speech Name motor and sensory cortical areas of speech& their function Describe speech disorders	**NS-PHYS-18** Memory & Speech and its disorders	Demonstration	BCQs, SEQs, Structured Viva
58	Define following terms & their physiological importance: Preganglionic &Postganglionic Sympathetic & Parasympathetic Define Dual innervations of visceraAdrenal medulla Define Sympathetic discharge Differentiate btw Receptors, Neurotransmitters& drugs	**NS-PHYS-19** Autonomic nervous system	Demonstration	BCQs, SEQs, Structured Viva
59	To examine brain waves with the help of power lab.	**NS-PHYS-20 EEG**	Interactive Practical	BCQs, SAQs,
PHARMACOLOGY				
60	List three different classes of antipsychotic drugsand describe the main pharmacological effects they produce Describe the common adverse effects and specific neurological conditions caused byantipsychotic drugs	**NS-Phar-5** Anti-Psychotic Drugs	Interactive Lecture	BCQs, SAQs, OSPE, Viva
61	Classification of anti-depressants Discuss the signs and symptoms of depression Enlist the differential diagnosis Discuss the possible Causes of this disorder Describe the management options and treatment	**NS-Phar-6** Anti-Depressants	Interactive Lecture	BCQs, SAQs, OSPE, Viva
COMMUNITY MEDICINE				
62	To define Tetanus Describe agent, host and modes of transmission. To discuss the epidemiology and prevention of tetanus	**NS-CM-3** Tetanus	Interactive Lecture	BCQs, SAQs, OSPE, Viva

RADIOLOGY				
63	Interpretate the Normal CT Scan of Brain Identify the ventricle, skull, brain tissue, orbits and eyeballs.	**NS-Radio-3** CT scan of Brain	Interactive Lecture	BCQs, OSPE, Viva

9.1 TAGGED SUBJECTS

Topic	Contents	Learning Objectives	Teaching Method	Module	Hours	Assessment
PROFESSIONALISM AND BEHAVIORAL SCIENCES						
Social accountability	Definition and concept of social accountability	Describe the concept of social accountability	Lecture/ Small group Teaching	Neurosciences	1	MCQ
Mental illness	Definition, types, components, theoretical background	Define mental illness, its importance, impact, and prevention	Lecture/ Small group Teaching	Neuroscience	1	MCQ
Social psychology, health& terrorism	Definition, types, components, theoretical background	Describe social psychology, and its relation on health and terrorism	Lecture	Neurosciences	1	MCQ
RESEARCH						
Qualitative research methodology	Introduction to qualitative research methodology	Describe qualitative research methodology.	Lecture/ Group Discussion	Neurosciences	3	MCQs/Assignment

9.2 CLINICAL SCIENCES SUBJECTS

Nervous system				
S. No	**Clinical Sciences Subjects**	**Learning Objectives**	**Hours**	**Learning Strategy**
1.	**ISLAMIC STUDY** Ethical issues in organ transplantation Research: its importance and need	Evaluate the various ethical issues involved in organ transplantation in light of the Islamic Perspective Recognize the Importance of research in national development. Explain the importance of research according to the teachings of the Holy Quran and Sunnah.	1 1	Lecture Lecture
2.	**PAKISTAN STUDY**	Awareness campaigns Role of WHO	1 1	Lecture Lecture
3.	**ANAESTHESIA** Regional Anesthesia	Describe the basic principles of regional anesthesia Anatomy of Spinal Space Discuss Spinal and epidural methods Discuss complications of spinal and general anesthesia	1 1 1 1	Lecture Lecture Lecture Lecture
4.	**CRITICAL CARE** Neurology	Evaluation of a patient with altered consciousness in ICU Metabolic Encephalopathy Cerebrovascular disease Status epilepticus	1 1 1 1	Lecture Lecture Lecture Lecture
5.	**ORTHOPAEDICS & TRAUMA** Grafting	Skin grafting Biopsy Bone Grafting	1 1 1	Lecture Lecture Lecture
6.	**Family Medicine** Common Mental Health Problems	Anxiety, Depression, Dementia and Psychosis Psychotherapy / Counseling Acute Mental Health presentations	1 1 1	Lecture Lecture Lecture

10. TEACHING HOURS ALLOCATION

S. No	Subject	Hours	Practical Hours
1	Anatomy	27	8
2	Physiology	26	6
3	Pharmacology	6	-
4	Community Medicine	3	-
5	Pathology	1	-
6	CBL 2 (Anatomy)*	4	-
7	CBL 5 (Physiology)*	10	-
8	Radiology	1	-
9	Islamic Study	2	-
10	Pakistan Study	2	-
11	Anesthesia	4	-
12	Critical Care	4	-
13	Orthopaedics & Trauma	3	
14	Family Medicine	3	-
	Total hours	**96**	**14**

*Minimum 2 hours are allotted for each CBL session per Module

S. No	Tagged Subject	Teaching Hours
1	Professionalism and Behavioral Sciences	3
2	Research	3
	Total hours	**6**

11. EXAMINATION AND METHODS OF ASSESSMENT

11.1 EXAMINATION RULES AND REGULATIONS

- Student must report to examination hall/venue, in time for smooth conduction of the exams.
- No student will be allowed to enter the examination hall after 10 minutes of scheduled examination time.
- No students will be allowed to sit in exam without College ID Card, and Lab Coat
- Students must sit according to their roll numbers mentioned on the seats.
- Student must bring their own stationary items (Pen, Pencil, Eraser, and Sharpener) –Sharing is prohibited
- Any disturbance or Indiscipline in the exam hall/venue is not acceptable.
- Students must not possess any written material or communicate with their fellow students
- 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 student is allowed to leave the examination hall before half the time is over, paper is handed over to the examiner and properly marking the attendance.**

11.2 ASSESSMENT

11.2.1 Internal: Total 10% (20 marks)

- Students will be assessed comprehensively through multiple methods to determine achievement of module objectives through two methods: Module examination and Graded assessment by Individual department
    - **Module Examination**: It will be scheduled on completion of each module. The method of examination comprises theory exam (which includes SEQs and MCQs) and OSPE / OSCE exam (which includes static and interactive stations).
    - **Graded Assessment by individual department**: It includes weekly MCQs tests on Survive online LMS program, viva, practical, weekly theme based assignments, post-test discussion sessions, peer assessments, presentations, small group activities such as CBL, ward activities, examinations and log books, all of which have specific marks allocation.
- Marks of both modular examination and graded assessment will constitute 10% weightage.
- 10% marks of internal evaluation will be added to the ISU annual professional exam.
- The marks distribution is based on Formative Assessment done individually by all the concerned departments. It may include:
- NOTE: **at least 75% attendance is mandatory** to appear in the annual university examination.

- Exam branch is responsible to maintain the attendance record for Main Campus in coordination with all the concerned departments.

11.2.2 University Annual Exam: Total 90%

- Annual Exam has 90% marks in total
- It includes theory and OSPE / OSCE.
- Each written paper consists of 100 MCQs and 10 SEQs and internal assessment marks will be added to the final marks.

11.3 METHODS OF ASSESSMENT

11.3.1 Multiple Choice Questions

- Single best type MCQs having five options with one correct answer and four distractors are part of assessment.
- Total 100 MCQs are included which are formulated through the table of specification from learning objectives of Module interactive lectures.
- Time duration for MCQs will be 1 and half hour.
- MCQs are used to assess objectives covered in each module.
- Students after reading the statement / scenarios select one appropriate response from the given options.
- Correct answer carries one mark, and incorrect will be marked zero. Rule of negative marking is not applicable.
- Students attempt the MCQs exam on Computer screen on Moodle / LMS program in IT Lab.

11.3.2 Short Essay Questions (SEQs):

- Short-answer questions are structured way of asking open-ended questions that require students to create their answers based on their knowledge.
- Commonly used in examinations to assess the depth of knowledge and understanding.
- Includes 10 questions each carrying 10 marks.
- Time Duration for Essay type paper is 2 hours.
- Questions are selected from the specific learning objectives of the specific ongoing module.

11.3.3 OSPE / OSCE

- Each student will be assessed on the same content and have same time to complete the task.
- Time allocated for each station is five minutes as per Examination rules of Ibn e Sina University, Mirpurkhas
- All students are rotated through the same stations.
- OSPE / OSCE Comprises of 15 - 20 stations.
- Each station may assess a variety of diagrammatic identifications and clinical tasks. These

tasks may include history taking, physical examination, skills and application of skills and knowledge

- Stations are Interactive, observed, unobserved (static) and rest stations.
  - Interactive Stations:
    - In this station, examiner ask questions related to the task within the allocated time.
  - Observed Stations:
    - In observed stations, internal or external examiner don't interact with candidate and just observe the performance of the skills or procedures.
  - Unobserved (static) Stations:
    - It will be static stations in which there may be models, specimens, multiple identification points, X-ray, Labs reports, flowcharts, pictures, or clinical scenarios (to assess cognitive domain) with related questions for students will be used to answer on the provided answer copy.
  - Rest station
    - It is a station where there is no task given and in this time student can organize his/her thoughts

11.3.4 ASSIGNMENTS

- An online assignment on the Ibn-e-Sina University moodle uploaded according to the topic of the week.
- All assignments should be checked by the teacher who has taken the lecture on the topic during the same week.
- The assignment should cover enough material to include the requirement of the curriculum and syllabus, so the student should be able to answer the annual examination questions by revising these notes (assignments) only.
- The assignments are checked and graded also with comment to guide, motivate and encourage the students to work whole heartedly. Frequent guidance and motivation will go a long way in improving the students' performance.
- Assignments of the whole Professional year MBBS are counted as in Internal Assessment.

11.3.5 WEEKLY TESTS

- The weekly tests are conducted for all classes. The tests are conducted online and are on topics displayed on the portal (Moodle). It consists of 35 MCQs. 5 MCQs will be from the previous weeks (slightly altered to change the answer or the right option). Everyone taking lectures, submit two MCQs to the Chairperson of the department who will check and pass them to the class moderator. MCQs can also be sent directly to the class moderator, who submits the MCQs to IT department for final placement on the moodle.

- The MCQs are not merely simple recall, but test higher level of cognition. As far as possible, they test an important concept related to one of the topics of the week.

- It is different from the summative assessment (Annual or Semester Examinations) in that the goal of summative assessment is to evaluate student's learning at the end of an

instructional unit by comparing it against some standard or benchmark, to decide if the student can be promoted or not, whereas the goal of these weekly tests is to check the understanding of the students on the important concepts related to the topics that have been displayed on the portal for the week, the teachers have taught them and the students have made assignments on them.

- Results of weekly tests of the whole Professional year MBBS are counted as in Internal Assessment.

11.3.6 POST-TEST DISCUSSION (PTD)

- Every student has to prepare a special assignment where he/she selects all the questions he/she got wrong. Then he/she makes 3 boxes. In box A he/she writes the questions he/she got wrong in his/her own words, highlighting and underlining the keywords. In box B the student explains why he/she has chosen this answer. In box C the student mentions what he/she has learnt after reading the explanation and how the concept has got clear now.
- The moderator will check, assess and grade PTD
- Next day, the class moderator of the class conducts a class where he/she discusses the mistakes committed and the post-test assignments submitted in detail with the class
- PTD assignments of the whole Professional year MBBS are counted as in Internal Assessment.

12. GRADING POLICY

Marks obtained in Percentage range	Numerical Grade	Alphabetical Grade
80-100	4.0	**A+**
75-79	4.0	**A**
70-74	3.7	**A-**
67-69	3.3	**B+**
63-66	3.0	**B**
60-62	2.7	**B-**
56-59	2.3	**C+**
50-55	2.0	**C**
<50 Non gradable	0	**N**

- A student obtaining GPA less than 2.0 (50%) is declared fail or Non gradable

13. ASSESSMENT BLUEPRINT

NERVOUS SYSTEM-I MODULE

Assessment is based on Table of Specification (TOS)

	ASSESMENT	TOOLS	MARKS
MODULE EXAM	THEORY	MCQ's	100
		SEQ's	100
	OSPE	OSPE Static	50
		OSPE Interactive	50
		Total	300

14. RECOMMENDED BOOKS

ANATOMY

- **CLINICALLY ORIENTED ANATOMY**

KEITH.L. MOORE, ARTHUR F. DALLEY, ANNE M.R. AGUR
7TH OR LATEST EDITION

- **GRAY'S ANATOMY FOR STUDENTS**

DRAKE & VOGL & MITCHELL
3RD OR LATEST EDITION

- **CLINICAL ANATOMY BY REGIONS (REFERENCE BOOK)**

RICHARD S. SNELL
9TH EDITION

- **LAST'S ANATOMY: REGIONAL & APPLIED (REFERENCE BOOK)**

CHUMMY S. SINNATAMBY
12TH OR LATEST EDITION

- **ATLAS OF HUMAN ANATOMY**

FRANK H. NETTER
6TH EDITION

EMBRYOLOGY

- **LANGMAN'S MEDICAL EMBRYOLOGY**

T.W. SADLER
13TH EDITION

- **THE DEVELOPING HUMAN CLINICALLY ORIENTED EMBRYOLOGY (REFERENCE BOOK)**

MOORE & PERSAUD & TORCHIA
10TH EDITION

HISTOLOGY

- **MEDICAL HISTOLOGY**

LAIQ HUSSAIN SIDDIQUI
5TH OR LATEST EDITION

- **WHEATERS FUNCTIONAL HISTOLOGY**

BARBARA YOUNG
5TH EDITION

- **BASIC HISTOLOGY (TEXT AND ATLAS) (REFERENCE BOOK)**

LUIZ JUNQUEIRA, JOSE CARNEIRO
11TH OR LATEST EDITION

PHYSIOLOGY

- **GUYTON AND HALL TEXTBOOK OF MEDICAL PHYSIOLOGY**

GUYTON AND HALL
13TH EDITION

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IBN-E-SINA UNIVERSITY MIRPURKHAS
FACULTY OF BASIC MEDICAL SCIENCES

Course Feedback Form

Course Title: _____

Semester/Module_____ Dates:_____

Please fill the short questionnaire to make the course better.

Please respond below with 1, 2, 3, 4 or 5, where 1 and 5 are explained.

THE DESIGN OF THE MODLUE

A. Were objectives of the course clear to you? Y ☐ N ☐

B. The course contents met with your expectations
l. Strongly disagree 5. Strongly agree ☐

C. The lecture sequence was well-planned
l. Strongly disagree 5. Strongly agree ☐

D. The contents were illustrated with
l. Too few examples 5. Adequate examples ☐

E. The level of the course was
l. Too low 5. Too high ☐

F. The course contents compared with your expectations
l. Too theoretical 5. Too empirical ☐

G. The course exposed you to new knowledge and practices
l. Strongly disagree 5. Strongly agree ☐

H. Will you recommend this course to your colleagues?
l. Not at all 5. Very strongly ☐

THE CONDUCT OF THE MODLUE

A. The lectures were clear and easy to understand
l. Strongly disagree 5. Strongly agree ☐

B. The teaching aids were effectively used
l. Strongly disagree 5. Strongly agree ☐

C. The course material handed out was adequate
l. Strongly disagree 5. Strongly agree ☐

D. The instructors encouraged interaction and were helpful
l. Strongly disagree 5. Strongly agree ☐

E. Were objectives of the course realized? Yes ☐ No ☐

F. Please give overall rating of the course

90% - l00%	( )	60% - 70%	( )
80% - 90%	( )	50% - 60%	( )
70% - 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

Please comment on the weaknesses of the course and the way it was conducted.

Please give suggestions for the improvement of the course.

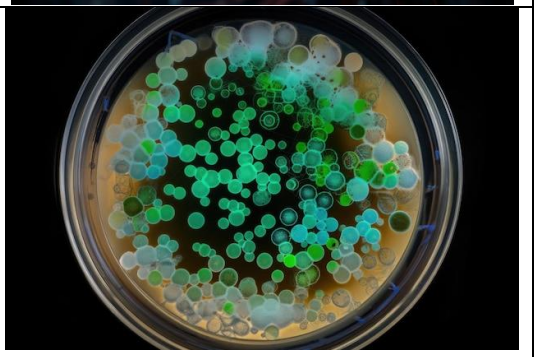
Optional - Your name and contact address:

Thank you!!

IBN-E-SINA UNIVERSITY MIRPURKHAS

STUDENT'S STUDY GUIDE
GIT AND LIVER-I MODULE
SECOND PROFESSIONAL MBBS

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1. DISCLAIMER

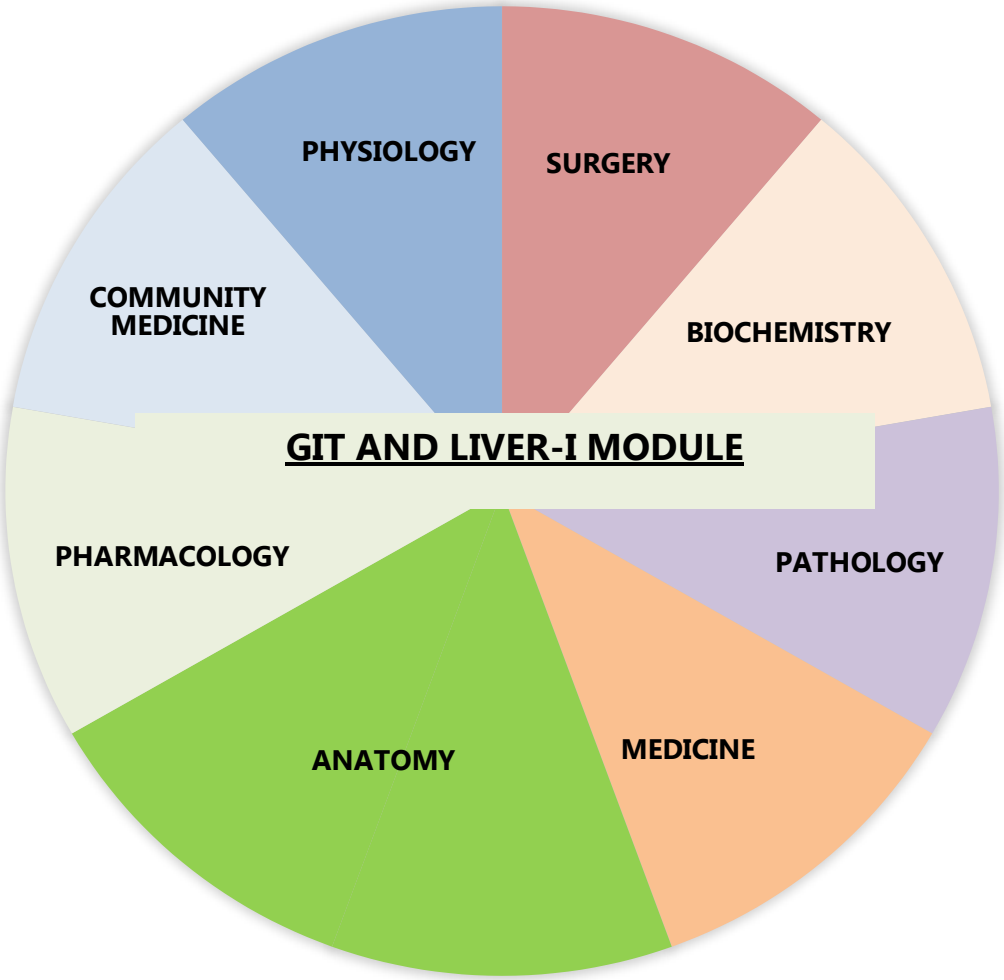
- Developing a study guide is a dynamic process and undergoes iteration according to the needs and priorities.
- This study guide is subjected to the change and modification over the whole academic year.
- However, students are advised to use it as a guide for respective modules.
- The time tables are for guiding purpose. It is to advise that final timetables are always displayed over the notice boards of each lecture hall.
- Students are encouraged to provide feedback via coordinator

2. CURRICULUM FRAMEWORK

An educational strategy known as integrated curriculum places a strong emphasis on interdisciplinary learning, in which students gain knowledge by integrating it from several topic areas. By integrating many subjects and disciplines into a cohesive curriculum, this method seeks to give students a more relevant and interesting learning experience. Integrated curriculum means that subjects are presented as a meaningful whole for better understanding of basic sciences in relation to clinical experience and application.

Integrated curriculum comprises of system-based modules such as Head & neck and special senses, Nervous System-I, Git and Liver-I, Endocrinology-I, Renal & Excretory-I and Reproductive System-I modules which link basic science knowledge to clinical problems.

INTEGRATING DISCIPLINES OF GIT AND LIVER-I MODULE



3. MODULE OVERVIEW

GIT AND LIVER-I MODULE DETAILS

Course	MBBS
Year	Second professional
Duration	7 weeks
Learning Outcomes	The competent Medical Practitioner
Competencies covered	To develop medical professionals who are well - versed, adept, and have the right mindset.
Module Assessment	End module formative assessment
Teaching Methods	Interactive Lectures, Demonstrations, Case Based Learning, Practical Lab, Small Group Discussions, Self-Study Sessions, E-Learning, Clinical rotations
Assessment Methods	MCQs, SEQs, OSPE, VIVA

GIT AND LIVER-I MODULE COMMITTEE

Sr. No	Names	Department	Designation
MODULE COORDINATOR			
1.	Dr. Saqib Baloch	Anatomy	Assistant Professor
2.	Dr. Shahab Hanif	Anatomy	Assistant Professor
COMMITTEE MEMBERS			
1.	Prof: Dr. Syed Razi Muhammad	Surgery	Chancellor ISU
2.	Prof: Dr. Shams Ul Arfeen Khan	Biochemistry	Vice Chancellor ISU
3.	Prof: Dr. Aijaz Ahmed Memon	Surgery	Pro Vice Chancellor ISU

4. WHAT IS STUDY GUIDE

It is an aid to Inform students how student learning program of the module has been organized, tohelp students organize and manage their studies throughout the module and 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.

Module objectives.

— Provides a list of learning resources such as books, computer-assisted learning programs, weblinks, and journals, for students to consult in order to maximize their learning.

— Highlights information on the contribution of continuous on the student's overall performance.

— Includes information on the assessment methods that will be held to determine every student's performance.

Achievement of objectives.

- Focuses on information pertaining to examination policy, rules and regulations.

5. LEARNING METHODOLOGIES

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

- Interactive Lectures
- Small Group Discussion
- Case- Based Learning (CBL)
- Skills session
- Practicals
- Self-Directed Study

- **INTERACTIVE LECTURES:**

  Large group discussions are not the same as traditional lecture formats. When a teacher or instructor uses images, radiographs, patient interaction recordings, etc. to discuss a topic or typical clinical scenario, the lecture becomes interactive. When they are given tiny activities to do that allow them to apply the knowledge they have learned throughout the session and are asked questions, students actively participate in the learning process.

- **SMALL GROUP DISCUSSIONS (SGDS):**

  With the use of SGD, students can take an active role in their education, clarify ideas, develop psychomotor skills, and develop a positive attitude. Discussion themes, patient interviews, and clinical cases are used to design sessions in an organized manner. Pupils are inspired to express their ideas, apply the fundamental knowledge they have learned from lectures and independent study, and are encouraged to share their notions. In small groups, role play is a useful technique for acquainting pupils with real-world scenarios. Probing questions, rephrasing, and summarizing are used by the teacher to assist make the concepts obvious.

- **CASE-BASED LEARNING (CBL):**

  Learning is centered around a sequence of questions based on a clinical scenario in this small group discussion format. Students create new information by discussing and responding to the questions using pertinent prior knowledge from the clinical and fundamental health sciences modules. The relevant department will give the CBL.

- **SKILL SESSIONS:**

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

- **PRACTICALS:**

  Basic science practical related to Anatomy, Physiology and Biochemistry have been schedule for student learning.

- **SELF STUDY:**

  Self-directed learning is a process in which students take charge, either on their own or with assistance from others. Students chart their learning objectives and determine their areas of need for learning. They select and employ their own learning methodologies, and they independently assess the learning objectives.

6. INTRODUCTION

The goal of this module is to give students a thorough understanding of the GIT and biliary system, two of the most important bodily systems, and to assist them in developing the skills they'll need to use that knowledge to solve health-related issues that the general public faces. In order to identify and cure a disease, this module attempts to give students the opportunity to comprehend the fundamentals of integrating their knowledge of gross anatomy, histology, and embryology connected to the GIT and liver with physiology, biochemistry, pathology, and pharmacology of the GI system. The basic anatomy, physiology, and biochemistry of the liver and viscera of the GIT will be taught to the students. They will also explore the many secretions of the GIT and how they function in the processes of digestion and absorption. Additionally, they will gain a rudimentary understanding of the pathophysiology of common liver and gastrointestinal disorders in our nation. In order to assist students in developing their clinical approach to comprehend and solve the clinical problem by connecting their foundational knowledge of anatomy, physiology, biochemistry, and pathology with findings of a clinical case, real-life scenarios have been added to the module and will be discussed in small groups.

6.1 RATIONALE

GIT disorders are widespread across our nation. Reducing morbidity and mortality requires early diagnosis and treatment of the illness. To accomplish the purpose, a basic understanding of the GIT's composition and operation is required. This module offers a comprehensive comprehension of anatomy, physiology, biochemistry, pharmacology, and pathology pertaining to the digestive and biliary systems, as well as specific and therapeutically applicable material.

6.2 IBN E SINA UNIVERSITY (ISU) VISION:

To become a world-leading organization in rural health and social care research, training, recruitment and best evidence-based practice.

6.3 IBN E SINA UNIVERSITY (ISU) MISSION:

Our Mission is to inspire hope, and contribute to health and well-being by providing the best care to every patient through integrated clinical practice, education and research. To provide a focal point for the development and collation of high-quality research pertinent to rural health and wellbeing. To improve the training, recruitment and retention of a professional workforce within rural communities. To be recognized as an exemplar in rural health and wellbeing on the international stage. To establish a network of individuals and groups that support research, innovation and development in rural health and social care

7. LEARNING OBJECTIVES

7.1 Knowledge / Cognitive Domain

It involves knowledge and the development of intellectual skills. By the end of this module, the students should be able to:

1. Explain how the foregut, midgut, and hindgut development.
2. Talk about the GI abnormalities.
3. Describe the microscopic and gross anatomy of the different GIT parts.
4. Describe the biliary system's and the liver's microscopic and gross characteristics.
5. Describe the GIT's physiology.
6. Describe the digestive juices' biochemistry.
7. Explain the biochemistry involved in the digestion and absorption of lipids, proteins, and carbohydrates
8. Recognize and describe the liver's metabolic mechanism.
9. Describe the abnormal features found in the pathophysiology of the GIT.
10. List the gastrointestinal tract's pathologies.
11. Determine the function of pharmaceuticals used to treat GIT disorders such diarrhoea and vomiting.
12. Analyze radiological findings in light of the GIT.

7.2 Skills / Psychomotor Domain:

Includes physical movement, co-ordination and the use of motor skill areas. For this Module, these include:

1. Observation and Assistance
2. Performing the skill under supervision
3. Performing the skill independently
4. Link the structure and functional abnormalities of the gastrointestinal tract based on the clinical history and signs and symptoms)
5. Obtain a comprehensive history of patient with gastrointestinal and hepatobiliary disorders.
6. Know the basic steps of examination of GIT system
7. Perform superficial examination of the abdomen and abdominal visceras

7.3 Attitude / Affective Domain:

It Involves our feelings, emotions and attitudes. By the end of this module, the students should be able to:

1. Comply with standard laboratory procedures
2. Engage in professional classroom and practical work.
3. Work as a team to effectively communicate with instructors, staff, and pears.
4. Act with professionalism and moral principles when interacting with teachers, personnel, cadavers, and patients.
5. Work well as a team to communicate with instructors and pears.
6. Show that you have the capacity to evaluate your performance.

7.4 Outcomes of GIT and Liver-I Module

1. Knowledgeable
2. Skillful
3. Community Heath Promoter
4. Problem-solver
5. Professional
6. Researcher
7. Leader and Role Model

8. THEMES FOR GIT AND LIVER MODULE

SNO	Theme	Duration
1	**The anterior abdominal wall and the Hernias**	2 week
2	**Upper Gastrointestinal tract disorders**	1 week
3	**Hepatic and Portal system disorders**	2 week
4	**Lower Gastrointestinal tract disorders**	1 week
5	**Vascular disorders**	1 week

9. SPECIFIC LEARNING OBJECTIVES THEME WISE

THEME 1: THE ANTERIOR ABDOMINAL WALL AND THE HERNIAS

GASRO-INTESTINAL TRACT-LIVER MODULE				
GROSS ANATOMY				
S. NO	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESS MENT**
01	Describe divisions & components of GIT Describe the planes and nine abdominal regions. Identify four quadrants of abdomen. Describe the arrangement of viscera in nine abdominal regions.	**GIL-ANA-G1** An Overview of GIT & Surface anatomy of Abdomen	Interactive Lecture	BCQs, SAQs, OSPE, Viva
02	Discuss the attachment of the fasciae and muscles of antero-lateral abdominal wall in relation to its clinical importance. Explain formation of rectus sheath with its contents	**GIL-ANA-G2** Anterior abdominal wall-1	Interactive Lecture	BCQs, SAQs, OSPE, Viva
03	Describe nerve supply, blood supply and lymphatic drainage of antero-lateral abdominal wall Identify and palpate the bony landmarks of the abdomen like anterior superior iliac spine, pubic tubercle. Identify surface marking of inguinal ligament, mid inguinal point, McBurney's point and lateral border of rectus abdominis.	**GIL-ANA-G3** Anterior abdominal wall-2	Demonstrati on	BCQs, SAQs, OSPE, Viva
04	Describe the inguinal canal under following heads: 1. Location and Dimension 2. Walls of inguinal canal 3. Inguinal rings 4. functions and mechanics of the inguinal canal.	**GIL-ANA-G4** Inguinal canal	Interactive Lecture	BCQs, SAQs, OSPE, Viva
05	Explain coverings and contents of spermatic cord Contents of inguinal canal in male & female Define hernia and describe direct & indirect inguinal hernia Differentiate between inguinal and femoral hernia	**GIL-ANA-G5** Spermatic cord	Interactive Lecture	BCQs, SAQs, OSPE, Viva
	Explain the development of the inguinal canal and briefly give the overview of the Scrotum, testis and epididymides. Briefly define the labia majora.	**GIL-ANA-G6** Development of inguinal canal and Overview of the male and female genitalia	Interactive Lecture	BCQs, SAQs, OSPE, Viva

06	Define peritoneum and peritoneal cavity. Discuss intraperitoneal and retroperitoneal relationships. Explain peritoneal ligaments. Define omenta and mesentries.	**GIL-ANA-G7** Peritoneum-1: General arrangement	Interactive Lecture	BCQs, SAQs, OSPE, Viva
07	Discuss in detail the peritoneal pouches, recesses, spaces and gutters. Describe the boundaries of greater and lesser sac Define the nerve supply of the peritoneum. Discuss the functions of the peritoneum. Discuss the clinical conditions related with peritoneum.	**GIL-ANA-G8** The peritoneum-2: Pouches, Recesses, Spaces & Gutters	Demonstration	BCQs, SAQs, OSPE, Viva
8	Explain the process of development of GIT and divisions of primitive gut.	**GIL-ANA-E1** Overview of the GIT development	Interactive Lecture	BCQs, SAQs, OSPE, Viva
9	Discuss general plan of histology of the wall of alimentary canal Identify histological features of different layers of GIT. Give an overview of different parts of esophagus Identify the microscopic features of thoracic and abdominal parts of esophagus.	**GIL-ANA-H1** General plan of GIT histology Histology of Esophagus	Interactive Practical	BCQ's, SAQ's, OSPE
PHYSIOLOGY				
10	Mention primary/basic functions of GIT Describe physiological anatomy of gastrointestinal wall Describe electrical activity of gastrointestinal smooth muscle	**GIT-1-PHY-1** Overview of GIT physiology	Interactive Lecture	BCQs, SAQs, OSPE, Viva
11	Describe enteric nervous system and its two main plexuses Mention the role of enteric nervous system in control of GIT function Mention the role of autonomic nervous system in control of GIT function Define three types of gastrointestinal reflexes that are essential to gastrointestinal control	**GIT-1-PHY-2** Neural control of GIT function	Demonstration	BCQs, SAQs, OSPE, Viva
BIOCHEMISTRY				
12	composition, functions and regulation of saliva and gastric juice	**GIT-1-BIO-1** saliva and gastric juice	Interactive Lecture	BCQs, SAQs, OSPE,

13	composition, functions and regulation of pancreatic, bile and intestinal juice	**GIT-1-BIO-2** pancreatic juice, bile juice and intestinal juice	Interactive Lecture	BCQs, SAQs, OSPE, Viva
14	sites and enzymes involved in digestion, classification and functions of glucose transporters, factors affecting rate of absorption, lactose intolerance	**GIT-1-BIO-3** digestion and absorption of carbohydrates	Interactive Lecture	BCQs, SAQs, OSPE, Viva
15	describe the process and enzymes involved in digestion and absorption of proteins. Explain hartnup and maple serup disease.	**GIT-1-BIO-4** Digestion & Absorption of proteins	Interactive Lecture	BCQs, SAQs, OSPE, Viva
16	describe the process of digestion and absorption. Explain steatorrhea	**GIT-1-BIO-5** Digestion & Absorption of lipids and fatty acids	Interactive Lecture	BCQs, SAQs, OSPE, Viva
17	Interpret the normal levels of HCL	**GIT-1-BIO-P1** Interpretation of HCL	Interactive practical	BCQs, SAQs, OSPE,
PATHOLOGY				
18	Define atresia, fistulae, duplications diaphragmatic hernia, omphalocele, gastroschisis ectopia, meckel diverticulum, pyloric stenosis and Hirsch sprung disease	**GIL-1-Path-1** Congenital Abnormalities of GIT	Interactive Lecture	BCQ'S, SAQ's, OSPE, Viva

THEME 2: UPPER GASTROINTESTINAL DISORDERS

GASRO-INTESTINAL TRACT-LIVER MODULE				
GROSS ANATOMY				
S. NO	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESS MENT**
18	Explain gross features of esophagus in relation to its location and dimensions. Mention its important relations especially in posterior mediastinum. Describe its blood supply, nerve supply & lymphatic drainage. Discuss its different areas of compression and their clinical importance	**GIL-ANA-G9** Oesophagus	Interactive Lecture	BCQs, SAQs, OSPE, Viva
19	Mention different parts of stomach. Describe gross anatomical features of stomach including interior of stomach. Give blood, nerve supply and lymphatic drainage. Identify the structures forming stomach bed. Explain peritoneal covering of the stomach and mention different peritoneal folds related to this organ along with contents.	**GIL-ANA-G10** Stomach	Demonstration	BCQs, SAQs, OSPE, Viva
20	Mention different parts of small intestine**.** Describe different parts of duodenum along with relations of each part. Mention the vessels and nerves supplying the duodenum.	**GIL-ANA-G11** Small intestine (duodenum)	Demonstration	BCQs, SAQs, OSPE, Viva
21	Explain basic anatomy of jejunum and ileum. Distinguish between jejunum and ileum regarding their anatomical features. Explain the terms mesentry, duodenal flexure and Meckel's diverticulum.	**GIL-ANA-G12** Small intestine (jejunum and ileum)	Interactive Lecture	BCQs, SAQs, OSPE, Viva
22	Explain the process of development of GIT and divisions of primitive gut, List the derivatives of foregut and Describe the development of: I. Esophagus Ii. Stomach Iii. Lesser & greater sac Discuss the following congenital anomalies: I. Esophageal atresia/stenosis Ii. Congenital hypertrophic pyloric stenosis Iii. Duodenal atresia/ stenosis	**GIL-ANA-E2** Foregut	Interactive Lecture	BCQs, SAQs, OSPE, Viva

23	Explain the development of the duodenum. Describe development of liver, biliary apparatus and gall bladder. Discus extrahepatic biliary atresia	**GIL-ANA-E3** Development of the Duodenum, Liver and gall bladder	Interactive Lecture	BCQs, SAQs, OSPE, Viva
24	Identify various layers of the wall of stomach Describe histology of gastric mucosa including different glands and cell types in different regions of stomach. Identify different cells of mucosa under microscope and mention their functions.	**GIL-ANA-H2** Histology of Stomach	Interactive Practical	BCQ's, SAQ's, OSPE
25	Identify the parts of small intestine Identify microscopically different layers of small intestine Identify modifications of the luminal surface Describe the glands and cells present in the small intestine Discuss special microscopic features of duodenum, jejunum and ileum	**GIL-ANA-H3** Histology of Small intestine	Interactive Practical	BCQ's, SAQ's, OSPE
	PHYSIOLOGY			
26	Mention major salivary glands Describe the composition and function of saliva Describe the role of saliva in oral hygiene Explain regulation/control of salivary secretion	**GIT-1-PHY-3** Saliva; its composition, function and regulation	Interactive Lecture	BCQs, SAQs, OSPE, Viva
27	Define mastication/chewing and mention its importance Define swallowing/deglutition and name its stages Describe mechanism of each Stage Mention function of lower esophageal sphincter	**GIT-1-PHY-4** Mastication and Deglutition	Interactive Lecture	BCQs, SAQs, OSPE, Viva
28	Describe physiological anatomy of gastric glands Describe composition of gastric juice Mention functions of important constituents of gastric juice Describe regulation/control of gastric juice secretion	**GIT-1-PHY-5** Gastric juice; its composition, function and regulation	Demonstration	BCQs, SAQs, OSPE, Viva
29	Describe the mechanism of HCl secretion by parietal cells of oxyntic/gastric glands Mention function of gastric NCl Describe regulation of gastric acid secretion	**GIT-1-PHY-6** Mechanism of gastric acid (NCI) secretion and its control	Interactive Lecture	BCQs, SAQs, OSPE, Viva

30	Describe the motor functions of stomach Explain how the gastric emptying is regulated	**GIT-1-PHY-7** Motor functions of stomach	Interactive Lecture	BCQs, SAQs, OSPE, Viva
31	Define the indications , contraindications and the complications of the nasogastric tube	**GIT-1-PHY-P1** Nasogastric Tube-1	Interactive Practical	BCQs, SAQs, OSPE,
COMMUNITY MEDICINE				
32	Determine the common gastrointestinal tract issues of public health importance. Determine the magnitude of diarrheal diseases worldwide Understand the epidemiology and potential risk factors of cholera in Pakistan. Elucidate the strategies in Pakistan for prevention and control of diarrheal diseases.	**GIL-CM-1** Gastrointestinal tract Issues and Diarrheal diseases (Cholera)	Interactive Lecture	BCQs
RADIOLOGY				
33	Interpretate the normal X-ray of Upper Gastrointestinal visceras (Esophagus, Stomach,Liver) Identify the esophageal shadow, fundus gas shadow, Right and left dome of diaphragm	**GIL-RADIO-1** Upper GI Xrays	Interactive Lecture	BCQs

THEME 3: HEPATIC & PORTAL SYSTEM DISORDERS

GASRO-INTESTINAL TRACT-LIVER MODULE				
GROSS ANATOMY				
S. NO	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESS MENT**
33	Identify location of liver Describe the surfaces and different peritoneal relations Discuss formation of anatomical and functional (physiological) lobes of liver. Identify porta hepatis and its contents. Mention blood vessels especially describing blood circulation through the liver Discuss lymphatic drainage and nerve supply.	**GIL-ANA-G13** Liver	Demonstration	BCQs, SAQs, OSPE, Viva
34	Explain the hepatic portal circulation Discuss basic anatomy of portal vein. Mention its tributaries Discuss the sites of porto-systemic anastomosis with clinical importance.	**GIL-ANA-G14** Hepatic portal system	Demonstration	BCQs, SAQs, OSPE, Viva
35	Describe location and parts of gall bladder Mention its important relations Name blood and lymph vessels including nerves supplying this organ. Describe clinical correlates of biliary system.	**GIL-ANA-G15** Gall bladder	Interactive Lecture	BCQs, SAQs, OSPE, Viva
36	List different components of intra & extra-hepatic biliary system Describe formation and termination of common bile duct. Mention its important relations Name blood vessels supplying different parts of bile duct including lymphatic drainage.	**GIL-ANA-G16** Duct system of liver (hepatic biliary system)	Demonstration	BCQs, SAQs, OSPE, Viva
37	Discuss location and gross features of pancreas Mention its peritoneal relations Describe the arterial supply, venous drainage and nerve supply of pancreas. Discuss the clinical correlates	**GIL-ANA-G17** Pancreas	Demonstration	BCQs, SAQs, OSPE, Viva

38	Explain location, surfaces and borders of spleen. Mention its important relations with surrounding organs Discuss peritoneal folds connecting spleen with other organs Mention the vessels and nerves supplying spleen	**GIL-ANA-G18** Spleen	Demonstration	BCQs, SAQs, OSPE, Viva
39	Describe the development of pancreas Describe the following anomalies of pancreas: I. Annular pancreas II. Accessory pancreatic tissue	**GIL-ANA-E4** Development of the Pancreas	Interactive Lecture	BCQs, SAQs, OSPE, Viva
40	List the derivatives of midgut Describe the development of mid gut under following headings. Physiological herniation, Rotation of the mid gut Retraction of herniated loops Fixation of intestines Discuss the following congenital anomalies involving midgut: **i.** Body wall defects **ii.** Vitelline duct abnormalities **iii.** Gut rotation defects **iv.** Gut atresias and stenoses	**GIL-ANA-E5** Midgut	Interactive Lecture	BCQs, SAQs, OSPE, Viva
41	Explain general hepatic structure. Discuss the concept of three hepatic lobules. Describe the histology of classical hepatic lobule.	**GIL-ANA-H 4** Histology of liver	Interactive Practical	BCQ's, SAQ's, OSPE
42	Describe the different components of biliary tract Describe the microscopic structure of gall bladder	**GIL-ANA-H5** Histology of Gall bladder	Interactive Practical	BCQ's, SAQ's, OSPE
43	Identify microscopically exocrine and endocrine pancreas Discuss the histological features of secretory and duct part of exocrine pancreas Identify and explain endocrine pancreas and its different cell types.	**GIL-ANA-H6** Histology of Pancreas	Interactive Practical	BCQ's, SAQ's, OSPE
PHYSIOLOGY				

44	Mention physiological anatomy of exocrine part of pancreas Describe composition of pancreatic juice Mention functions of pancreatic juice Mention importance of trypsin inhibitor Describe basic stimuli that cause pancreatic secretion Mention phases of pancreatic secretion	**GIT-1-PHY-8** Pancreatic juice; its composition, function and regulation	Interactive Lecture	BCQs, SAQs, OSPE, Viva
45	Describe the main functions of liver Describe composition of bile juice Mention difference between hepatic bile and gallbladder bile	**GIT-1-PHY-9** Functions of liver and composition of bile	Interactive Lecture	BCQs, SAQs, OSPE, Viva
46	List the functions of bile Mention the role of bile acids/salts in fat digestion and absorption Describe enterohepatic circulation of bile salts Describe regulation of bile secretion Describe mechanism of gallbladder emptying	**GIT-1-PHY-10** Function and regulation of bile secretion	Demonstration	BCQs, SAQs, OSPE, Viva
47	Demonstrate the procedure of how to pass the nasogastric tube	**GIL-PHY-P2** Nasogastric Tube-II	Interactive Practical	BCQs, SAQs, OSPE,
BIOCHEMISTRY				
48	Definition / Site/ Substrate required for gluconeogenesis Pathway of Gluconeogenesis Regulatory Enzymes / Steps of gluconeogenesis Stimulator & Inhibitor Factors of Gluconeogenesis Pathway	**GIL-BIO-6** Gluconeogenesis & cori's cycle	Interactive Lecture	BCQs, SAQs, OSPE, Viva
49	Definition / Site Types or Phases of HMP Shunt Name of regulatory Enzyme Biochemical importance of HMP Shunt Role of NADPH compound in Human Life Regulatory Steps of HMP Shunt & Their regulatory factors	**GIL-BIO-7** HMP Shunt	Interactive Lecture	BCQs, SAQs, OSPE, Viva

50	Definition / Site / Substrates Pathway of Glycogenesis & glycogenolysis Regulatory Steps/ Enzymes Biomedical Importance of Glycogenesis & glycogenolysis	**GIL-BIO-8** Glycogenesis Glycogenolysis	Interactive Lecture	BCQs, SAQs, OSPE, Viva
51	Regulatory Enzymes of Glycogen metabolism Glycogen Storage Diseases	**GIL-BIO-9** Regulation of glycogen metabolism & glycogen storage diseases	Interactive Lecture	BCQs, SAQs, OSPE, Viva
52	Site/ Substrates Pathways, Regulatory Steps/ Regulatory Factors Biomedical Importance Clinical Importance of Fructose & Sorbitol Pathway	**GIL-BIO-10** Fructose & Sorbitol Metabolism	Interactive Lecture	BCQs, SAQs, OSPE, Viva
53	Define Amino Acids Pool Describe Protein turn over Describe Protein Degradation Define Nitrogen Balance Describe Positive & Negative Nitrogen Balance	**GIL-BIO-11** Amino Acids Pool & nitrogen balance	Interactive Lecture	BCQs, SAQs, OSPE, Viva
54	Describe Transamination & its Biomedical importance, Describe Deamination & Its Biomedical importance, Describe Transmethylation & Biomedical importance Describe Deacrboxylation & its Biomedical Importance	**GIL-BIO-12** Amino Acids Reactions	Interactive Lecture	BCQs, SAQs, OSPE, Viva
55	Definition/ Site/ Substrate/ Products Pathways Mitochondrial/ Cytosol Steps Regulatory Enzymes, Regulatory Factors of Urea Cycle. Relation of Urea Cycle with TCA Cycle Disorders of urea Cycle	**GIL-BIO-13** Urea Cycle	Interactive Lecture	BCQs, SAQs, OSPE, Viva
56	Definition Types, Clinical Manifestation & their biochemical causes of clinical features Names of Enzymes involve in Ammonia Intoxication Definition of Ureamia Normal Level of Blood Urea & Ammonia Causes of Hyperureamia	**GIL-BIO-14** Ammonia Intoxication	Interactive Lecture	BCQs, SAQs, OSPE, Viva
57	Metabolic Pathway of Phenylalanine, Tyrosine, Tryptophan, Describe Phenylketonurea Describe tyrosinemia & Types Describe Albinism , Describe Alkaptonurea	**GIL-BIO-15** Metabolism of Aromatic Amino Acids	Interactive Lecture	BCQs, SAQs, OSPE, Viva

58	Describe Metabolic Pathway of Methonine/ Cysteine & Cystine Describe their metabolic disorder	**GIL-BIO-16** Metabolism of Sulphur containing Amino Acids	Interactive Lecture	BCQs, SAQs, OSPE, Viva
59	Types of Oxidation of F.A Definition of Alpha/ beta/ Omega Oxidation Explain the Metabolic Pathway of Beta Oxidation Biomedical importance of Beta Oxidation ATP molecules formation in Beta oxidation	**GIL-BIO-17** Oxidation of Fatty Acids	Interactive Lecture	BCQs, SAQs, OSPE, Viva
60	Definition / Site / Substrates/ Products & Metabolic Pathway of Ketogenesis Regulatory Steps or Enzymes of Ketogenesis Definition of Ketonemia/ Ketonurea/ Ketosis Diabetic ketoacidosis Definition / Sites / Substrates Describe the metabolic Pathway of ketolysis Regulatory Enzymes & Regulatory Factors Role of thiophorase enzyme Clinical Importance of ketolysis	**GIL-BIO-18** Ketonegensis & ketolysis	Interactive Lecture	BCQs, SAQs, OSPE, Viva
61	Enlist the components of L.F.T Explain the functions of different components of L.F.T Estimation of serum SGOT, SGPT. Role of the L.F.T in the diagnosis/ prognosis of clinical disorders	**GIL-BIO-19** Liver function Test	Interactive Lecture	BCQs, SAQs, OSPE, Viva
62	To estimate normal serum urea level. Describe the conditions of increased or decreased urea levels.	**GIL-BIO-P2** estimation of serum urea	Interactive Practical	BCQs, SAQs, OSPE,
63	To estimate albumin: globulin ratio from given sample	**GLI-BIO-P3** Albumin: Globulin ratio	Interactive Practical	BCQs, SAQs, OSPE,
64	Enlist the components of L.F.T, Explain the functions of different components of L.F.T Estimation of serum SGOT, SGPT. Role of the L.F.T in the diagnosis/ prognosis of clinical disorders	**GIL-BIO-P4** Liver function Test	Interactive Practical	BCQs, SAQs, OSPE, Viva
65	To estimate serum bilirubin direct & indirect from given sample	**GLI-BIO-P5** Serum bilirubin direct & indirect	Interactive Practical	BCQs, SAQs, OSPE,
66	To interpretate the PT & APTT	**GLI-BIO-P6** Interpretation of PT & APTT	Interactive Practical	BCQs, SAQs, OSPE,

PATHOLOGY				
67	Explain aetiology, pathogenesis, mode of transmission, clinical diagnosis of Hepatitis	**GIL1-Path-2** Hepatitis	Interactive lecture	BCQ'S, SAQ's, OSPE
COMMUNITY MEDICINE				
68	Understand and determine the global burden of Hepatitis. Describe the epidemiology of Hepatitis A, B, C, D, E and its different types in Pakistan. determine the factors responsible for the spread of Hepatitis. Elucidate the preventive measures of Hepatitis at different level of prevention Discuss the strategies of Hepatitis control program in Pakistan	**GIT3 COM2** Hepatitis: Types, Prevention and Control	Interactive Lecture	BCQ'S, SAQ's, OSPE

THEME 4: THE LOWER GASTROINTESTINAL DISORDERS

GASRO-INTESTINAL TRACT-LIVER MODULE				
GROSS ANATOMY				
S. NO	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESS MENT**
69	Identify different parts of large intestine. Mention general characteristics of most of large intestine. Discuss basic anatomical differences between large and small intestine. Explain basic anatomy of cecum and vermiform appendix. Identify different positions of the appendix and give clinical importance**.**	**GIL-ANA-G19** Large intestine-1 Cecum and Vermiform appendix	Demonstration	BCQs, SAQs, OSPE, Viva
70	Discuss gross features of different parts of colon: Ascending colon, Transverse colon, descending colon and mention their peritoneal covering. Give blood and nerve supply.	**GIL-ANA-G20** Large intestine-2 Colon	Interactive Lecture	BCQs, SAQs, OSPE, Viva
71	Describe location, course and other gross anatomical features of rectum. Mention important relations. Explain blood supply, lymph drainage & nerve supply. Discuss clinical correlates of rectum Explain the difference of peritoneal covering in a male and female.	**GIL-ANA-G21** Rectum	Demonstration	BCQs, SAQs, OSPE, Viva
72	Describe the ano-rectal junction Discuss the location and basic structure of anal canal Describe the difference of neurovascular supply and lymphatic drainage between upper and lower half of anal canal. Explain the relations of the anal canal. Discuss the anatomy of anal sphincters. Discuss the clinical correlates. Describe ischiorectal fossa.	**GIL-ANA-G22** Anal canal	Demonstration	BCQs, SAQs, OSPE, Viva
73	List the derivatives of hindgut. Describe the developmental process of the following. Partitioning of the cloaca. Anal canal Discuss main features related to abnormalities of hindgut including: Recto-anal atresia, fistula imperforate anus Congenital megacolon	**GIL-ANA-E6** Hind gut	Interactive Lecture	BCQs, SAQs, OSPE, Viva

74	Discuss the important gross and histological features of large intestinal wall. Identify intestinal glands and different cell types. Identify and explain the lymphoid ring around the vermiform appendix. Differentiate between gross and microscopic features of large and small intestine. Describe the histology of anorectal junction	**GIL-ANA-H7** Histology of Large intestine	Interactive Practical	BCQ's, SAQ's, OSPE
	PHYSIOLOGY			
75	Mention physiological anatomy of small intestine Describe secretion of small intestine Mention function and regulation of small intestinal secretion Mention enzymes present in the brush border of small intestine Describe movements of small intestine	**GIT-1-PHY-11** Secretion and movements of small intestine	Demonstration	BCQs, SAQs, OSPE, Viva
76	Mention physiological anatomy of large intestine Describe the secretions of large intestine and mention their function Describe movements of large intestine Describe defecation and defecation reflex	**GIT-1-PHY-12** Secretion and movements of large intestine	Interactive Lecture	BCQs, SAQs, OSPE, Viva
	PHARMACOLOGY			
77	Classify drugs used in gastrointestinal tract disorders. Explain the mechanism of action of these drugs Enlist the side effects of these drugs	**GIL-PHARM-1** Overview of Pharmaco therapy in GIT Disorders-I	Interactive Lecture	BCQs, SAQs, OSPE, Viva
78		**GIL-PHARM-2** Disorders-II	Interactive Lecture	
	COMMUNITY MEDICINE			
79	Describe the global epidemiology of food borne diseases. classify food borne diseases. Determine the factors responsible for spread of food borne diseases. discuss the prevention of food borne diseases	**GIL-CM-3** Food Borne Diseases	Interactive Lecture	BCQs, SAQs, OSPE, Viva
	RADIOLOGY			
80	Interpretate the normal X-ray of Lower Gastrointestinal visceras (small and Large intestine) Identify the intestinal shadows, gas shadows, vertebral spines levels, contrast xrays showing contrast media in rectum and large intestine.	**GIL-RADIO-2** Lower GI Xray	Interactive Lecture	BCQs

THEME 5: VASCULAR DISORDERS

GASRO-INTESTINAL TRACT-LIVER MODULE				
GROSS ANATOMY				
S. NO	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESS MENT**
80	Describe general characteristics of lumbar vertebrae Explain the attachments of lumber fascia. Discuss attachment of muscles of posterior abdominal wall	**GIL-ANA-G23** Posterior abdominal wall-I: Lumbar vertebrae & muscles	Demonstration	BCQs, SAQs, OSPE, Viva
82	Discuss lumbosacral plexus Explain formation of cisterna chyli and thoracic duct Discuss nerve supply, lymphatic drainage of abdominal walls and viscera	**GIL-ANA-G24** Posterior abdominal wall-II	Demonstration	BCQs, SAQs, OSPE, Viva
83	Describe the location of abdominal aorta in respect of beginning, course and termination mentioning important relations and vertebral levels**.** Identify paired and unpaired branches and area of their supply.	**GIL-ANA-G25** Blood supply of the GIT -I Abdominal Aorta	Demonstration	BCQs, SAQs, OSPE, Viva
84	Describe the formation, course and termination of inferior vena cava List the tributaries of inferior vena cava	**GIL-ANA-G26** Blood supply of the GIT -II Inferior vena cava	Demonstration	BCQs, SAQs, OSPE, Viva
85	Name the groups of lymph nodes draining the abdomen. Explain them. Describe lymphatic trunks, cisterna chili and thoracic duct.	**GIL-ANA-G27** Lymphatic drainage of GIT	Demonstration	BCQs, SAQs, OSPE, Viva
PHYSIOLOGY				
86	List important hormones secreted from the GIT mucosa Describe the role of these hormones in regulation/control of GIT function	**GIT-1-PHY-13** Hormones of GIT	Interactive lecture	BCQs, SAQs, OSPE, Viva

CLINICAL CLASSES				
S. NO	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESS MENT**
87		**GIL-MEDICNE** The Acute Medical abdominal Medical	Interactive lecture	BCQs, SAQs, OSPE, Viva
88		**GIL-SURGERY** Major Surgeries of the Abdomen	Interactive lecture	

9.1 TAGGED SUBJECTS

Topic	Contents	Learning Objectives	Teaching Method	Module	Hours	Assessment
PROFESSIONALISM AND BEHAVIOURAL SCIENCES						
Stigma and ReactionS to illness	Stigma and Reactions to illness, Strategies for not being judgmental	Describe Stigma and reactions to illness, and how not to be judgmental	Lecture	GIT	1	MCQ
COMMUNICATION SKILLS						
Verbal and non- verbal communication skills	Verbal and non-verbal communication skills	Develop and Demonstrate effective verbal and non-verbal communication skills	Role play, Group Discussion	GIT 1	1	MCQ
Listening skills	Listening skills	Develop and demonstrate active listening skills for learning purposes and to the patient's problems	Role play, Group Discussion	GIT1	1	MCQ
Reading skills	Reading skills	Develop and Demonstrate effective reading skills	Role play, Group Discussion	GIT 1	1	MCQ
RESEARCH						
Sample size	Sample Size Calculation	Calculate sample size for different research projects. Calculate sample size for a specific research project.	Lecture and Hands on Exercise in Computer lab	GIT 1	2	MCQs/Assignment

9.2 CLINICAL SCIENCES SUBJECTS

GIT MODULE				
S. No	**Clinical Sciences Subjects**	**Learning Objectives**	**Hours**	**Learning Strategy**
1.	**ISLAMIC STUDY** Ethics of Bio-medical research	Describe the importance of research as an obligation for a Muslim. Identify the paradigms of ethics for biomedical research	1	Lecture
	Confidentiality in the light of ISLAM	Evaluate current practices of maintaining patient confidentiality in light of the teachings of Islam.	1	Lecture
	Halal and Haram	Comprehend and internalize the concept of Halal (allowed) and forbidden in Islam and its application to professional life	1	Lecture
2.	**PAKISTAN STUDY**	Role of NGOs	1	Lecture
3.	**ANAESTHESIA** Fluid Electrolytes	Describe Hyponatremia and Hypernatremia	1	Lecture
		Describe Hypokalemia and Hyperkalemia	1	Lecture
		Classify and briefly describe rehydration solutions	1	Lecture
		Discuss Fluid Electrolytes	1	Lecture
4.	**CRITICAL CARE** Gastroenterology	Upper & Lower GI bleeding	1	Lecture
		Acute Pancreatitis	1	Lecture
		Evaluation & Management of Liver failure	1	Lecture
		Diarrhea	1	Lecture
5.	**FAMILY MEDICINE** Non Communicable Diseases	Comorbidities IHD, CCF, CVA	1	Lecture
		Hepatitis and CLD	1	Lecture
		Secondary Prevention	1	Lecture

10. TEACHING HOURS ALLOCATION

S. No	Subject	Hours	Practical Hours
1	Anatomy	50	14
2	Physiology	17	4
3	Biochemistry	19	12
4	Pharmacology	2	-
5	Pathology	2	-
6	Community Medicine	3	-
7	Medicine	1	-
8	Surgery	1	-
9	CBL 4 (Anatomy)*	8	-
10	CBL 7 (Physiology)*	14	-
11	CBL 7 (Biochemistry)*	14	-
12	Radiology	2	-
13	Islamic Study	3	-
14	Pakistan Study	1	-
15	Anesthesia	4	-
16	Critical Care	4	-
17	Family Medicine	3	-
	Total hours	**148**	**30**

*Minimum 2 hours are allotted for each CBL session per Module

S. No	Tagged Subject	Teaching Hours
1	Professionalism and Behavioral Sciences	1
2	Communication Skills	3
3	Research	2
	Total hours	**6**

11. EXAMINATION AND METHODS OF ASSESSMENT

11.1 EXAMINATION RULES AND REGULATIONS

- Student must report to examination hall/venue, in time for smooth conduction of the exams.
- No student will be allowed to enter the examination hall after 10 minutes of scheduled examination time.
- No students will be allowed to sit in exam without College ID Card, and Lab Coat
- Students must sit according to their roll numbers mentioned on the seats.
- Student must bring their own stationary items (Pen, Pencil, Eraser, and Sharpener) –Sharing is prohibited
- Any disturbance or Indiscipline in the exam hall/venue is not acceptable.
- Students must not possess any written material or communicate with their fellow students
- 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 student is allowed to leave the examination hall before half the time is over, paper is handed over to the examiner and properly marking the attendance**.

11.2 ASSESSMENT

11.2.1 Internal: Total 10% (20 marks)

- Students will be assessed comprehensively through multiple methods to determine achievement of module objectives through two methods: Module examination and Graded assessment by Individual department
    - **Module Examination**: It will be scheduled on completion of each module. The method of examination comprises theory exam (which includes SEQs and MCQs) and OSPE / OSCE exam (which includes static and interactive stations).
    - **Graded Assessment by individual department**: It includes weekly MCQs tests on Survive online LMS program, viva, practical, weekly theme based assignments, post-test discussion sessions, peer assessments, presentations, small group activities such as CBL, ward activities, examinations and log books, all of which have specific marks allocation.
- Marks of both modular examination and graded assessment will constitute 10% weightage.
- 10% marks of internal evaluation will be added to the ISU annual professional exam.
- The marks distribution is based on Formative Assessment done individually by all the concerned departments. It may include:
- NOTE: **at least 75% attendance is mandatory** to appear in the annual university examination.

- Exam branch is responsible to maintain the attendance record for Main Campus in coordination with all the concerned departments.

11.2.2 University Annual Exam: Total 90%

- Annual Exam has 90% marks in total
- It includes theory and OSPE / OSCE.
- Each written paper consists of 100 MCQs and 10 SEQs and internal assessment marks will be added tothe final marks.

11.3 METHODS OF ASSESSMENT

11.3.1 Multiple Choice Questions

- Single best type MCQs having five options with one correct answer and four distractors are part of assessment.
- Total 100 MCQs are included which are formulated through the table of specification from learning objectives of Module interactive lectures.
- Time duration for MCQs will be 1 and half hour.
- MCQs are used to assess objectives covered in each module.
- Students after reading the statement / scenarios select one appropriate response from the given options.
- Correct answer carries one mark, and incorrect will be marked zero. Rule of negative marking is not applicable.
- Students attempt the MCQs exam on Computer screen on Moodle / LMS program in IT Lab.

11.3.2 Short Essay Questions (SEQs):

- Short-answer questions are structured way of asking open-ended questions that require students to create their answers based on their knowledge.
- Commonly used in examinations to assess the depth of knowledge and understanding.
- Includes 10 questions each carrying 10 marks.
- Time Duration for Essay type paper is 2 hours.
- Questions are selected from the specific learning objectives of the specific ongoing module.

11.3.3 OSPE / OSCE

- Each student will be assessed on the same content and have same time to complete the task.
- Time allocated for each station is five minutes as per Examination rules of Ibn e Sina University, Mirpurkhas
- All students are rotated through the same stations.
- OSPE / OSCE Comprises of 15 - 20 stations.
- Each station may assess a variety of diagrammatic identifications and clinical tasks. These

tasks may include history taking, physical examination, skills and application of skills and knowledge

- Stations are Interactive, observed, unobserved (static) and rest stations.
  - Interactive Stations:
    - In this station, examiner ask questions related to the task within the allocated time.
  - Observed Stations:
    - In observed stations, internal or external examiner don't interact with candidate and just observe the performance of the skills or procedures.
  - Unobserved (static) Stations:
    - It will be static stations in which there may be models, specimens, multiple identification points, X-ray, Labs reports, flowcharts, pictures, or clinical scenarios (to assess cognitive domain) with related questions for students will be used to answer on the provided answer copy.
  - Rest station
    - It is a station where there is no task given and in this time student can organize his/her thoughts

11.3.4 ASSIGNMENTS

- An online assignment on the Ibn-e-Sina University moodle uploaded according to the topic of the week.
- All assignments should be checked by the teacher who has taken the lecture on the topic during the same week.
- The assignment should cover enough material to include the requirement of the curriculum and syllabus, so the student should be able to answer the annual examination questions by revising these notes (assignments) only.
- The assignments are checked and graded also with comment to guide, motivate and encourage the students to work whole heartedly. Frequent guidance and motivation will go a long way in improving the students' performance.
- Assignments of the whole Professional year MBBS are counted as in Internal Assessment.

11.3.5 WEEKLY TESTS

- The weekly tests are conducted for all classes. The tests are conducted online and are on topics displayed on the portal (Moodle). It consists of 35 MCQs. 5 MCQs will be from the previous weeks (slightly altered to change the answer or the right option). Everyone taking lectures, submit two MCQs to the Chairperson of the department who will check and pass them to the class moderator. MCQs can also be sent directly to the class moderator, who submits the MCQs to IT department for final placement on the moodle.

- The MCQs are not merely simple recall, but test higher level of cognition. As far as possible, they test an important concept related to one of the topics of the week.

- It is different from the summative assessment (Annual or Semester Examinations) in that the goal of summative assessment is to evaluate student's learning at the end of an instructional unit by comparing it against some standard or benchmark, to decide if the student can be

promoted or not, whereas the goal of these weekly tests is to check the understanding of the students on the important concepts related to the topics that have been displayed on the portal for the week, the teachers have taught them and the students have made assignments on them.

- Results of weekly tests of the whole Professional year MBBS are counted as in Internal Assessment.

11.3.6 POST-TEST DISCUSSION (PTD)

- Every student has to prepare a special assignment where he/she selects all the questions he/she got wrong. Then he/she makes 3 boxes. In box A he/she writes the questions he/she got wrong in his/her own words, highlighting and underlining the keywords. In box B the student explains why he/she has chosen this answer. In box C the student mentions what he/she has learnt after reading the explanation and how the concept has got clear now.

- The moderator will check, assess and grade PTD

- Next day, the class moderator of the class conducts a class where he/she discusses the mistakes committed and the post-test assignments submitted in detail with the class

- PTD assignments of the whole Professional year MBBS are counted as in Internal Assessment.

12. GRADING POLICY

Marks obtained in Percentage range	Numerical Grade	Alphabetical Grade
80-100	4.0	**A+**
75-79	4.0	**A**
70-74	3.7	**A-**
67-69	3.3	**B+**
63-66	3.0	**B**
60-62	2.7	**B-**
56-59	2.3	**C+**
50-55	2.0	**C**
<50 Non gradable	0	**N**

- A student obtaining GPA less than 2.0 (50%) is declared fail or Non gradable

13. ASSESSMENT BLUEPRINT

GIT AND LIVER-I MODULE

Assessment is based on Table of Specification (TOS)

	ASSESMENT	TOOLS	MARKS
MODULE EXAM	THEORY	MCQ's	100
		SEQ's	100
	OSPE	OSPE Static	50
		OSPE Interactive	50
		Total	300

14. RECOMMENDED BOOKS

ANATOMY

- **CLINICALLY ORIENTED ANATOMY**

KEITH.L. MOORE, ARTHUR F. DALLEY, ANNE M.R. AGUR

7TH OR LATEST EDITION

- **GRAY'S ANATOMY FOR STUDENTS**

DRAKE & VOGL & MITCHELL

3RD OR LATEST EDITION

- **CLINICAL ANATOMY BY REGIONS (REFERENCE BOOK)**

RICHARD S. SNELL

9TH EDITION

- **LAST'S ANATOMY: REGIONAL & APPLIED (REFERENCE BOOK)**

CHUMMY S. SINNATAMBY

12TH OR LATEST EDITION

- **ATLAS OF HUMAN ANATOMY**

FRANK H. NETTER

6TH EDITION

EMBRYOLOGY

- **LANGMAN'S MEDICAL EMBRYOLOGY**

T.W. SADLER

13TH EDITION

- **THE DEVELOPING HUMAN CLINICALLY ORIENTED EMBRYOLOGY (REFERENCE BOOK)**

MOORE & PERSAUD & TORCHIA

10TH EDITION

HISTOLOGY

- **MEDICAL HISTOLOGY**

LAIQ HUSSAIN SIDDIQUI
5TH OR LATEST EDITION

- **WHEATERS FUNCTIONAL HISTOLOGY**

BARBARA YOUNG
5TH EDITION

- **BASIC HISTOLOGY (TEXT AND ATLAS) (REFERENCE BOOK)**

LUIZ JUNQUEIRA, JOSE CARNEIRO
11TH OR LATEST EDITION

PHYSIOLOGY

- **GUYTON AND HALL TEXTBOOK OF MEDICAL PHYSIOLOGY**

GUYTON AND HALL
13TH EDITION

BIOCHEMISTRY

- **LIPPINCOTT'S ILLUSTRATED REVIEWS SERIES**

DENISE R. FERRIER
6TH EDITION

- **HARPERS ILLUSTRATED BIOCHEMISTRY (REFERENCE BOOK)**

VICTOR RODWELL, DAVID BENDER, KATHLEEN M. BOTHAM, PETER J. KENNELLY, P. ANTHONY WEIL
28TH EDITION

COMMUNITY MEDCINE

- **PARK'S TEXTBOOK OF PREVENTIVE AND SOCIAL MEDICINE**

K. PARK
26TH EDITION

PATHOLOGY

- **ROBBINS & COTRAN PATHOLOGIC BASIS OF DISEASE**

VINAY KUMAR, ABUL K. ABBAS, JON C. ASTER
10TH EDITION

PHARMACOLOGY

- **LIPPINCOTT ILLUSTRATED REVIEWS: PHARMACOLOGY**
  KAREN WHALEN, CARINDA FEILD, RAJAN RADHAKRISHNAN
  7TH EDITION

IBN-E-SINA UNIVERSITY MIRPURKHAS
FACULTY OF BASIC MEDICAL SCIENCES

Course Feedback Form

Course Title: _____

Semester/Module_____ Dates:_____

Please fill the short questionnaire to make the course better.

Please respond below with 1, 2, 3, 4 or 5, where 1 and 5 are explained.

THE DESIGN OF THE MODLUE

A. Were objectives of the course clear to you? Y ☐ N ☐

B. The course contents met with your expectations
l. Strongly disagree 5. Strongly agree ☐

C. The lecture sequence was well-planned
l. Strongly disagree 5. Strongly agree ☐

D. The contents were illustrated with
l. Too few examples 5. Adequate examples ☐

E. The level of the course was
l. Too low 5. Too high ☐

F. The course contents compared with your expectations
l. Too theoretical 5. Too empirical ☐

G. The course exposed you to new knowledge and practices
l. Strongly disagree 5. Strongly agree ☐

H. Will you recommend this course to your colleagues?
l. Not at all 5. Very strongly ☐

THE CONDUCT OF THE MODLUE

A. The lectures were clear and easy to understand
l. Strongly disagree 5. Strongly agree ☐

B. The teaching aids were effectively used
l. Strongly disagree 5. Strongly agree ☐

C. The course material handed out was adequate
l. Strongly disagree 5. Strongly agree ☐

D. The instructors encouraged interaction and were helpful
l. Strongly disagree 5. Strongly agree ☐

E. Were objectives of the course realized? Yes ☐ No ☐

F. Please give overall rating of the course

90% - l00%	( )	60% - 70%	( )
80% - 90%	( )	50% - 60%	( )
70% - 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

Please comment on the weaknesses of the course and the way it was conducted.

Please give suggestions for the improvement of the course.

Optional - Your name and contact address:

Thank you!!

IBN-E-SINA UNIVERSITY MIRPURKHAS

STUDENT'S STUDY GUIDE
ENDOCRINOLOGY-I MODULE
SECOND PROFESSIONAL MBBS



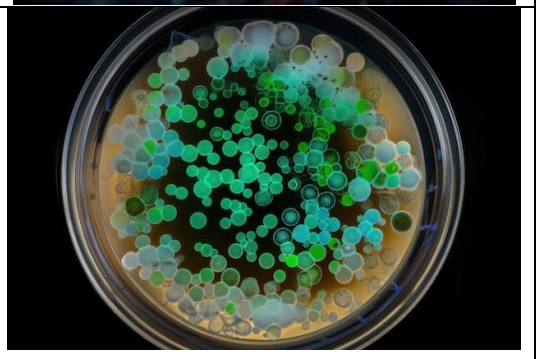




TABLE OF CONTENTS

1. DISCLAIMER

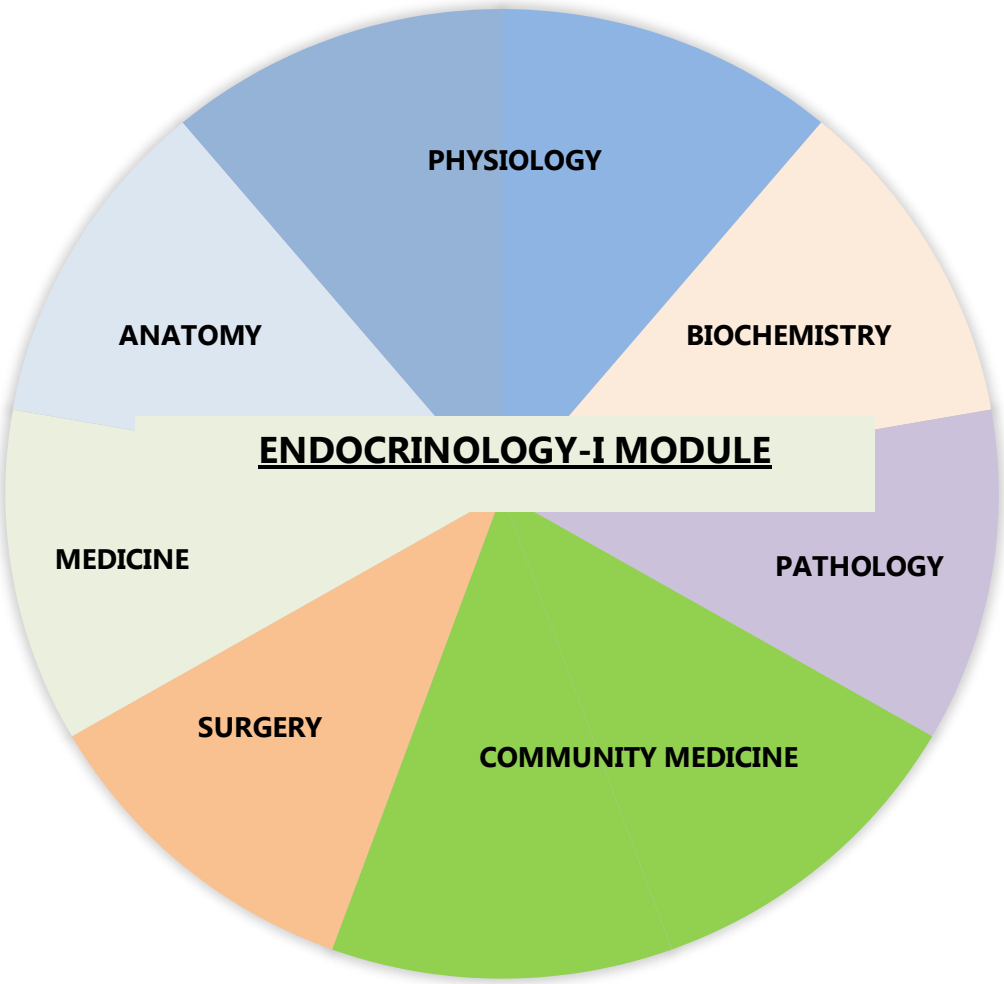
- Developing a study guide is a dynamic process and undergoes iteration according to the needs and priorities.
- This study guide is subjected to the change and modification over the whole academic year.
- However, students are advised to use it as a guide for respective modules.
- The time tables are for guiding purpose. It is to advise that final timetables are always displayed over the notice boards of each lecture hall.
- Students are encouraged to provide feedback via coordinator

2. CURRICULUM FRAMEWORK

An educational strategy known as integrated curriculum places a strong emphasis on interdisciplinary learning, in which students gain knowledge by integrating it from several topic areas. By integrating many subjects and disciplines into a cohesive curriculum, this method seeks to give students a more relevant and interesting learning experience. Integrated curriculum means that subjects are presented as a meaningful whole for better understanding of basic sciences in relation to clinical experience and application.

Integrated curriculum comprises of system-based modules such as Head & neck and special senses, Nervous System-I, Git and Liver-I, Endocrinology-I, Renal & Excretory-I and Reproductive System-I modules which link basic science knowledge to clinical problems.

INTEGRATING DISCIPLINES OF ENDOCRINOLOGY-I MODULE



3. MODULE OVERVIEW

ENDOCRINOLOGY-I MODULE DETAILS

Course	MBBS
Year	Second professional
Duration	4 weeks
Learning Outcomes	The competent Medical Practitioner
Competencies covered	To develop medical professionals who are well - versed, adept, and have the right mindset.
Module Assessment	End module formative assessment
Teaching Methods	Interactive Lectures, Demonstrations, Case Based Learning, Practical Lab, Small Group Discussions, Self-Study Sessions, E-Learning, Clinical rotations
Assessment Methods	MCQs, SEQs, OSPE, VIVA

ENDOCRINOLOGY-I MODULE COMMITTEE

Sr. No	Names	Department	Designation
MODULE COORDINATOR			
1.	Dr. Saqib Baloch	Anatomy	Assistant Professor
2.	Dr. Shahab Hanif	Anatomy	Assistant Professor
COMMITTEE MEMBERS			
1.	Prof: Dr. Syed Razi Muhammad	Surgery	Chancellor ISU
2.	Prof: Dr. Shams Ul Arfeen Khan	Biochemistry	Vice Chancellor ISU
3.	Prof: Dr. Aijaz Ahmed Memon	Surgery	Pro Vice Chancellor ISU

4. WHAT IS STUDY GUIDE

It is an aid to Inform students how student learning program of the module has been organized, tohelp students organize and manage their studies throughout the module and 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.

Module objectives.

— Provides a list of learning resources such as books, computer-assisted learning programs, weblinks, and journals, for students to consult in order to maximize their learning.

— Highlights information on the contribution of continuous on the student's overall performance.

— Includes information on the assessment methods that will be held to determine every student's performance.

Achievement of objectives.

- Focuses on information pertaining to examination policy, rules and regulations.

5. LEARNING METHODOLOGIES

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

- Interactive Lectures
- Small Group Discussion
- Case- Based Learning (CBL)
- Skills session
- Practicals
- Self-Directed Study

- **INTERACTIVE LECTURES:**

  Large group discussions are not the same as traditional lecture formats. When a teacher or instructor uses images, radiographs, patient interaction recordings, etc. to discuss a topic or typical clinical scenario, the lecture becomes interactive. When they are given tiny activities to do that allow them to apply the knowledge they have learned throughout the session and are asked questions, students actively participate in the learning process.

- **SMALL GROUP DISCUSSIONS (SGDS):**

  With the use of SGD, students can take an active role in their education, clarify ideas, develop psychomotor skills, and develop a positive attitude. Discussion themes, patient interviews, and clinical cases are used to design sessions in an organized manner. Pupils are inspired to express their ideas, apply the fundamental knowledge they have learned from lectures and independent study, and are encouraged to share their notions. In small groups, role play is a useful technique for acquainting pupils with real-world scenarios. Probing questions, rephrasing, and summarizing are used by the teacher to assist make the concepts obvious.

- **CASE-BASED LEARNING (CBL):**

  Learning is centered around a sequence of questions based on a clinical scenario in this small group discussion format. Students create new information by discussing and responding to the questions using pertinent prior knowledge from the clinical and fundamental health sciences modules. The relevant department will give the CBL.

- **SKILL SESSIONS:**

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

- **PRACTICALS:**

  Basic science practical related to Anatomy, Physiology and Biochemistry have been schedule for student learning.

- **SELF STUDY:**

Self-directed learning is a process in which students take charge, either on their own or with assistance from others. Students chart their learning objectives and determine their areas of need for learning. They select and employ their own learning methodologies, and they independently assess the learning objectives.

6. INTRODUCTION

The ductless glands that comprise the Endocrine System produce chemicals directly into the bloodstream, transmit information, and keep the body's internal environment stable.
They reach their intended organ or tissue through the bloodstream, where they are recognized and responded to by receptors in the target organ or tissue. Endocrine system hormones regulate and coordinate several bodily processes, including development, metabolism, temperature regulation, stress response, and reproduction.
This module aims to enhance students' comprehension of the fundamental principles of endocrine hormones, including their structure, physiological functions, and diseases related to primary etiology. Additionally, it will highlight how this information can aid in diagnosis and treatment decisions.
This module on the endocrine system will make it easier to identify the clinical manifestations of common metabolic and endocrinological illnesses and connect those manifestations to the fundamental sciences.

6.1 RATIONALE

Endocrine illnesses, such as diabetes mellitus and diseases connected to the thyroid, are widespread throughout Pakistan. In the second spiral of the curriculum, this module serves as the foundation for second-year MBBS students to acquire not just knowledge application but also how to connect the normal and the aberrant.

6.2 IBN E SINA UNIVERSITY (ISU) VISION:

To become a world-leading organization in rural health and social care research, training, recruitment and best evidence-based practice.

6.3 IBN E SINA UNIVERSITY (ISU) MISSION:

Our Mission is to inspire hope, and contribute to health and well-being by providing the best care to every patient through integrated clinical practice, education and research. To provide a focal point for the development and collation of high-quality research pertinent to rural health and wellbeing. To improve the training, recruitment and retention of a professional workforce within rural communities. To be recognized as an exemplar in rural health and wellbeing on the international stage. To establish a network of individuals and groups that support research, innovation and development in rural health and social care.

7. LEARNING OBJECTIVES

At the end of this module, the students will be able to;

7.1 General Learning Outcomes:

1. To elucidate the function of the endocrine system in preserving homeostasis, coordinating development and growth, and encouraging fruitful reproduction.
2. To investigate the histological characteristics of various glands.
3. To differentiate between messengers that are autocrine, paracrine, and endocrine.
4. To explain the mechanisms of action and chemical makeup of hormones.
5. To explain how hormones are synthesized and secreted.
6. To describe the fundamentals of both positive and negative feedback mechanisms that govern the regulation of hormone secretion.
7. To describe the blood's hormone transport system and the effects of several hormones' reversible binding to plasma proteins.
8. To describe the principles behind biological activity measurement and hormone tests.
9. To discuss the significance of hormone activation and breakdown as well as the metabolism of hormones in blood and tissues.
10. To talk about hormone excretion and clearance as well as the metabolic derivatives of hormones.
11. To describe and talk about how hormones function physiologically
12. To elucidate the effects of both excessive and insufficient hormone production.
13. To outline and go over the function of hormone receptors in the action of hormones, including their kind, location, and signaling pathways.
14. to identify the pathophysiological causes and effects of particular endocrine illnesses by using endocrinological concepts.
15. to comprehend pharmacology's function in treating common endocrine diseases.
16. Talk about the causes and effects of iodine deficiency as well as the key components of Pakistan's iodine control program.
17. Describe Pakistan's diabetes mellitus epidemiology from a global viewpoint.
18. Explain the various approaches to diabetes mellitus prevention and management.

7.2 Knowledge / Cognitive Domain

It involves knowledge and the development of intellectual skills. By the end of this module, the students should be able to:

1. Identify the various endocrine glands their Anatomy, Physiology & Biochemistry & pathology.
2. Describe the, synthesis, structure, histological features, functions and Pathophysiology of various hormones secreted by endocrine glands.
3. Describe the regulation of hormones (Positive & Negative feedback mechanism).
4. Describe the conditions associated with dysfunction of endocrine glands.

5. Describe the basic mechanism of action of drugs used to treat these disorders.
6. Identify and mention the microscopic features of Pituitary & Pineal gland, Thyroid and parathyroid gland and Endocrine gland.

7.3 Skills / Psychomotor Domain:

Includes physical movement, co-ordination and the use of motor skill areas. For this Module, these include:

1. Carry out practical work as instructed in an organized and safe manner
2. Make and record observations accurately.
3. Determine the serum levels of different hormones by ELIZA technique and have knowledge of normal and abnormal value.
4. Determine the different blood sugar level HbA1c and have knowledge of normal and abnormal value.
5. To detect Hormonal level by ELISA method
6. Thyroid function test (TSH, T3, T4)
7. Laboratory diagnosis of diabetes mellitus (HbA1C, GCT, OGTT, FBS, RBS)
8. To calculate BMI (Body Mass Index)

7.4 Attitude / Affective Domain:

It Involves our feelings, emotions and attitudes. By the end of this module, the students should be able to:

1. Comply with standard laboratory procedures
2. Engage in professional classroom and practical work.
3. Work as a team to effectively communicate with instructors, staff, and pears.
4. Act with professionalism and moral principles when interacting with teachers, personnel, cadavers, and patients.
5. Work well as a team to communicate with instructors and pears.
6. Show that you have the capacity to evaluate your performance.

7.5 Outcomes of Endocrinology-I Module

1. Knowledgeable
2. Skillful
3. Community Heath Promoter
4. Problem-solver
5. Professional
6. Researcher
7. Leader and Role Model

8. THEMES FOR ENDOCRINOLOGY MODULE

SNO	Theme	Duration
1	**Short/Tall stature and the role of the pituitary gland**	1 week
2	**Neck swelling with bulging eyes & Tetany and the role of the thyroid gland**	1 week
3	**Increased thirst and urination (Diabetes Mellitus/ Diabetes Insipidus) and the role of the pancreas**	1 week
4	**Moon face and the role of the adrenal gland**	1 week

9. SPECIFIC LEARNING OBJECTIVES THEME WISE

THEME 1: SHORT/TALL STATURE AND THE ROLE OF THE PITUITARY GLAND

S. NO	LEANING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESS MENT
		ANATOMY		
01	Define the endocrine system. Classify the endocrine system. What are the functions of the endocrine system.	**Endo-1-Ana-G-1** Introduction of the anatomyof the Endocrine system	Interactive lecture	BCQ'S, SAQ's, OSPE
02	Describe the embryological development & congenital anomalies of pituitary & Pineal gland.	**Endo-1-Ana-E-1** Embryological development of pituitary and Pineal gland.	Interactive lecture	BCQ'S, SAQ's, OSPE
03	Describe the gross anatomy, neurovascular supply & Clinical correlates of Pituitary & Pineal gland	**Endo-Ana-G-2** Gross Anatomy of Pituitary and Pineal gland.	Interactive lecture	BCQ'S, SAQ's, OSPE
04	Discuss the microscopic features of Pituitary & Pineal gland	**Endo-Ana-H-1** Microscopic Anatomy of Pituitary & Pineal gland	Interactive Practical	BCQ'S, SAQ's, OSPE
		BIOCHEMISTRY		
05	How Hormones are classified on the basis of their Chemical Nature	**Endo-1-Bio-1** Classification of Hormones on the basis of chemical Nature.	Interactive Lecture	BCQ/ SAQ/ OSPE
06	How hormones act through cAMP/cGMP/Tyrosine kinase pathway	**Endo-1-BIO-2** Mechanism of action of Hormones (second messenger system)	Interactive Lecture	BCQ/ SAQ/ OSPE
		PHYSIOLOGY		
07	Define different types of chemical messengers Describe the functional relationships between the Hypothalamus -Pituitary Axis	**Endo-1-PHY-1** Introduction to endocrinology Hypothalamus-pituitary Axis	Interactive Lecture	BCQs/ SAQs
08	Describe the hormones secreted by the anterior pituitary gland and describe their hypothalamic control & regulation by positive and negative feedback Mechanism	**Endo-1-PHY-2** Classification of hormones, Regulation of secretion	Demonstration	BCQs/ OSPE

09	Explain the structure, mechanism of action and physiological effects of Growth hormone.	**Endo-1-PHY-3** Physiology and regulation of Growth hormone	Interactive Lecture	BCQ'S, SAQ's, OSPE
10	Describe the functions of Pineal gland, how it control body's circadian rhythm.	**Endo-1-PHY-4** Physiological effects of pineal gland	Interactive Lecture	BCQ
		MEDICINE		
11	Define the clinical conditions related to the pineal and the pituitary gland	**Endo-1-Med-1** Clinical conditions relatedwith pineal and pituitary gland.	Interactive lecture	BCQ/ SAQ
		PATHOLOGY		
12	Describe the different types of Anterior Pituitary gland disorders.	**Endo1-Path-1** Disorders of Pituitary gland.	Interactive lecture	BCQ'S, SAQ's, OSPE

THEME 2: NECK SWELLING WITH BULGING EYES & TETANY AND THE ROLE OF THE THYROID GLAND

		ANATOMY		
13	Describe the embryological development & congenital anomalies of Thyroid & Parathyroid gland.	**Endo-1-Ana-E-2** Embryological developmentof Thyroid & Parathyroid gland.	Interactive lecture	BCQ'S, SAQ's, OSPE
14	Describe the gross anatomy, neurovascular supply & Clinical correlates of Thyroid & Parathyroid gland.	**Endo-1-Ana-G-3** Gross Anatomy of Thyroid & Parathyroid gland.	Interactive lecture	BCQ'S, SAQ's, OSPE
15	Discuss the microscopic features of Thyroid & Parathyroid gland.	**Endo-1-Ana-H-2** Microscopic Anatomy of Thyroid & Parathyroid gland.	Interactive Practical	BCQ'S, SAQ's, OSPE
		BIOCHEMISTRY		
16	Describe the biosynthesis of thyroid hormones from Tyrosine and Iodine trapping by thyroid gland.	**Endo-1-Bio-3** Synthesis of thyroid hormones	Interactive Lecture	BCQ/ SAQ/ OSPE
17	What are thyroid function tests (TFTs)? Describe their biochemical interpretation.	**Endo-1-Bio-4** Biochemical Interpretation of Thyroid Function Tests (TFTs)	Interactive Lecture	BCQ/ SAQ/ OSPE
18	Describe the biochemical roleof parathyroid hormones in Calcium and phosphate metabolism in humans.	**Endo-1-Bio-5** Biochemical actions of parathyroid hormones	Interactive Lecture	BCQ/ SAQ/ OSPE
19	Estimation of thyroid hormones	**Endo-1-Bio-6** Estimation of thyroid hormones	Interactive Practical	BCQ/ SAQ/ OSPE
		PHYSIOLOGY		
20	Describe formation, Secretionand transport of thyroid hormones	**Endo-1-PHY-5** Introduction of Thyroid hormones	Interactive Lecture	BCQ/ SAQ/ OSPE
21	Describe Physiological effects of Thyroid Hormone on Growth, metabolism and body systems	**Endo-1-PHY-6** Physiological role of thyroid hormones	Interactive Lecture	BCQ/ SAQ/ OSPE

22	Explain Mechanism of action/target organ of PTH Describe Effect of Parathyroid Hormone on Calcium regulation	**Endo-1-PHY-7** Physiological role of PTH hormones	Interactive Lecture	BCQ/ SAQ/ OSPE
23	Explain the function, secretionand regulation of Vitamin D and Calcitonin Describe Effect of Describe Effect of Parathyroid Hormoneon Calcium regulation VitaminD and calcitonin Hormone on Calcium regulation	**Endo-1-PHY-8** Physiological role of VitaminD and Calcitonin	Demonstration	BCQ/ SAQ/ OSPE
		PATHOLOGY		
24	Discuss the different disorders of Thyroid gland	**Endo1-Path-2** Disorders of Thyroid gland	Interactive lecture	BCQ'S, SAQ's,
		SURGERY		
25	Define the procedure of thyroidectomy. What are the indications for thyroid surgery? What are the complications related to this surgery?	**Endo-1-Surg-1** Thyroidectomy	Interactive lecture	BCQ/ SAQ OSPE
		COMMUNITY MEDICINE		
26	Discuss the epidemiology and consequences of iodine deficiency Explain Prevalence and causesof Endemic goiter Discuss Preventive measures of Iodine Deficiency at different level of prevention Discuss the strategies of Iodine control program in Pakistan.	**Endo-1-CM-1** Iodine Control Program In Pakistan	Interactive Lecture	BCQ'S, SAQ's, OSPE

THEME-3 INCREASED THIRST AND URINATION AND THE ROLE OF THE PANCREAS

	ANATOMY			
27	Describe the embryological development & congenital anomalies of Endocrine Pancreas.	**Endo-1-Ana-E-3** Embryological developmentof Endocrine Pancreas	Interactive lecture	BCQ'S, SAQ's, OSPE
28	Describe the gross anatomy, neurovascular supply & Clinical correlates of Endocrine Pancreas.	**Endo-1-Ana-G-4** Gross Anatomy of Endocrine Pancreas	Interactive lecture	BCQ'S, SAQ's, OSPE
	BIOCHEMISTRY			
29	Biosynthesis of Insulin. Structure of Insulin. Mechanism of action of Insulinand Glucagon. Factors affecting Insulin secretion. Metabolic functions of Insulin and Glucagon.	**Endo-1-BIO-7** Insulin and glucagon	Interactive lecture	BCQ'S, SAQ's, OSPE
30	How blood glucose is maintained throughout a day inhumans during different metabolic states	**Endo-1-Bio-8** Maintenance of blood sugar during starvation and in well-fed states	Interactive Lecture	BCQ/ SAQ/ OSPE
31	What are Ketotic & non ketotic Complications of Diabetes Mellitus and Explain their Biochemical basis.	**Endo-1-BIO-9** Ketotic & Non ketotic Complications associated with Diabetes Mellitus	Interactive Lecture	BCQ/ SAQ/ OSPE
32	Estimation of serum Insulin	**Endo-1-Bio-10** Estimation of serum Insulin	Interactive Practical	BCQ/ SAQ
	PHYSIOLOGY			
33	Describe secretion and physiological functions of ADH Describe SIADH (syndrome of inappropriate Anti Diuretic Hormone)	**Endo-1-PHY-9** Post pituitary	Demonstration	BCQ/ SAQ/ OSPE
34	Name the hormones of pancreas. Explain Mechanism of action of insulin. Describe the Control of Insulin Secretion	**Endo-1-PHY-10** Endocrine Pancreas	Interactive Lecture	BCQ/ SAQ/ OSPE

35	Describe the effects of insulin on carbohydrates, proteins and Fats metabolism	**Endo-1-PHY-11** Pancreas (Insulin)	Interactive Lecture	BCQ/ SAQ/ OSPE
36	Describe regulation of glucagon and its effects on body	**Endo-1-PHY-12** Pancreas (Glucagon)	Interactive Lecture	BCQ/ SAQ
		MEDICINE		
37	Define diabetes mellitus. Types, risk factors, causes , clinical features, complications of DM	**Endo-1-MED-2** Diabetes Mellitus	Interactive lecture	BCQ/ SAQ
		PATHOLOGY		
38	Describe the different types of Endocrine Pancreas& discuss briefly the Diabetes Mellitus.	**Endo-1-Path-3** Disorder of Endocrine Pancreas, Diabetes Mellitus	Interactive lecture	BCQ'S, SAQ's, OSPE
		COMMUNITY MEDICINE		
39	Describe the epidemiology andrisk factors of Diabetes MellitusDescribe the classification of diabetes mellitus adopted by WHO. Understand the importance ofDM as a global health issue. Explain Complications and discuss Preventive measures ofDiabetes Mellitus at different level of prevention	**Endo-1-CM-2** Epidemiology of diabetes in Pakistan, Preventive measuresfor Diabetes Mellitus at different level of prevention	Interactive Lecture	BCQs/ SAQs/ SEQs

THEME 4: MOON FACE AND THE ROLE OF THE ADRENAL GLAND

ANATOMY				
40	Describe the embryological development & congenital anomalies of Adrenal gland.	**Endo-1-Ana-E-4** Embryological developmentof Adrenal gland.	Interactive lecture	BCQ'S, SAQ's, OSPE
41	Describe the gross anatomy, neurovascular supply & Clinical correlates of Adrenal gland.	**Endo-1-Ana-G-5** Gross anatomy of Adrenal gland.	Interactive lecture	BCQ'S, SAQ's, OSPE
42	Discuss the microscopic features of Adrenal gland.	**Endo-1-Ana-H-3** Microscopic Anatomy of Adrenal Gland	Interactive Practical	BCQ'S, SAQ's, OSPE
BIOCHEMISTRY				
43	Describe the actions of mineralocorticoid hormones in water and electrolyte balance.	**Endo-1-Bio-11** Biochemical actions of mineralocorticoids.	Interactive Lecture	BCQ/ SAQ/ OSPE
44	Describe the Biochemical actions of Glucocorticoid hormones.	**Endo-1-Bio-12** Biochemical actions of Glucocorticoids	Interactive Lecture	BCQ/ SAQ/ OSPE
45	Estimation of serum Cortisol	**Endo-1-Bio-13** Estimation of serum Cortisol	Interactive Practical	BCQ/ SAQ
PHYSIOLOGY				
46	Name the hormones of adrenal cortex, and regulation of adreno cortical hormone secretion.	**Endo-1-PHY-13** Adrenal cortex Regulation of secretion	Interactive Lecture	BCQ/ SAQ/ OSPE
47	Describe the physiological Effects of Aldosterone	**Endo-1-PHY-14** Physiological effects of Aldosterone	Interactive Lecture	BCQ/ SAQ
48	Describe Effects of Cortisol on Carbohydrate, Proteins and Fat Metabolism, role of Cortisol in Stress, Inflammation and Allergy	**Endo-1-PHY-15** Physiological effects of Glucocorticoid (Cortisol)	Demonstration	BCQs/ SAQ
49	To describe BMI.To calculate BMI To describe factors affectingBMI To classify obesity and describe the factors affecting obesity	**Endo-1-PHY-16** To calculate BMI	Interactive Practical	BCQ/ SAQ/ OSPE
MEDICINE				

50	Define the clinical conditions related with the Adrenal gland	**Endo-1-MED-3** Clinical conditions related with Adrenal gland	Interactive lecture	BCQ/ SAQ
		PATHOLOGY		
51	Describe the hyper-secretory & hypo-secretory disorders of adrenal cortex & Medulla	**Endo-1-Path-4** Hyper and Hypo-secretion of hormones from adrenal medulla & cortex	Interactive lecture	BCQ'S, SAQ's, OSPE

9.1 TAGGED SUBJECTS

Topic	Contents	Learning Objectives	Teaching Method	Module	Hours	Assessment
RESEARCH						
Data Collection Procedures	Data Collection Procedures	Discuss procedure of data collection for your study.	Lecture/ Group Discussion	Endocrine 1	2	MCQ and Assignment
Ethical Review	Ethical principles for medical research Application for ethical approval	Describe ethical principles for the purpose of medical research	Lecture	Endocrine 1	1	MCQ and Assignment

9.2 CLINICAL SCIENCES SUBJECTS

ENDOCRINE MODULE				
S. No	**Clinical Sciences Subjects**	**Learning Objectives**	**Hours**	**Learning Strategy**
1.	**ISLAMIC STUDY** Euthanasia and other end of life care issues Islamic concepts of response to pandemics	Evaluate the contemporary issues related to end-of-life care in light of the Islamic teachings Comprehend the concept of saving human life at all costs. Discuss Role of the Moral code of Islam in preventing human life during pandemics even by restricting basic obligatory Ibadah	1 1	Lecture Lecture
2.	**CRITICAL CARE** Endocrine Disturbance	Thyroid storm and myxedema coma Addisons disease and syndrome Hyperglycemia management in ICU Disorders of calcium, phosphate and magnesium	1 1 1 1	Lecture Lecture Lecture Lecture

10. TEACHING HOURS ALLOCATION

S. No	Subject	Hours	Practical Hours
1	Anatomy	12	6
2	Physiology	20	2
3	Biochemistry	13	6
4	Medicine	3	-
5	Pathology	4	-
6	Community Medicine	2	-
7	Surgery	1	-
8	CBL 4 (Physiology)*	8	-
9	CBL 2 (Anatomy)*	4	-
10	Islamic Study	2	-
11	Critical Care	4	-
	Total hours	**73**	**14**

*Minimum 2 hours are allotted for each CBL session per Module

S. No	Tagged Subject	Teaching Hours
1	Professionalism	3
	Total hours	**3**

11. EXAMINATION AND METHODS OF ASSESSMENT

11.1 EXAMINATION RULES AND REGULATIONS

- Student must report to examination hall/venue, in time for smooth conduction of the exams.
- No student will be allowed to enter the examination hall after 10 minutes of scheduled examination time.
- No students will be allowed to sit in exam without College ID Card, and Lab Coat
- Students must sit according to their roll numbers mentioned on the seats.
- Student must bring their own stationary items (Pen, Pencil, Eraser, and Sharpener) – Sharing is prohibited
- Any disturbance or Indiscipline in the exam hall/venue is not acceptable.
- Students must not possess any written material or communicate with their fellow students
- 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 student is allowed to leave the examination hall before half the time is over, paper is handed over to the examiner and properly marking the attendance.**

11.2 ASSESSMENT

11.2.1 Internal: Total 10% (20 marks)

- Students will be assessed comprehensively through multiple methods to determine achievement of module objectives through two methods: Module examination and Graded assessment by Individual department
    - **Module Examination**: It will be scheduled on completion of each module. The method of examination comprises theory exam (which includes SEQs and MCQs) and OSPE / OSCE exam (which includes static and interactive stations).
    - **Graded Assessment by individual department**: It includes weekly MCQs tests on Survive online LMS program, viva, practical, weekly theme based assignments, post-test discussion sessions, peer assessments, presentations, small group activities such as CBL, ward activities, examinations and log books, all of which have specific marks allocation.
- Marks of both modular examination and graded assessment will constitute 10% weightage.
- 10% marks of internal evaluation will be added to the ISU annual professional exam.
- The marks distribution is based on Formative Assessment done individually by all the concerned departments. It may include:

- NOTE: **at least 75% attendance is mandatory** to appear in the annual university examination.
- Exam branch is responsible to maintain the attendance record for Main Campus in coordination with all the concerned departments.

11.2.2 University Annual Exam: Total 90%

- Annual Exam has 90% marks in total
- It includes theory and OSPE / OSCE.
- Each written paper consists of 100 MCQs and 10 SEQs and internal assessment marks will be added to the final marks.

11.3 METHODS OF ASSESSMENT

11.3.1 Multiple Choice Questions

- Single best type MCQs having five options with one correct answer and four distractors are part of assessment.
- Total 100 MCQs are included which are formulated through the table of specification from learning objectives of Module interactive lectures.
- Time duration for MCQs will be 1 and half hour.
- MCQs are used to assess objectives covered in each module.
- Students after reading the statement / scenarios select one appropriate response from the given options.
- Correct answer carries one mark, and incorrect will be marked zero. Rule of negative marking is not applicable.
- Students attempt the MCQs exam on Computer screen on Moodle / LMS program in IT Lab.

11.3.2 Short Essay Questions (SEQs):

- Short-answer questions are structured way of asking open-ended questions that require students to create their answers based on their knowledge.
- Commonly used in examinations to assess the depth of knowledge and understanding.
- Includes 10 questions each carrying 10 marks.
- Time Duration for Essay type paper is 2 hours.
- Questions are selected from the specific learning objectives of the specific ongoing module.

11.3.3 OSPE / OSCE

- Each student will be assessed on the same content and have same time to complete the task.
- Time allocated for each station is five minutes as per Examination rules of Ibn e Sina University, Mirpurkhas
- All students are rotated through the same stations.
- OSPE / OSCE Comprises of 15 - 20 stations.

- Each station may assess a variety of diagrammatic identifications and clinical tasks. These tasks may include history taking, physical examination, skills and application of skills and knowledge
- Stations are Interactive, observed, unobserved (static) and rest stations.
  - Interactive Stations:
    - In this station, examiner ask questions related to the task within the allocated time.
  - Observed Stations:
    - In observed stations, internal or external examiner don't interact with candidate and just observe the performance of the skills or procedures.
  - Unobserved (static) Stations:
    - It will be static stations in which there may be models, specimens, multiple identification points, X-ray, Labs reports, flowcharts, pictures, or clinical scenarios (to assess cognitive domain) with related questions for students will be used to answer on the provided answer copy.
  - Rest station
    - It is a station where there is no task given and in this time student can organize his/her thoughts

11.3.4 ASSIGNMENTS

- An online assignment on the Ibn-e-Sina University moodle uploaded according to the topic of the week.
- All assignments should be checked by the teacher who has taken the lecture on the topic during the same week.
- The assignment should cover enough material to include the requirement of the curriculum and syllabus, so the student should be able to answer the annual examination questions by revising these notes (assignments) only.
- The assignments are checked and graded also with comment to guide, motivate and encourage the students to work whole heartedly. Frequent guidance and motivation will go a long way in improving the students' performance.
- Assignments of the whole Professional year MBBS are counted as in Internal Assessment.

11.3.5 WEEKLY TESTS

- The weekly tests are conducted for all classes. The tests are conducted online and are on topics displayed on the portal (Moodle). It consists of 35 MCQs. 5 MCQs will be from the previous weeks (slightly altered to change the answer or the right option). Everyone taking lectures, submit two MCQs to the Chairperson of the department who will check and pass them to the class moderator. MCQs can also be sent directly to the class moderator, who submits the MCQs to IT department for final placement on the moodle.

- The MCQs are not merely simple recall, but test higher level of cognition. As far as possible, they test an important concept related to one of the topics of the week.

- It is different from the summative assessment (Annual or Semester Examinations) in that the goal of summative assessment is to evaluate student's learning at the end of an instructional

unit by comparing it against some standard or benchmark, to decide if the student can be promoted or not, whereas the goal of these weekly tests is to check the understanding of the students on the important concepts related to the topics that have been displayed on the portal for the week, the teachers have taught them and the students have made assignments on them.

- Results of weekly tests of the whole Professional year MBBS are counted as in Internal Assessment.

11.3.6 POST-TEST DISCUSSION (PTD)

- Every student has to prepare a special assignment where he/she selects all the questions he/she got wrong. Then he/she makes 3 boxes. In box A he/she writes the questions he/she got wrong in his/her own words, highlighting and underlining the keywords. In box B the student explains why he/she has chosen this answer. In box C the student mentions what he/she has learnt after reading the explanation and how the concept has got clear now.
- The moderator will check, assess and grade PTD
- Next day, the class moderator of the class conducts a class where he/she discusses the mistakes committed and the post-test assignments submitted in detail with the class
- PTD assignments of the whole Professional year MBBS are counted as in Internal Assessment.

12. GRADING POLICY

Marks obtained in Percentage range	Numerical Grade	Alphabetical Grade
80-100	4.0	**A+**
75-79	4.0	**A**
70-74	3.7	**A-**
67-69	3.3	**B+**
63-66	3.0	**B**
60-62	2.7	**B-**
56-59	2.3	**C+**
50-55	2.0	**C**
<50 Non gradable	0	**N**

- A student obtaining GPA less than 2.0 (50%) is declared fail or Non gradable

13. ASSESMENT BLUEPRINT

ENDOCRINOLOGY-I MODULE

Assessment is based on Table of Specification (TOS)

	ASSESMENT	TOOLS	MARKS
MODULE EXAM	THEORY	MCQ's	100
		SEQ's	100
	OSPE	OSPE Static	50
		OSPE Interactive	50
		Total	300

14. RECOMMENDED BOOKS

ANATOMY

- **CLINICALLY ORIENTED ANATOMY**

KEITH.L. MOORE, ARTHUR F. DALLEY, ANNE M.R. AGUR

7TH OR LATEST EDITION

- **GRAY'S ANATOMY FOR STUDENTS**

DRAKE & VOGL & MITCHELL

3RD OR LATEST EDITION

- **CLINICAL ANATOMY BY REGIONS (REFERENCE BOOK)**

RICHARD S. SNELL

9TH EDITION

- **LAST'S ANATOMY: REGIONAL & APPLIED (REFERENCE BOOK)**

CHUMMY S. SINNATAMBY

12TH OR LATEST EDITION

- **ATLAS OF HUMAN ANATOMY**

FRANK H. NETTER

6TH EDITION

EMBRYOLOGY

- **LANGMAN'S MEDICAL EMBRYOLOGY**

T.W. SADLER

13TH EDITION

- **THE DEVELOPING HUMAN CLINICALLY ORIENTED EMBRYOLOGY (REFERENCE BOOK)**

MOORE & PERSAUD & TORCHIA

10TH EDITION

HISTOLOGY

- **MEDICAL HISTOLOGY**

LAIQ HUSSAIN SIDDIQUI
5TH OR LATEST EDITION

- **WHEATERS FUNCTIONAL HISTOLOGY**

BARBARA YOUNG
5TH EDITION

- **BASIC HISTOLOGY (TEXT AND ATLAS) (REFERENCE BOOK)**

LUIZ JUNQUEIRA, JOSE CARNEIRO
11TH OR LATEST EDITION

PHYSIOLOGY

- **GUYTON AND HALL TEXTBOOK OF MEDICAL PHYSIOLOGY**

GUYTON AND HALL
13TH EDITION

BIOCHEMISTRY

- **LIPPINCOTT'S ILLUSTRATED REVIEWS SERIES**

DENISE R. FERRIER
6TH EDITION

- **HARPERS ILLUSTRATED BIOCHEMISTRY (REFERENCE BOOK)**

VICTOR RODWELL, DAVID BENDER, KATHLEEN M. BOTHAM, PETER J. KENNELLY, P. ANTHONY WEIL
28TH EDITION

COMMUNITY MEDCINE

- **PARK'S TEXTBOOK OF PREVENTIVE AND SOCIAL MEDICINE**

K. PARK
26TH EDITION

PATHOLOGY

- **ROBBINS & COTRAN PATHOLOGIC BASIS OF DISEASE**

VINAY KUMAR, ABUL K. ABBAS, JON C. ASTER
10TH EDITION

PHARMACOLOGY

- **LIPPINCOTT ILLUSTRATED REVIEWS: PHARMACOLOGY**
  KAREN WHALEN, CARINDA FEILD, RAJAN RADHAKRISHNAN
  7TH EDITION

IBN-E-SINA UNIVERSITY MIRPURKHAS
FACULTY OF BASIC MEDICAL SCIENCES

Course Feedback Form

Course Title: _____

Semester/Module_____ Dates:_____

Please fill the short questionnaire to make the course better.

Please respond below with 1, 2, 3, 4 or 5, where 1 and 5 are explained.

THE DESIGN OF THE MODLUE

A. Were objectives of the course clear to you? Y ☐ N ☐

B. The course contents met with your expectations
l. Strongly disagree 5. Strongly agree ☐

C. The lecture sequence was well-planned
l. Strongly disagree 5. Strongly agree ☐

D. The contents were illustrated with
l. Too few examples 5. Adequate examples ☐

E. The level of the course was
l. Too low 5. Too high ☐

F. The course contents compared with your expectations
l. Too theoretical 5. Too empirical ☐

G. The course exposed you to new knowledge and practices
l. Strongly disagree 5. Strongly agree ☐

H. Will you recommend this course to your colleagues?
l. Not at all 5. Very strongly ☐

THE CONDUCT OF THE MODLUE

A. The lectures were clear and easy to understand
l. Strongly disagree 5. Strongly agree ☐

B. The teaching aids were effectively used
l. Strongly disagree 5. Strongly agree ☐

C. The course material handed out was adequate
l. Strongly disagree 5. Strongly agree ☐

D. The instructors encouraged interaction and were helpful
l. Strongly disagree 5. Strongly agree ☐

E. Were objectives of the course realized? Yes ☐ No ☐

F. Please give overall rating of the course

90% - l00%	( )	60% - 70%	( )
80% - 90%	( )	50% - 60%	( )
70% - 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

Please comment on the weaknesses of the course and the way it was conducted.

Please give suggestions for the improvement of the course.

Optional - Your name and contact address:

Thank you!!

IBN-E-SINA UNIVERSITY MIRPURKHAS

STUDENT'S STUDY GUIDE
RENAL AND EXCRETORY-I MODULE
SECOND PROFESSIONAL MBBS

TABLE OF CONTENTS

1. DISCLAIMER

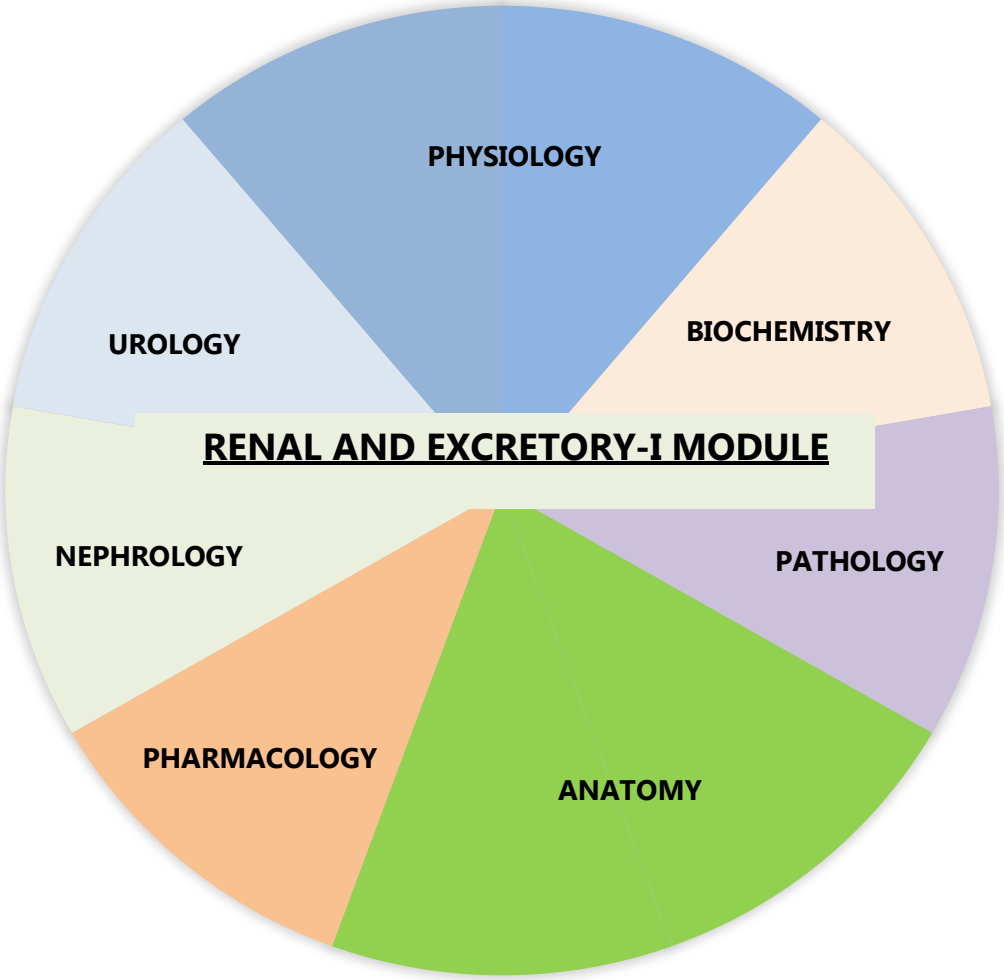
- Developing a study guide is a dynamic process and undergoes iteration according to the needs and priorities.
- This study guide is subjected to the change and modification over the whole academic year.
- However, students are advised to use it as a guide for respective modules.
- The time tables are for guiding purpose. It is to advise that final timetables are always displayed over the notice boards of each lecture hall.
- Students are encouraged to provide feedback via coordinator

2. CURRICULUM FRAMEWORK

An educational strategy known as integrated curriculum places a strong emphasis on interdisciplinary learning, in which students gain knowledge by integrating it from several topic areas. By integrating many subjects and disciplines into a cohesive curriculum, this method seeks to give students a more relevant and interesting learning experience. Integrated curriculum means that subjects are presented as a meaningful whole for better understanding of basic sciences in relation to clinical experience and application.

Integrated curriculum comprises of system-based modules such as Head & neck and special senses, Nervous System-I, Git and Liver-I, Endocrinology-I, Renal & Excretory-I and Reproductive System-I modules which link basic science knowledge to clinical problems.

INTEGRATING DISCIPLINES OF RENAL AND EXCRETORY-I MODULE



3. MODULE OVERVIEW

RENAL AND EXCRETORY-I MODULE DETAILS

Course	MBBS
Year	Second professional
Duration	4 weeks
Learning Outcomes	The competent Medical Practitioner
Competencies covered	To develop medical professionals who are well - versed, adept, and have the right mindset.
Module Assessment	End module formative assessment
Teaching Methods	Interactive Lectures, Demonstrations, Case Based Learning, Practical Lab, Small Group Discussions, Self-Study Sessions, E-Learning, Clinical rotations
Assessment Methods	MCQs, SEQs, OSPE, VIVA

RENAL AND EXCRETORY -I MODULE COMMITTEE

Sr. No	Names	Department	Designation
MODULE COORDINATOR			
1.	Dr. Saqib Baloch	Anatomy	Assistant Professor
2.	Dr. Shahab Hanif	Anatomy	Assistant Professor
COMMITTEE MEMBERS			
1.	Prof: Dr. Syed Razi Muhammad	Surgery	Chancellor ISU
2.	Prof: Dr. Shams Ul Arfeen Khan	Biochemistry	Vice Chancellor ISU
3.	Prof: Dr. Aijaz Ahmed Memon	Surgery	Pro Vice Chancellor ISU

4. WHAT IS STUDY GUIDE

It is an aid to Inform students how student learning program of the module has been organized, tohelp students organize and manage their studies throughout the module and 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.

Module objectives.

— Provides a list of learning resources such as books, computer-assisted learning programs, weblinks, and journals, for students to consult in order to maximize their learning.

— Highlights information on the contribution of continuous on the student's overall performance.

— Includes information on the assessment methods that will be held to determine every student's performance.

Achievement of objectives.

- Focuses on information pertaining to examination policy, rules and regulations.

5. LEARNING METHODOLOGIES

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

- Interactive Lectures
- Small Group Discussion
- Case- Based Learning (CBL)
- Skills session
- Practicals
- Self-Directed Study

- **INTERACTIVE LECTURES:**

  Large group discussions are not the same as traditional lecture formats. When a teacher or instructor uses images, radiographs, patient interaction recordings, etc. to discuss a topic or typical clinical scenario, the lecture becomes interactive. When they are given tiny activities to do that allow them to apply the knowledge they have learned throughout the session and are asked questions, students actively participate in the learning process.

- **SMALL GROUP DISCUSSIONS (SGDS):**

  With the use of SGD, students can take an active role in their education, clarify ideas, develop psychomotor skills, and develop a positive attitude. Discussion themes, patient interviews, and clinical cases are used to design sessions in an organized manner. Pupils are inspired to express their ideas, apply the fundamental knowledge they have learned from lectures and independent study, and are encouraged to share their notions. In small groups, role play is a useful technique for acquainting pupils with real-world scenarios. Probing questions, rephrasing, and summarizing are used by the teacher to assist make the concepts obvious.

- **CASE-BASED LEARNING (CBL):**

  Learning is centered around a sequence of questions based on a clinical scenario in this small group discussion format. Students create new information by discussing and responding to the questions using pertinent prior knowledge from the clinical and fundamental health sciences modules. The relevant department will give the CBL.

- **SKILL SESSIONS:**

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

- **PRACTICALS:**

  Basic science practical related to Anatomy, Physiology and Biochemistry have been schedule for student learning.

- **SELF STUDY:**

  Self-directed learning is a process in which students take charge, either on their own or with assistance from others. Students chart their learning objectives and determine their areas of need for learning. They select and employ their own learning methodologies, and they independently assess the learning objectives.

6. INTRODUCTION

Welcome to the excretory and renal modules. This fascinating session will act as a foundation and is crucial to your future practice as physicians. This module includes a number of interactive tasks that are meant to make your learning engaging and fruitful.

In life, fluid balance is the most crucial aspect. Since every cell in our body is submerged in an extracellular and intracellular fluid compartment, ion movements and media balance are crucial to a person's ability to operate normally. The kidneys' encountering system and functions are exquisite and well-planned. Humans have two kidneys, each of which is made up of a nephron, a unit cell that performs a variety of systemic physiological activities. Nephrons are well-suited to counteract the effects of fluid balance and maintain appropriate pH levels within physiological bounds.

6.1 RATIONALE

The body gets rid of waste and harmful chemicals through the renal and excretory systems. The mechanisms underlying renal diseases such as electrolyte imbalance, dehydration, renal hypertension, renal failure, polycystic kidney, nephrotic and nephritic syndrome, as well as how the renal system develops and functions on a cellular level, will be thoroughly examined in this module along with the renal and excretory systems. With the help of this module, second-year students will be able to identify the clinical signs of common kidney disorders and connect them to the fundamental sciences. We'll be going over it again in the upcoming years.

6.2 IBN E SINA UNIVERSITY (ISU) VISION:

To become a world-leading organization in rural health and social care research, training, recruitment and best evidence-based practice.

6.3 IBN E SINA UNIVERSITY (ISU) MISSION:

Our Mission is to inspire hope, and contribute to health and well-being by providing the best care to every patient through integrated clinical practice, education and research. To provide a focal point for the development and collation of high-quality research pertinent to rural health and wellbeing. To improve the training, recruitment and retention of a professional workforce within rural communities. To be recognized as an exemplar in rural health and wellbeing on the international stage. To establish a network of individuals and groups that support research, innovation and development in rural health and social care.

7. LEARNING OBJECTIVES

7.1 Knowledge / Cognitive Domain

It involves knowledge and the development of intellectual skills. By the end of this module, the students should be able to:

1. By learning and using the pertinent basic sciences, students will be able to: Describe the parts of the renal and excretory systems by the end of this module.
2. Explain how the anatomy, physiology, and biochemistry are changed in a few frequent real-life scenarios (nephritis, metabolic problems, and UTI) using the concepts you have learned above.
3. Give a detailed description of the anatomy of the various renal and excretory system components.
4. Describe the renal and excretory systems' development and abnormalities.
5. Describe and list the renal and excretory systems' microscopic characteristics.
6. Explain the roles that the renal and excretory systems play.
7. Analyze the body's biochemical alterations connected to the kidney and excretory systems.
8. List disorders affecting the kidneys and excretory system.
9. Explain how the renal and excretory systems are managed.
10. Examine the renal and excretory systems.
11. To determine the differential diagnosis, take the patient's history and correlate the signs and symptoms of the renal and excretory systems.
12. To provide community members with advice on renal disease risk factors.

7.2 Skills / Psychomotor Domain:

Includes physical movement, co-ordination and the use of motor skill areas. For this Module, these include:

1. Carry out practical work as instructed in an organized and safe manner
2. Make and record observations accurately.
3. Determine the serum levels of Urea, Creatinine and Electrolytes and have knowledge of normal and abnormal value.
4. Read the normal and abnormal X-ray findings of Urinary tract

7.3 Attitude / Affective Domain:

1. Comply with standard laboratory procedures
2. Engage in professional classroom and practical work.
3. Work as a team to effectively communicate with instructors, staff, and pears.
4. Act with professionalism and moral principles when interacting with teachers, personnel, cadavers, and patients.
5. Work well as a team to communicate with instructors and pears.
6. Show that you have the capacity to evaluate your performance.

7.4 Outcomes of Renal and Excretory-I Module

1. Knowledgeable
2. Skillful
3. Community Heath Promoter
4. Problem-solver
5. Professional
6. Researcher
7. Leader and Role Model

8. THEMES FOR RENAL AND EXCRETORY MODULE

SNO	Theme	Duration
1	**Overview structure and functions of Renal system**	1 week
2	**Renal circulation, GFR and its regulation**	1 week
3	**Tubular reabsorption and secretion**	1 week
4	**Electrolyte and fluid balance, Acid-base balance**	1 week

9. SPECIFIC LEARNING OBJECTIVES THEME WISE

THEME 1: OVERVIEW STRUCTURE AND FUNCTIONS OF RENAL SYSTEM

S.NO	TOPICS	LEARNING OBJECTIVES	TEACHING STRATEGY	ASSESS MENTS
		ANATOMY		
1	**RENAL-ANA-G-1** Gross anatomy of the kidneys	Describe the different parts of Excretory system. Describe the gross anatomical structure & internal structure of kidneys Differentiate the anterior and posterior surfaces and anatomical relations of kidneys.	Interactive lecture	BCQ'S & SAQ'S OSPE
2	**RENAL-ANA-G-2** Blood supply, nerve supply and lymphatic drainage of the kidneys	Describe the blood supply (Renal artery, renal vein) of the kidneys. Define the lymphatic drainage & innervation of the kidneys.	Interactive lecture	BCQ'S & SAQ'S OSPE
3	**RENAL-ANA-H-1** Microscopic anatomy of the kidneys	Renal cortex and medulla, renal lobe renal lobule, medullary rays, renal columns Nephron: Glomerulus, bowman's capsule, PCT, loop of Henle, DCT, collecting tubules, collecting duct, clinical correlates. Components of juxtaglomerular apparatus, components of filtration membrane	Interactive lecture	BCQ's, SAQ's, OSPE
4	**RENAL-ANA-H-2** Histology of the kidneys-1	Renal cortex and medulla, renal lobe renal lobule, medullary rays, renal columns Nephron : Glomerulus, bowman's capsule, PCT, loop of henle, DCT, collecting tubules, collecting duct, clinical correlates.	Interactive Practical	BCQ's, SAQ's, OSPE
5	**RENAL-ANA-E-1** Development of kidney	Describe the Development of intermediate mesoderm, Development of kidney (pronephron, mesonepheron , metanephron)	Interactive Lecture	BCQ'S & SAQ'S OSPE
		PHYSIOLOGY		
6	**RENAL-PHY-1** General functions of kidneys and excretory system	Describe the different functions of the kidney and its role in homeostasis. Describe the different parts of the nephron. Distinguish b/w different types of nephrons.	Demonstration	BCQ'S & SAQ'S OSPE
		BIOCHEMISTRY		

7	**RENAL-BIO-P1** Analysis of Urine	Discus normal and abnormal constituents of urine (Urine analysis). Discuss all the reagents, instruments required along with the methodology	interactive practical	BCQ'S & SAQ'S OSPE
PATHOLOGY				
8	**RENAL-PATH-1** Anomalies of kidney	Discuss the congenital and developmental anomalies of kidney Describe autosomal dominant and autosomal recessive polycystic kidney disease	Interactive lecture	BCQs, SAQs, Viva
NEPHROLOGY				
9	**RENAL-NEPH-1** Acute kidney injury	Describe the pathogenesis of the acute kidney injury	Interactive Lecture	BCQ's, SAQ's,
RADIOLOGY				
10	**RENAL-RADIO-1** X-ray KUB	Identify the normal x-ray of abdomen showing renal shadows (margins) vertebral levels, psoas shadows and contrast media in renal calyces, ureter and bladder (in contrast radiographs)	Interactive Lecture	BCQ's,

THEME 2: RENAL CIRCULATION, GFR AND ITS REGULATION

S.NO	TOPICS	LEARNING OBJECTIVES	TEACHING STRATEGY	ASSESSMENTS
		Anatomy		
11	**RENAL-ANA-G-3** Gross anatomical features of the ureters	Describe the gross structure of ureters Define its blood supply, innervation & lymphatic drainage	Interactive lecture	BCQ'S & SAQ'S OSPE
12	**RENAL-ANA-H-3** Microscopic anatomy of the ureters, urinary bladder and urethra	Ureter: Lumen, epithelium, histological layers, clinical correlates. Urinary bladder: epithelium, histological layers, clinical correlates. Urethra: parts, epithelium, histological layers, difference of male and female urethra, clinical correlates.	Interactive lecture	BCQ's, SAQ's, OSPE
13	**RENAL-ANA-E-2** Development of ureter , urinary bladder & urethra (male & female)	Explain the development of ureters, urinary bladder & urethra (male & female)	Interactive Lecture	BCQ'S & SAQ'S OSPE
14	**RENAL-ANA-H-4** Histology of the kidneys-2	Components of juxtaglomerular apparatus, components of filtration membrane, clinical correlates.	Interactive Practical	BCQ's, SAQ's, OSPE
		PHYSIOLOGY		
15	**RENAL-PHY-2** Glomerular filtration rate (GFR) and its regulating factors	Students should be able To, explain how glomerular filtrate is formed. Describe the composition of the glomerular filtrate. State the main determinants of solute filterability. Define glomerular filtration rate (GFR) and state its normal value. Discuss the major factors that regulate the GFR (Net filtration pressure, hydrostatic, and colloid osmotic pressures)	Demonstration	BCQ'S & SAQ'S OSPE
16	**RENAL-PHY-3** Autoregulation of GFR and renal blood flow	Students should be able To define tubulo glomerular feedback Explain the functions of juxta glomerular apparatus and Macula densa Discuss myogenic autoregulation	Interactive Lecture	BCQ'S & SAQ'S OSPE

17	**RENAL-PHY-P1** To pass the urinary catheter-1	Define the conditions when to pass the urinary catheter How to insert the urinary catheter? (perform the procedure)	Interactive practical	BCQ'S & SAQ'S
PATHOLOGY				
18	**RENAL-PATH-2** Introduction to glomerular diseases	Classify of glomerular diseases Discuss the clinical manifestation of glomerular diseases	Interactive lecture	BCQs, SAQs, Viva
NEPHROLOGY				
19	**RENAL-NEPH-2** Chronic kidney injury	Describe pathogenesis of chronic kidney injury	Interactive Lecture	BCQ's, SAQ's,

THEME 3: TUBULAR REABSORPTION AND SECRETION

S.NO	TOPICS	LEARNING OBJECTIVES	TEACHING STRATEGY	ASSESS MENTS
		ANATOMY		
19	**RENAL-ANA-G-4** Gross anatomical features of the urinary bladder and urethra	Describe the gross structure of urinary bladder and urethra, its blood supply, nerve supply	Interactive lecture	BCQ'S & SAQ'S OSPE
20	**RENAL-ANA-E-3** Congenital anomalies of excretory system	Explain the congenital anomalies related with excretory system Differentiate between the congenital abnormalities and pathological conditions of excretory system.	Interactive Lecture	BCQ'S & SAQ'S OSPE
21	**RENAL-ANA-H-5** Histology of the Ureter and Urinary bladder	Ureter: Lumen, epithelium, histological layers, Urinary bladder: epithelium, histological layers, clinical correlates. Urethra: parts, epithelium, histological layers, difference of male and female urethra	Interactive Practical	BCQ's, SAQ's, OSPE
		PHYSIOLOGY		
22	**RENAL-PHY-4** Features of Renal tubules	Describe features of the renal tubules. Define the renal processes: tubular reabsorption & tubular secretion. Discuss the transport mechanisms among different segments of renal tubule.	Demonstration	BCQ'S & SAQ'S OSPE
23	**RENAL-PHY-5** Tubular reabsorption and secretion – I	Explain the regulation of tubular reabsorption and secretion Define transport maximum (Tm), renal plasma threshold and splay.	Interactive Lecture	BCQ'S & SAQ'S OSPE
24	**RENAL-PHY-6** Tubular reabsorption and secretion – II	Describe the mode of reabsorption of different substances (e.g. Na+, K+, Cl-, glucose, urea, and water). Describe the mode of secretion of different substances (e.g. K+, H+ and organic ions).	Interactive Lecture	BCQ'S & SAQ'S OSPE

25	**RENAL-PHY-7** Hormonal regulation of tubular functions	To describe the nervous mechanisms that regulates tubular function (renal sympathetic nerves. To describe the hormonal mechanisms that regulate tubular function: A) Renin-angiotensin system. B) Aldosterone. c)Atrial natriuretic peptides. d)Antidiuretic hormone. e)Parathyroid hormone.	Interactive Lecture	BCQ'S & SAQ'S OSPE
26	**RENAL-PHY-P2** To pass the urinary catheter-2	Define the conditions when to pass the urinary catheter How to insert the urinary catheter? (perform the procedure)	Interactive practical	BCQ'S & SAQ'S
BIOCHEMISTRY				
27	**RENAL-BIO-1** Na+ Metabolism	Describe the different sources of sodium. Enlist different functions of sodium. Justify their role in maintaining the osmolality of plasma. Interpret the Normal values of sodium in serum and urine.	Interactive Lecture	BCQ'S & SAQ'S OSPE
28	**RENAL-BIO-2** K+, Cl- Metabolism	Describe the different sources of potassium & Chloride. Enlist different functions of potassium & Chloride. Justify their role in maintaining the osmolality of plasma. Interpret the Normal values of potassium & chloride in serum and urine	Interactive Lecture	BCQ'S & SAQ'S OSPE
29	**RENAL-BIO-P-2** Estimation of serum Electrolytes	To estimate the serum electrolytes level in a given serum. Discuss all the reagents, instruments required along with the methodology	Interactive Practical	BCQ's, SAQ's, OSPE
PHARMACOLOGY				
30	**RENAL-PHARM-1** Diuretics	Classification, Mechanism of action, indications, contraindications and adverse effects of diuretics	Interactive Lecture	BCQs, SAQs, Viva
NEPHROLOGY				

31	**<u>RENAL-NEPH-3</u>** Glomerular disease (Nephritic and nephrotic syndrome)	Describe the pathogenesis of glomerular disorder Discuss the clinical manifestation of glomerular diseases	Interactive Lecture	BCQ's, SAQ's, OSPE

THEME 4: ELECTROLYTE AND FLUID BALANCE, ACID-BASE BALANCE

S.NO	TOPICS	LEARNING OBJECTIVES	TEACHING STRATEGY	ASSESS MENTS
		ANATOMY		
32	**RENAL-ANA-G-5** Applied anatomy related with kidneys	Explain prinephric abscess, nephrotosis, renal transplantation, renal cysts, pain in pararenal region, accessory renal vessels	Interactive Lecture	BCQ'S & SAQ'S OSPE
33	**RENAL-ANA-H-6** Histology of the Urethra	Urethra: parts, epithelium, histological layers, difference of male and female urethra, clinical correlates.	Interactive Practical	BCQ's, SAQ's, OSPE
		PHYSIOLOGY		
34	**RENAL-PHY-8** Concentration and Dilution of urine - I	Describe the mechanisms behind the establishment of an osmotic gradient in the medullary interstitium. Describe the counter current multiplication system. Describe how urea contributes to the hyperosmotic renal medullary interstitium and to the urine concentration.	Demonstratio n	BCQ'S & SAQ'S OSPE
35	**RENAL-PHY-9** Concentration and Dilution of urine – II	Describe the role of vasa recta as countercurrent exchanger in maintaining the hyperosmolarity of the renal medulla. Describe how the kidneys produce dilute and concentrated urine. Define obligatory urine volume	Interactive Lecture	BCQ'S & SAQ'S OSPE
36	**RENAL-PHY-10** Micturition reflex and its abnormalities	Define micturition. Describe process of storage, elimination of urine and its control (ANS) Explain micturition reflex. Define atonic and autonomic bladder	Interactive Lecture	BCQ'S & SAQ'S OSPE

37	**RENAL-PHY-11** Acidification of urine	Discuss different buffer systems in the body (bicarbonate, phosphate, ammonia) Explain the role of kidneys in acid base balance Discuss the changes in the level of urine PH (maximum/minimum level; 4.5-8)	Interactive Lecture	BCQ'S & SAQ'S OSPE
38	**RENAL-PHY-P3** Arterial Blood gas Analysis	Arterial blood sampling Analysis and interpretation of arterial blood gases	Interactive Practical	BCQ's, SAQ's, OSPE
BIOCHEMISTRY				
39	**RENAL-BIO-3** Body Buffers	Describe the Body Buffers. Describe its related disorders. Discuss its management.	Interactive Lecture	BCQ'S & SAQ'S OSPE
40	**RENAL-BIO-4** Acid Base balance , Disorders & management	Define the Acid Base balance. Describe its related disorders. Discuss its management.	Interactive Lecture	
41	**RENAL-BIO-5** Renal Function Tests	Describe glomerular function Explain clearance test (inulin, creatinine and urea) Discuss tubular function test Discuss proteinuria	Interactive Lecture	BCQ'S & SAQ'S OSPE
42	**RENAL-BIO-P3** Interpretation of ABG's	Demonstrate the normal and abnormal blood Ph, bicarbonate, carbon dioxide and oxygen levels.	Interactive Practical	BCQ's, SAQ's, OSPE
43	**RENAL-BIO-P4** Renal Function Tests	Describe glomerular function Estimation of serum creatinine Explain clearance test (inulin, creatinine and urea) Discuss tubular function test Discuss proteinuria	Interactive Practical	BCQ's, SAQ's, OSPE
PATHOLOGY				
44	**RENAL-PATH-3** Infections of kidney & lower urinary tract	Enlist infection related to kidney & lower urinary tract Define acute and chronic pyelonephritis Describe causes of acute and chronic pyelonephritis Define acute and chronic cystitis and mention its causes	Interactive lecture	BCQs, SAQs, Viva
UROLOGY				

45	**RENAL-URO-1** How to approach urological patient	Describe the sign and symptoms of the urinary system diseases What should be the differential diagnosis to approach the urinary system diseases	Interactive Lecture	BCQ's, SAQ's
46	**RENAL-URO-2** How to investigate urological patient	Describe the basic investigations to diagnose the urinary system diseases	Interactive Lecture	BCQ's, SAQ's
SKILL LAB				
47	**RENAL SKILL LAB** Dialysis	Define dialysis and mechanism of function of artificial kidney Define dialysate, uraemia Discuss peritoneal dialysis technique Complications of the dialysis	Skill lab	BCQ's

9.1 TAGGED SUBJECTS

Topic	Contents	Learning Objectives	Teaching Method	Module	Hours	Assessment
COMMUNICATION SKILLS						
Verbal and non- verbal communication skills	Verbal and non-verbal communication skills	Develop and Demonstrate effective verbal and non-verbal communication skills	Role play, Group Discussion	GIT 1/ Renal 1	1	MCQ
Listening skills	Listening skills	Develop and demonstrate active listening skills for learning purposes and to the patient's problems	Role play, Group Discussion	GIT1/ Renal 1	1	MCQ
Reading skills	Reading skills	Develop and Demonstrate effective reading skills	Role play, Group Discussion	GIT 1/ Renal 1	1	MCQ
RESEARCH						
Sampling techniques and sample selection	Probability and non-probability Sampling techniques Sample Selection Inclusion Criteria Exclusion Criteria	Describe various sampling techniques. Justify sampling techniques chosen for a specific research project. Select sample for a specific research project	Lecture/ Group Discussion	Renal 1	2	MCQs/Assignment
Designing of a Questionnaire	Steps for making a questionnaire	Design a questionnaire Identify validated questionnaire	Lecture/ Group Discussion	Renal 1	2	MCQ and Assignment

9.2 CLINICAL SCIENCES SUBJECTS

RENAL AND EXCRETORY MODULE 1				
S. No	**Clinincal Sciences Subjects**	**Learning Objectives**	**Hours**	**Learning Strategy**
1.	**ISLAMIC STUDY** Death & Dying	Envision the spiritual and metaphysical aspects of death in light of the teachings of Quran & Hadith.	1	Lecture
	Islam and tolerance	To recognize that Islam give very high priority to tolerance while dealing with Muslims and Non-Muslim individuals. Narrate examples from life of Prophet and Sahabah. Recognize the reward of tolerance in this world and the hereafter	1	Lecture
2.	**ANAESTHESIA** Acid Bases balance	Explain Acidosis	1	Lecture
		Discuss Alkalosis	1	Lecture
		Describe the causes for metabolic acidosis and metabolic alkalosis	1	Lecture
		Disucss Acid Base Balance	1	Lecture
3.	**CRITICAL CARE** Renal Disturbance	Metabolic Acidosis & Alkalosis	1	Lecture
		Acute Kidney Injury in the ICU	1	Lecture
		Renal replacement therapy in ICU	1	Lecture
		Disorders of Sodium & Potassium	1	Lecture
4.	**Orthopaedics & Trauma** Nailing	I/M nailing of long bones	1	Lecture
		Plating long bones	1	Lecture
		Surgery in PPD and CP like tendon elongations/transfers	2	Skill session
		Close Nailing	1	Lecture
5.	**UROLOGY** Kidneys, Ureter and Bladder	Embryology and Surgical anatomy of Kidneys and ureter	1	Lecture
		Congenital anomalies of Kidneys and Ureters	1	Lecture

		Urinary Symptoms (irritative and obstructive symptoms	1	Lecture
		Etiology and pathogenesis of Kidney Stones	1	Lecture
		Etiology and pathogenesis of UTI	1	Lecture
		Congenital Annomalies of Bladder	1	Lecture
		Etiology and pathogenesis of Cystitis	1	Lecture
6.	**FAMILY MEDICINE** Common Renal / Urinary problems	Haematuria, UTIs and bladder problems	1	Lecture
		Renal colic	1	Lecture
		Acute Renal presentations	1	Lecture

10. TEACHING HOURS ALLOCATION

S. No	Subject	Hours	Practical Hours
1	Anatomy	10	12
2	Physiology	15	6
3	Biochemistry	5	8
4	Pathology	3	-
5	Nephrology	3	-
6	Pharmacology	1	-
7	CBL 2 (Anatomy)*	4	-
8	CBL 4 (Physiology)*	8	-
9	CBL 2 (Biochemistry)*	4	-
10	Radiology	1	-
11	Islamic Study	2	-
12	Anesthesia	4	-
13	Critical Care	4	-
14	Orthopaedics & Trauma	5	-
15	Urology	9	
16	Family Medicine	3	-
	Total hours	**81**	**26**

*Minimum 2 hours are allotted for each CBL session per Module

S. No	Tagged Subject	Teaching Hours
1	Communication Skills	3
6	Research	4
	Total hours	**7**

11. EXAMINATION AND METHODS OF ASSESSMENT

11.1 EXAMINATION RULES AND REGULATIONS

- Student must report to examination hall/venue, in time for smooth conduction of the exams.
- No student will be allowed to enter the examination hall after 10 minutes of scheduled examination time.
- No students will be allowed to sit in exam without College ID Card, and Lab Coat
- Students must sit according to their roll numbers mentioned on the seats.
- Student must bring their own stationary items (Pen, Pencil, Eraser, and Sharpener) –Sharing is prohibited
- Any disturbance or Indiscipline in the exam hall/venue is not acceptable.
- Students must not possess any written material or communicate with their fellow students
- 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 student is allowed to leave the examination hall before half the time is over, paper is handed over to the examiner and properly marking the attendance.**

11.2 ASSESSMENT

11.2.1 Internal: Total 10% (20 marks)

- Students will be assessed comprehensively through multiple methods to determine achievement of module objectives through two methods: Module examination and Graded assessment by Individual department
    - **Module Examination**: It will be scheduled on completion of each module. The method of examination comprises theory exam (which includes SEQs and MCQs) and OSPE / OSCE exam (which includes static and interactive stations).
    - **Graded Assessment by individual department**: It includes weekly MCQs tests on Survive online LMS program, viva, practical, weekly theme based assignments, post-test discussion sessions, peer assessments, presentations, small group activities such as CBL, ward activities, examinations and log books, all of which have specific marks allocation.
- Marks of both modular examination and graded assessment will constitute 10% weightage.
- 10% marks of internal evaluation will be added to the ISU annual professional exam.
- The marks distribution is based on Formative Assessment done individually by all the concerned departments. It may include:
- NOTE: **at least 75% attendance is mandatory** to appear in the annual university examination.

- Exam branch is responsible to maintain the attendance record for Main Campus in coordination with all the concerned departments.

11.2.2 University Annual Exam: Total 90%

- Annual Exam has 90% marks in total
- It includes theory and OSPE / OSCE.
- Each written paper consists of 100 MCQs and 10 SEQs and internal assessment marks will be added to the final marks.

11.3 METHODS OF ASSESSMENT

11.3.1 Multiple Choice Questions

- Single best type MCQs having five options with one correct answer and four distractors are part of assessment.
- Total 100 MCQs are included which are formulated through the table of specification from learning objectives of Module interactive lectures.
- Time duration for MCQs will be 1 and half hour.
- MCQs are used to assess objectives covered in each module.
- Students after reading the statement / scenarios select one appropriate response from the given options.
- Correct answer carries one mark, and incorrect will be marked zero. Rule of negative marking is not applicable.
- Students attempt the MCQs exam on Computer screen on Moodle / LMS program in IT Lab.

11.3.2 Short Essay Questions (SEQs):

- Short-answer questions are structured way of asking open-ended questions that require students to create their answers based on their knowledge.
- Commonly used in examinations to assess the depth of knowledge and understanding.
- Includes 10 questions each carrying 10 marks.
- Time Duration for Essay type paper is 2 hours.
- Questions are selected from the specific learning objectives of the specific ongoing module.

11.3.3 OSPE / OSCE

- Each student will be assessed on the same content and have same time to complete the task.
- Time allocated for each station is five minutes as per Examination rules of Ibn e Sina University, Mirpurkhas
- All students are rotated through the same stations.
- OSPE / OSCE Comprises of 15 - 20 stations.
- Each station may assess a variety of diagrammatic identifications and clinical tasks. These

tasks may include history taking, physical examination, skills and application of skills and knowledge

- Stations are Interactive, observed, unobserved (static) and rest stations.
  - Interactive Stations:
    - In this station, examiner ask questions related to the task within the allocated time.
  - Observed Stations:
    - In observed stations, internal or external examiner don't interact with candidate and just observe the performance of the skills or procedures.
  - Unobserved (static) Stations:
    - It will be static stations in which there may be models, specimens, multiple identification points, X-ray, Labs reports, flowcharts, pictures, or clinical scenarios (to assess cognitive domain) with related questions for students will be used to answer on the provided answer copy.
  - Rest station
    - It is a station where there is no task given and in this time student can organize his/her thoughts

11.3.4 ASSIGNMENTS

- An online assignment on the Ibn-e-Sina University moodle uploaded according to the topic of the week.
- All assignments should be checked by the teacher who has taken the lecture on the topic during the same week.
- The assignment should cover enough material to include the requirement of the curriculum and syllabus, so the student should be able to answer the annual examination questions by revising these notes (assignments) only.
- The assignments are checked and graded also with comment to guide, motivate and encourage the students to work whole heartedly. Frequent guidance and motivation will go a long way in improving the students' performance.
- Assignments of the whole Professional year MBBS are counted as in Internal Assessment.

11.3.5 WEEKLY TESTS

- The weekly tests are conducted for all classes. The tests are conducted online and are on topics displayed on the portal (Moodle). It consists of 35 MCQs. 5 MCQs will be from the previous weeks (slightly altered to change the answer or the right option). Everyone taking lectures, submit two MCQs to the Chairperson of the department who will check and pass them to the class moderator. MCQs can also be sent directly to the class moderator, who submits the MCQs to IT department for final placement on the moodle.

- The MCQs are not merely simple recall, but test higher level of cognition. As far as possible, they test an important concept related to one of the topics of the week.

- It is different from the summative assessment (Annual or Semester Examinations) in that the goal of summative assessment is to evaluate student's learning at the end of an instructional

unit by comparing it against some standard or benchmark, to decide if the student can be promoted or not, whereas the goal of these weekly tests is to check the understanding of the students on the important concepts related to the topics that have been displayed on the portal for the week, the teachers have taught them and the students have made assignments on them.

- Results of weekly tests of the whole Professional year MBBS are counted as in Internal Assessment.

11.3.6 POST-TEST DISCUSSION (PTD)

- Every student has to prepare a special assignment where he/she selects all the questions he/she got wrong. Then he/she makes 3 boxes. In box A he/she writes the questions he/she got wrong in his/her own words, highlighting and underlining the keywords. In box B the student explains why he/she has chosen this answer. In box C the student mentions what he/she has learnt after reading the explanation and how the concept has got clear now.

- The moderator will check, assess and grade PTD

- Next day, the class moderator of the class conducts a class where he/she discusses the mistakes committed and the post-test assignments submitted in detail with the class

- PTD assignments of the whole Professional year MBBS are counted as in Internal Assessment.

12. GRADING POLICY

Marks obtained in Percentage range	Numerical Grade	Alphabetical Grade
80-100	4.0	**A+**
75-79	4.0	**A**
70-74	3.7	**A-**
67-69	3.3	**B+**
63-66	3.0	**B**
60-62	2.7	**B-**
56-59	2.3	**C+**
50-55	2.0	**C**
<50 Non gradable	0	**N**

- A student obtaining GPA less than 2.0 (50%) is declared fail or Non gradable

13. ASSESSMENT BLUEPRINT

RENAL AND EXCRETORY-I
MODULE

Assessment is based on Table of Specification (TOS)

	ASSESMENT	TOOLS	MARKS
MODULE EXAM	THEORY	MCQ's	100
		SEQ's	100
	OSPE	OSPE Static	50
		OSPE Interactive	50
		Total	300

14. RECOMMENDED BOOKS

ANATOMY

- **CLINICALLY ORIENTED ANATOMY**

KEITH.L. MOORE, ARTHUR F. DALLEY, ANNE M.R. AGUR

7TH OR LATEST EDITION

- **GRAY'S ANATOMY FOR STUDENTS**

DRAKE & VOGL & MITCHELL

3RD OR LATEST EDITION

- **CLINICAL ANATOMY BY REGIONS (REFERENCE BOOK)**

RICHARD S. SNELL

9TH EDITION

- **LAST'S ANATOMY: REGIONAL & APPLIED (REFERENCE BOOK)**

CHUMMY S. SINNATAMBY

12TH OR LATEST EDITION

- **ATLAS OF HUMAN ANATOMY**

FRANK H. NETTER

6TH EDITION

EMBRYOLOGY

- **LANGMAN'S MEDICAL EMBRYOLOGY**

T.W. SADLER

13TH EDITION

- **THE DEVELOPING HUMAN CLINICALLY ORIENTED EMBRYOLOGY (REFERENCE BOOK)**

MOORE & PERSAUD & TORCHIA

10TH EDITION

HISTOLOGY

- **MEDICAL HISTOLOGY**

LAIQ HUSSAIN SIDDIQUI
5TH OR LATEST EDITION

- **WHEATERS FUNCTIONAL HISTOLOGY**

BARBARA YOUNG
5TH EDITION

- **BASIC HISTOLOGY (TEXT AND ATLAS) (REFERENCE BOOK)**

LUIZ JUNQUEIRA, JOSE CARNEIRO
11TH OR LATEST EDITION

PHYSIOLOGY

- **GUYTON AND HALL TEXTBOOK OF MEDICAL PHYSIOLOGY**

GUYTON AND HALL
13TH EDITION

BIOCHEMISTRY

- **LIPPINCOTT'S ILLUSTRATED REVIEWS SERIES**

DENISE R. FERRIER
6TH EDITION

- **HARPERS ILLUSTRATED BIOCHEMISTRY (REFERENCE BOOK)**

VICTOR RODWELL, DAVID BENDER, KATHLEEN M. BOTHAM, PETER J. KENNELLY, P. ANTHONY WEIL
28TH EDITION

COMMUNITY MEDCINE

- **PARK'S TEXTBOOK OF PREVENTIVE AND SOCIAL MEDICINE**

K. PARK
26TH EDITION

PATHOLOGY

- **ROBBINS & COTRAN PATHOLOGIC BASIS OF DISEASE**

VINAY KUMAR, ABUL K. ABBAS, JON C. ASTER
10TH EDITION

PHARMACOLOGY

- **LIPPINCOTT ILLUSTRATED REVIEWS: PHARMACOLOGY**
  KAREN WHALEN, CARINDA FEILD, RAJAN RADHAKRISHNAN
  7TH EDITION

IBN-E-SINA UNIVERSITY MIRPURKHAS
FACULTY OF BASIC MEDICAL SCIENCES

Course Feedback Form

Course Title: _____

Semester/Module_____ Dates:_____

Please fill the short questionnaire to make the course better.

Please respond below with 1, 2, 3, 4 or 5, where 1 and 5 are explained.

THE DESIGN OF THE MODLUE

A. Were objectives of the course clear to you? Y ☐ N ☐

B. The course contents met with your expectations
l. Strongly disagree 5. Strongly agree ☐

C. The lecture sequence was well-planned
l. Strongly disagree 5. Strongly agree ☐

D. The contents were illustrated with
l. Too few examples 5. Adequate examples ☐

E. The level of the course was
l. Too low 5. Too high ☐

F. The course contents compared with your expectations
l. Too theoretical 5. Too empirical ☐

G. The course exposed you to new knowledge and practices
l. Strongly disagree 5. Strongly agree ☐

H. Will you recommend this course to your colleagues?
l. Not at all 5. Very strongly ☐

THE CONDUCT OF THE MODLUE

A. The lectures were clear and easy to understand
l. Strongly disagree 5. Strongly agree ☐

B. The teaching aids were effectively used
l. Strongly disagree 5. Strongly agree ☐

C. The course material handed out was adequate
l. Strongly disagree 5. Strongly agree ☐

D. The instructors encouraged interaction and were helpful
l. Strongly disagree 5. Strongly agree ☐

E. Were objectives of the course realized? Yes ☐ No ☐

F. Please give overall rating of the course

90% - l00%	( )	60% - 70%	( )
80% - 90%	( )	50% - 60%	( )
70% - 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

Please comment on the weaknesses of the course and the way it was conducted.

Please give suggestions for the improvement of the course.

Optional - Your name and contact address:

Thank you!!

IBN-E-SINA UNIVERSITY MIRPURKHAS

STUDENT'S STUDY GUIDE
REPRODUCTIVE SYSTEM-I MODULE
SECOND PROFESSIONAL MBBS



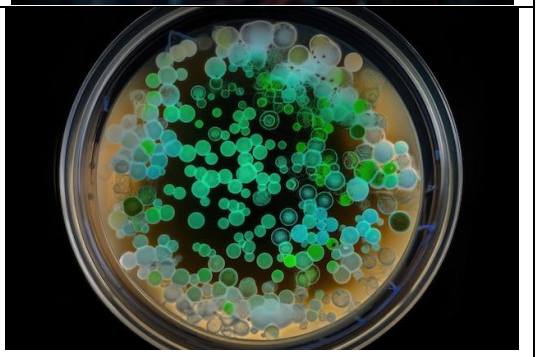




TABLE OF CONTENTS

1. DISCLAIMER

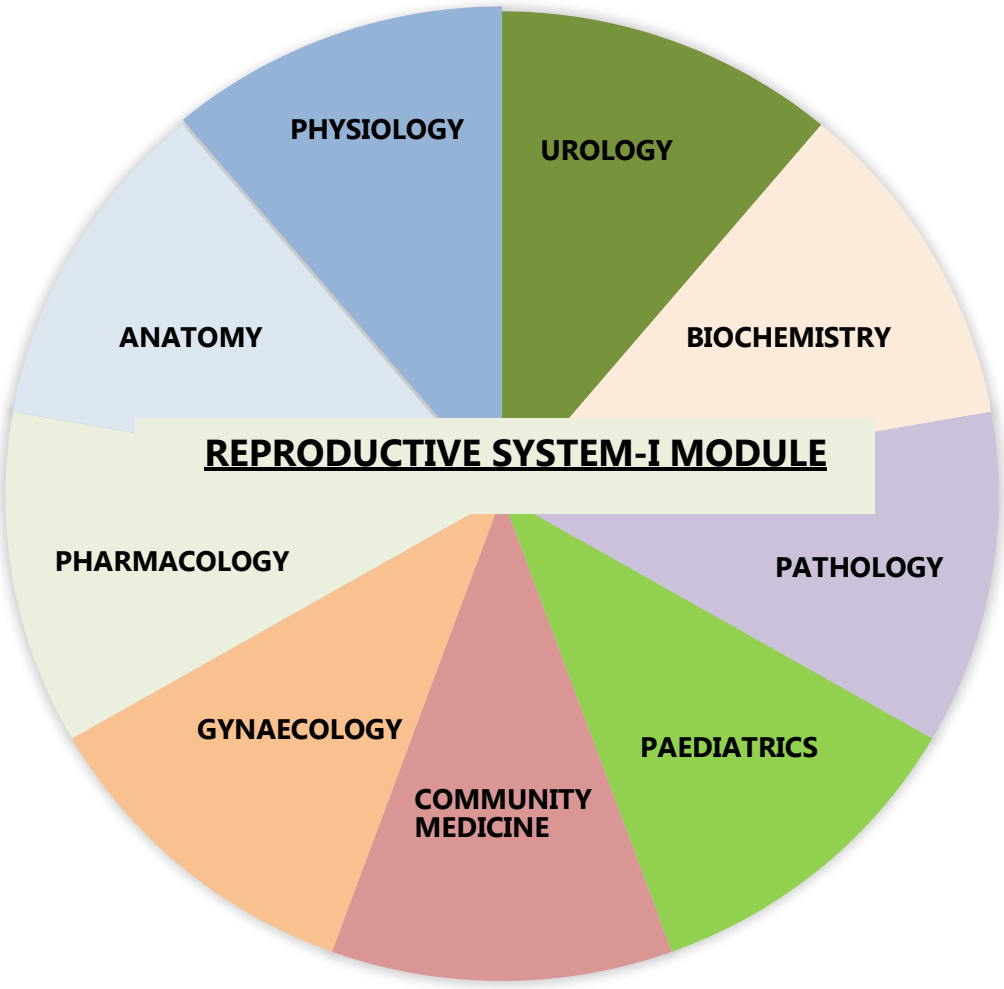
- Developing a study guide is a dynamic process and undergoes iteration according to the needs and priorities.
- This study guide is subjected to the change and modification over the whole academic year.
- However, students are advised to use it as a guide for respective modules.
- The time tables are for guiding purpose. It is to advise that final timetables are always displayed over the notice boards of each lecture hall.
- Students are encouraged to provide feedback via coordinator

2. CURRICULUM FRAMEWORK

An educational strategy known as integrated curriculum places a strong emphasis on interdisciplinary learning, in which students gain knowledge by integrating it from several topic areas. By integrating many subjects and disciplines into a cohesive curriculum, this method seeks to give students a more relevant and interesting learning experience. Integrated curriculum means that subjects are presented as a meaningful whole for better understanding of basic sciences in relation to clinical experience and application.

Integrated curriculum comprises of system-based modules such as Head & neck and special senses, Nervous System-I, Git and Liver-I, Endocrinology-I, Renal & Excretory-I and Reproductive System-I modules which link basic science knowledge to clinical problems.

INTEGRATING DISCIPLINES OF REPRODUCTIVE SYSTEM-I MODULE



3. MODULE OVERVIEW

REPRODUCTIVE SYSTEM -I MODULE DETAILS

Course	MBBS
Year	Second professional
Duration	4 weeks
Learning Outcomes	The competent Medical Practitioner
Competencies covered	To develop medical professionals who are well - versed, adept, and have the right mindset.
Module Assessment	End module formative assessment
Teaching Methods	Interactive Lectures, Demonstrations, Case Based Learning, Practical Lab, Small Group Discussions, Self-Study Sessions, E-Learning, Clinical rotations
Assessment Methods	MCQs, SEQs, OSPE, VIVA

REPRODUCTIVE SYSTEM-I MODULE COMMITTEE

Sr. No	Names	Department	Designation
MODULE COORDINATOR			
1.	Dr. Saqib Baloch	Anatomy	Assistant Professor
2.	Dr. Shahab Hanif	Anatomy	Assistant Professor
COMMITTEE MEMBERS			
1.	Prof: Dr. Syed Razi Muhammad	Surgery	Chancellor ISU
2.	Prof: Dr. Shams Ul Arfeen Khan	Biochemistry	Vice Chancellor ISU
3.	Prof: Dr. Aijaz Ahmed Memon	Surgery	Pro Vice Chancellor ISU

4. WHAT IS STUDY GUIDE

It is an aid to Inform students how student learning program of the module has been organized, tohelp students organize and manage their studies throughout the module and 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.

Module objectives.

— Provides a list of learning resources such as books, computer-assisted learning programs, weblinks, and journals, for students to consult in order to maximize their learning.

— Highlights information on the contribution of continuous on the student's overall performance.

— Includes information on the assessment methods that will be held to determine every student's performance.

Achievement of objectives.

- Focuses on information pertaining to examination policy, rules and regulations.

5. LEARNING METHODOLOGIES

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

- Interactive Lectures
- Small Group Discussion
- Case- Based Learning (CBL)
- Skills session
- Practicals
- Self-Directed Study

- **INTERACTIVE LECTURES:**

  Large group discussions are not the same as traditional lecture formats. When a teacher or instructor uses images, radiographs, patient interaction recordings, etc. to discuss a topic or typical clinical scenario, the lecture becomes interactive. When they are given tiny activities to do that allow them to apply the knowledge they have learned throughout the session and are asked questions, students actively participate in the learning process.

- **SMALL GROUP DISCUSSIONS (SGDS):**

  With the use of SGD, students can take an active role in their education, clarify ideas, develop psychomotor skills, and develop a positive attitude. Discussion themes, patient interviews, and clinical cases are used to design sessions in an organized manner. Pupils are inspired to express their ideas, apply the fundamental knowledge they have learned from lectures and independent study, and are encouraged to share their notions. In small groups, role play is a useful technique for acquainting pupils with real-world scenarios. Probing questions, rephrasing, and summarizing are used by the teacher to assist make the concepts obvious.

- **CASE-BASED LEARNING (CBL):**

  Learning is centered around a sequence of questions based on a clinical scenario in this small group discussion format. Students create new information by discussing and responding to the questions using pertinent prior knowledge from the clinical and fundamental health sciences modules. The relevant department will give the CBL.

- **SKILL SESSIONS:**

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

- **PRACTICALS:**

  Basic science practical related to Anatomy, Physiology and Biochemistry have been schedule for student learning.

- **SELF STUDY:**

  Self-directed learning is a process in which students take charge, either on their own or with assistance from others. Students chart their learning objectives and determine their areas of need for learning. They select and employ their own learning methodologies, and they independently assess the learning objectives.

6. INTRODUCTION

Welcome to the Reproductive system module. This fascinating session will act as a foundation and is crucial to your future practice as physicians. This module includes a number of interactive tasks that are meant to make your learning engaging and fruitful.
In order to manage general gynecological problems, STDs, infertility, tumors, breast disorders, pregnancy, and related issues in the mother and newborns, students can relate their knowledge of anatomy, physiology, and pathology of the structures of the male and female reproductive systems with the clinical presentation of internal and external genital diseases through the Reproduction module.

6.1 RATIONALE

The reproductive system is covered in great detail in this module. It gives undergraduate students the ability to explain their understanding of the anatomy, physiology, biochemistry, pharmacology, and pathology of the reproductive systems of both men and women. In order for students to be able to manage general gynecological problems, pregnancy-related issues in mothers and newborns, sexually transmitted infections, infertility issues, and breast disorders, it is intended that they be able to correlate this knowledge with the clinical presentation of internal and external genital diseases in the years to come.

6.2 IBN E SINA UNIVERSITY (ISU) VISION:

To become a world-leading organization in rural health and social care research, training, recruitment and best evidence-based practice.

6.3 IBN E SINA UNIVERSITY (ISU) MISSION:

Our Mission is to inspire hope, and contribute to health and well-being by providing the best care to every patient through integrated clinical practice, education and research. To provide a focal point for the development and collation of high-quality research pertinent to rural health and wellbeing. To improve the training, recruitment and retention of a professional workforce within rural communities. To be recognized as an exemplar in rural health and wellbeing on the international stage. To establish a network of individuals and groups that support research, innovation and development in rural health and social care.

7. LEARNING OBJECTIVES

7.1 Knowledge / Cognitive Domain

It involves knowledge and the development of intellectual skills. By the end of this module, the students should be able to:

1. Explain the reproductive organs' anatomy (both sexes).
2. Talk about how the male and female reproductive systems developed.
3. Examine the associated developmental abnormalities of the reproductive systems in men and women.
4. Determine the distinct histological characteristics of the reproductive organs in men and women.
5. Describe the ways that male and female reproductive systems differ from one another.
6. Explain what puberty is and how hormones cause it to begin.
7. Mention a definition for "secondary sexual characteristics."
8. Describe the differentiation and determination of sex.
9. Explain and define spermatogenesis.
10. Explain how hormones affect spermatogenesis. Describe the roles of the glands and ducts in the male genitalia and how they affect the production of semen.
11. Explain the actions and secretion of testosterone. Defining capacitation
12. Explain the dysfunctions of the testicles.
13. Describe the ovary's functions.
14. Oogenesis is described by the secondary sexual traits of females.
15. Explain the ovarian cycle using a hormonal perspective.
16. Explain the uterine cycle and its hormonal causes.
17. Describe the development and function of the corpus luteum.
18. Give definitions for the terms menorrhagIa, oligomenorrhea, polymenorrhea, and amenorrhea.
19. Explain the fertilization process.
20. Describe how the physiology of the body's various systems changes throughout pregnancy.
21. Explain the placenta's functions.
22. Explain the fertilization process.
23. Describe how the physiology of the body's various systems changes throughout pregnancy.
24. Define work and Describe the hormonal triggers for labor, the stages of labor, and the mechanisms that lead to labor.
25. Describe how the breasts grow and alter during puberty. Explain The regulation of lactation and its impact on the menstrual cycle
26. Explain sterilization and contraception.
27. Describe the contraceptive methods used by men and women.
28. To elucidate the production and control of reproductive hormones.
29. To describe the metabolic alterations that a mother experiences during pregnancy.

30. To describe the physiological underpinnings of the pregnancy detection tests.
31. To elucidate contraception's biology.
32. To elucidate menopause's biology.
33. To describe the postmenopausal hormonal condition of reproductive hormones and their effects on the different organ systems, with a focus on the bones.
34. Recognize the significance of maternal healthcare
35. Determine the strategies for lowering the death rate among mothers.
36. Recognize the Safe Motherhood Initiative concept.
37. Acknowledge the significance of contraception and family planning.
38. Recognize the significance of teenage health

7.2 Skills / Psychomotor Domain:

Includes physical movement, co-ordination and the use of motor skill areas. For this Module, these include:

1. Demonstrate the proper technique of clinical breast examination.
2. Demonstrate the examination of axillary and supraclavicular lymph nodes.
3. Identify the findings in Fibroadenoma and Carcinoma

7.3 Attitude / Affective Domain:

It involves our feelings, emotions and attitudes. By the end of this module, the students should be able to:

1. Comply with standard laboratory procedures
2. Engage in professional classroom and practical work.
3. Work as a team to effectively communicate with instructors, staff, and pears.
4. Act with professionalism and moral principles when interacting with teachers, personnel, cadavers, and patients.
5. Work well as a team to communicate with instructors and pears.
6. Show that you have the capacity to evaluate your performance.

7.4 Outcomes of Reproductive System-I Module

1. Knowledgeable
2. Skillful
3. Community Heath Promoter
4. Problem-solver
5. Professional
6. Researcher
7. Leader and Role Model

8. THEMES FOR REPRODUCTIVE SYSTEM -I MODULE

SNO	Theme	Duration
1	**Pelvimetry and the injuries to the pelvic floor**	1 week
2	**Morbidity and Mortality related with the Genital Organs Malignancies**	1 week
3	**Pregnancy, Parturition, Child birth and the Congenital anomalies**	1 week
4	**Role of the Reproductive hormones, Contraception and Menopause**	1 week

9. SPECIFIC LEARNING OBJECTIVES THEME WISE

THEME 1: PELVIMETRY AND THE INJURIES TO THE PELVIC FLOOR

S. NO	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
		ANATOMY		
01	Describe the bony pelvis Differentiate the types of bony pelvis	**Repro –S-1 G-1** Bony Pelvis (inlet and outlet) Difference b/w male & female pelvis Types of bony pelvis	Demonstration	BCQs, SAQs, OSPE, Viva
02	Describe the structures constitute the pelvic floor Explain the pelvic walls	**Repro –S-1 G-2** Pelvic walls, Pelvic floor Pelvic fascia	Demonstration	
03	Describe the arrangement of viscera within the pelvic cavity Define the male and female external and internal genital organs	**Repro –S-1 G-3** Over view of pelvic viscera (urinary bladder, sigmoid colon, Rectum and Male & female genital organs)	Interactive Lecture	
04	Discuss the gross features of testis and epididymis and ductus deferens Importance of descend of testis Correlate the arterial supply, venous drainage and lymphatic drainage of testis. Discuss the clinical correlates	**Repro –S-1 G-4** Testis, epididymis ,Ductus deferens	Demonstration	
05	Describe the anatomy of prostate Seminal vesicles and ejaculatory ducts Discuss the clinical correlates	**Repro –S-1 G-5** Prostate, Seminal vesicles, Ejaculatory ducts	Interactive Lecture	
06	Explain development of male reproductive system. Discuss the development of gonads. Discuss the fate of genital ducts in the male.	**Repro –S-1 EMB-1** Development of Gonads and genital ducts	Interactive Lecture	

07	Discuss the development of male external genitalia. Describe the anomalies of the male reproductive system.	**Repro –S-1 EMB-2** Development of male external genitalia	Interactive Lecture	
08	Identify the microscopic features of the parts of male reproductive system. Identify the histological features of testis and epididymis	**Repro –S-1 HISTO-1** Microscopic features of testis and epididymis	Interactive Practical	
PHYSIOLOGY				
09	Parts of male and female reproductive system. Primary sex organs, Accessory sex organs Hormones (terminologies) Puberty, Menarche.	**Repro –S1-PHYS-1** General introduction of Reproductive System	Interactive Lecture	BCQs, SAQs, OSPE, Viva
10	Explain the process (stages) spermatogenesis. Describe the hormonal influence on spermiogenesis. Discuss the function of prostate gland	**Repro –S1-PHYS-2** Spermatogenesis, spermiogenesis, sperm	Interactive Lecture	
11	To discuss the secretion & functions of testosterone with its metabolism. To describe mode of action of testosterone. Discuss the regulation of male sex hormone.	**Repro –S1-PHYS-3** Male Sex Hormones (Testosterone)	Demonstration	
BIOCHEMISTRY				
12	Describe the Synthesis & Regulation of Reproductive hormones	**Repro-S1 BIO- 1** Synthesis & Regulation of Reproductive hormones	Interactive lecture	BCQs, SAQs, OSPE, Viva
13	Describe the synthesis , role and mechanism of action of male sex hormones	**Repro-S1 BIO- 2** Male sex hormones	Interactive lecture	
PATHOLOGY				
14	Enlist congenital anomalies of penis Describe congenital anomalies of testis & epididymis Discuss atrophy of testis	**Repro-S1-PATH-1** Congenital anomalies of male genital tract	Interactive lecture	BCQs, SAQs, OSPE, Viva
COMMUNITY MEDICINE				

15	Understand the concept and purpose of safe-motherhood initiative. Discuss about the pillars of Safe-motherhood/ components Effectiveness of safe motherhood initiative in Pakistan.	**Repro-S1 CM-1** Safe Motherhood	Interactive lecture	BCQs, SAQs, OSPE, Viva
UROLOGY				
16	Define BPH List the sign and symptoms of BPH Medical and surgical treatment of BPH Describe when a patient of BPH should contact to a urologist.	**Repro-S1-URO-1** Benign prostatic hypertrophy (BPH)	Interactive lecture	BCQs, SAQs, OSPE, Viva

THEME 2: MORBIDITY AND MORTALITY RELATED WITH THE GENITAL ORGANS MALIGNANCIES

S. NO	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
	ANATOMY			
17	Describe the female internal genital organs Explain the anatomy of ovaries Discuss the anatomy of fallopian tube	**Repro –S-1 G-6** Ovaries and Uterine tubes	Interactive Lecture	BCQs, SAQs, OSPE, Viva
18	Explain the anatomy of Uterine tubes Describe the parts of uterus, supportsof uterus. Explain the anatomy of vagina	**Repro –S-1 G-7** Uterus and vagina	Interactive lecture	
19	Explain the boundaries of perineum Describe the division of perineum Discuss perineal body	**Repro –S-1 G-8** Divisions of perineum , Perineal body	Interactive lecture	
20	Discuss the contents of anal triangle Briefly discuss the anatomy of anal canal	**Repro –S-1 G-9** Contents of anal triangle Anal canal	Interactive lecture	
21	Identify the boundaries of ischioanal fossa Discuss the contents of ischiorectal fossa.	**Repro –S-1 G-10** Ischiorectal fossa	Interactive lecture	
22	Discuss the microscopic features of prostate and seminal vesicle	**Repro –S-1 HISTO-2** Histology of Prostate, Seminal Vesicle	Interactive Practical	
	PATHOLOGY			
23	Define inflammatory conditions of spermatic cord and testis. Describe morphology and its clinical feature	**Repro-S1-Path-2** Inflammatory lesions of male genital organs	Interactive lecture	BCQs, SAQs, OSPE, Viva
	PHARMACOLOGY			
24	Describe pharmacology of androgen hormones and anti- androgen agents. Clinical uses of androgen hormones and anti- androgen drugs. To have knowledge about sideeffects and contraindications of androgen hormones and anti- androgen drugs	**Repro- S1 PHARM-1** Androgens and Anti Androgens	Demonstration	BCQs, SAQs, OSPE, Viva

THEME 3: PREGNANCY, PARTURITION, CHILD BIRTH AND THE CONGENITAL ANOMALIES

S. NO	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESS MENT
		ANATOMY		
25	Discuss the contents of urogenital triangle in the male and female (external genitalia)	**Repro –S-1 G-11** Male and female external genitalia	Interactive lecture	BCQs, SAQs, OSPE, Viva
26	Discuss the contents of superficial perineal pouch in the male Discuss the contents of deep perineal pouch in male	**Repro –S-1 G-12** Urogenital diaphragm and contents of superficial and deep perineal pouch in the male	Interactive lecture	
27	Discuss the contents of superficial perineal pouch in female Discuss the contents of deep perineal pouch in female	**Repro –S-1 G-13** Contents of superficial perineal pouch and deep perineal pouch in the female	Interactive lecture	
28	Describe the development of parts of female reproductive system Discuss the development of gonads	**Repro –S-1 EMB-3** Development of female reproductive System	Interactive Lecture	
29	Identify the microscopic features of the parts of female reproductive system. Discuss the epithelial lining of ovary and fallopian tube	**Repro –S-1 HISTO-3** Microscopic features of Ovary and Fallopian tube	Interactive Practical	
		PHYSIOLOGY		
30	Describe the phases of menstrual cycle. Describe the hormonal variations and regulatory mechanism of changes occurring during cycle. Describe the hormonal changes and control mechanism of the changes that occur at menopause.	**Repro –S1-PHYS-4** Menstrual cycle, Menopause.	Interactive Lecture	BCQs, SAQs, OSPE, Viva
31	Discuss ovarian cycle, oogenesis, Phases of development of ova, and development of corpus luteum Describe the synthesis, function and regulation of estrogen and progesterone Phases of endometrial cycle	**Repro –S1-PHYS-5** Ovarian Cycle, Estrogen, Progesterone, Endometrial Cycle	Demonstration	
		BIOCHEMISTRY		

32	Describe the syntheses, role and mechanism of action of female sex hormones	**Repro-S1-BIO-3** Female sex hormones	Interactive Lecture	BCQs, SAQs, OSPE, Viva
PATHOLOGY				
32	Enlist congenital anomalies of uterus and vagina Define pelvic inflammatory disease and organism involved in it. Discuss complications of pelvic inflammatory disease.	**Repro-S1-PATHO-3** Female Genital Tract. Congenital anomalies & Inflammatory diseases	Interactive lecture	BCQs, SAQs, OSPE, Viva
34	Endometrial histology during menstrual cycle Define dysfunctional uterine bleeding and its causes. Describe acute and chronic endometritis	**Repro-S1-PATHO-4** Diseases of Endometrium	Interactive lecture	
PHARMACOLOGY				
35	Describe the mechanism of action of Estrogens and Anti estrogens Explain the clinical uses and side effects of estrogen preparations.	**Repro S1 PHARM-2** Estrogens and Anti estrogens	Interactive lecture	BCQs, SAQs, OSPE, Viva
COMMUNITY MEDICINE				
36	Describe basic concept of family planning methods and its scope Outline the importance of family planning Discuss contraception and its application according to the needs of Pakistan Discuss the Different methods of contraception. Describe Mode of action of different contraceptive methods.	**Repro S1 CM-2** Family Planning, scope andmethods of family planning	Interactive Lecture	BCQs, SAQs, OSPE, Viva
GYNAECOLOGY				
27	Describe the menstrual cycle related abnormalities	**Repro-S1-Gynae & obs-1** Menstrual disorders	Interactive lecture	BCQs, SAQs, OSPE, Viva

THEME 4: ROLE OF THE REPRODUCTIVE HORMONES, CONTRACEPTION AND MENOPAUSE

S. NO	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
	ANATOMY			
38	Discuss the major blood vessels of pelvis and perineum	**Repro –S-1 G-14** Internal iliac artery and its branches	Interactive lecture	BCQs, SAQs, OSPE, Viva
39	Describe the nerves of pelvis and perineum Describe the sacral plexus and hypogastric plexus.	**Repro –S-1 G-15** Nerves of Pelvis & Perineum, sacral Plexus Hypogastric plexus	Interactive lecture	
40	Discuss the venous drainage of the pelvis and perineum. Explain the areas of lymph drainage of pelvis and perineum , Clinical importance	**Repro –S-1 G-16** Venous &Lymphatic drainage of pelvis and perineum	Interactive lecture	
41	Discuss the development of genital ducts in female Discuss the development of female external genitalia. Explain the clinical correlates	**Repro –S-1 EMB-4** Development of genital ducts Development of female external genitalia	Interactive Lecture	
42	Discuss the microscopic features of uterus, cervix and vagina	**Repro –S-1 HISTO-4** Histology of uterus, cervix, vagina	Interactive Practical	
	PHYSIOLOGY			
43	Describe the synthesis, and function of B-HCG (Human chorionic gonadotropin) Explain the effects of HCG in causing persistence in pregnancy Describe the physiological events taking place during Pregnancy.	**Repro –S1-PHYS-6** Pregnancy, Placental hormones Physiological ChangesDuring Pregnancy	Demonstration	BCQs, SAQs, OSPE, Viva
44	Describe parturition and its various stages, & hormonal changes Discuss the secretion & functions of oxytocin. Describe mode of action of oxytocin Describe the changes in uterus during pregnancy, and after birth. Describe the involution of uterus. Describe the hormone required to develop	**Repro –S1-PHYS-7** Parturition and Oxytocin	Interactive Lecture	

	mammary glands during pregnancy.			
45	Describe the physiology of the mammary gland. Describe the lactation reflex. Describe the weaning.	**Repro –S1-PHYS-8** Breast and Lactation	Interactive Lecture	
46	Perform the pregnancy test, on pregnancy test-strip	**Repro –S1-PHYS-9** Pregnancy test	Interactive Practical	
PHARMACOLOGY				
47	Describe The Pharmacology of Oral Contraceptive Drugs. To describe their adverse effects and contraindication. Explain drug Interactions of Oral Contraceptive Drugs.	**Repro-S1 Pharm-3** Contraceptive Drugs	Interactive lecture	BCQs, SAQs, OSPE, Viva
COMMUNITY MEDICINE				
48	Understand the importance of adolescent health Describe the common Adolescent health issues. Discuss the different approaches for promoting adolescent health.	**Repro S1 CM-3** Adolescent Health	Interactive Lecture	BCQs, SAQs, OSPE, Viva
PAEDIATRICS				
49	Describe the patho-physiology of mammary gland disorders. Describe the lactation reflex Describe the hormonal effect Student guide for complete protocol of lactation and weaning	**Repro S1-PAEDS-1** Breast feeding guide for medical profession	Interactive Lecture	BCQs, SAQs, OSPE, Viva

9.1 TAGGED SUBJECTS

Topic	Contents	Learning Objectives	Teaching Method	Module	Hours	Assessment
RESEARCH						
Plagiarism	Definition, Types, Strategies to avoid it	Describe plagiarism and how to avoid it	Lecture/ Group Discussion	Reproduction 1	2	MCQ
MANAGEMENT AND LEADERSHIP						
Models of Leadership and management	Models of leadership & management	Compare different models of leadership and management	Lecture /group discussion	Reproduction 1	1	MCQs

9.2 CLINICAL SCIENCES SUBJECTS

REPRODUCTION – I MODULE				
S. No	**Clinical Sciences Subjects**	**Learning Objectives**	**Hours**	**Learning Strategy**
1.	**ISLAMIC STUDY** Family planning and contraception	Examine psycho-social and ethical issues related to family planning and contraception	1	Lecture
	Gender Interaction in personal and Professional Communication	Envision the wisdom of gender- based roles and responsibilities and limits of cross-gender interaction in personal and professional contexts in light of the teachings of Islam	1	Lecture
2.	**CRITICAL CARE** Environmental Disasters	Heat stroke	1	Lecture
		Disaster management	1	Lecture
		Biological & chemical warfare	1	Lecture
		End of Life care	1	Lecture
3.	**ORTHOPAEDICS & TRAUMA**	Hemiarthroplasty of the hip	2	Skill session
		Emergency management of Poly trauma	1	Lecture
		Fixation of trochanteric and femoral neck fractures	2	Skill session
4.	**UROLOGY** Urological Investigations	Urological investigations (routine urinalysis, urine culture techniques, urinary collections for metabolic studies and urine cytological studies)	2	Skill Session
		Renal Function Tests	1	Lecture
		Ultrasonography of kidney and bladder	1	Lecture
		CT Scan and MRI of urinary tract	1	Lecture
		Intravenous excretory urography	1	Lecture
		Voiding cystourethrography	1	Lecture

5.	**FAMILY MEDICINE** Non communicable diseases	Obesity Asthma COPD	1 1 1	Lecture Lecture Lecture

10. TEACHING HOURS ALLOCATION

S. No	Subject	Hours	Practical Hours
1	Anatomy	23	8
2	Physiology	13	2
3	Biochemistry	3	-
4	Pathology	4	-
5	Pharmacology	3	-
6	Community Medicine	3	-
7	Pediatrics	1	-
8	Gynaecology	1	-
9	CBL 2 (Anatomy)*	4	-
10	CBL 4 (Physiology)*	8	-
11	CBL 2 (Biochemistry)*	4	-
12	Islamic Study	2	-
13	Critical Care	4	-
14	Orthopaedics & Trauma	5	-
15	Urology	8	-
16	Family Medicine	3	-
	Total hours	**89**	**10**

*Minimum 2 hours are allotted for each CBL session per Module

S. No	Tagged Subject	Teaching Hours
1	Research	2
2	Leadership and Management	1
	Total hours	**3**

11. EXAMINATION AND METHODS OF ASSESSMENT

11.1 EXAMINATION RULES AND REGULATIONS

- Student must report to examination hall/venue, in time for smooth conduction of the exams.
- No student will be allowed to enter the examination hall after 10 minutes of scheduled examination time.
- No students will be allowed to sit in exam without College ID Card, and Lab Coat
- Students must sit according to their roll numbers mentioned on the seats.
- Student must bring their own stationary items (Pen, Pencil, Eraser, and Sharpener) –Sharing is prohibited
- Any disturbance or Indiscipline in the exam hall/venue is not acceptable.
- Students must not possess any written material or communicate with their fellow students
- 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 student is allowed to leave the examination hall before half the time is over, paper is handed over to the examiner and properly marking the attendance.**

11.2 ASSESSMENT

11.2.1 Internal: Total 10% (20 marks)

- Students will be assessed comprehensively through multiple methods to determine achievement of module objectives through two methods: Module examination and Graded assessment by Individual department
    - **Module Examination**: It will be scheduled on completion of each module. The method of examination comprises theory exam (which includes SEQs and MCQs) and OSPE / OSCE exam (which includes static and interactive stations).
    - **Graded Assessment by individual department**: It includes weekly MCQs tests on Survive online LMS program, viva, practical, weekly theme based assignments, post-test discussion sessions, peer assessments, presentations, small group activities such as CBL, ward activities, examinations and log books, all of which have specific marks allocation.
- Marks of both modular examination and graded assessment will constitute 10% weightage.
- 10% marks of internal evaluation will be added to the ISU annual professional exam.
- The marks distribution is based on Formative Assessment done individually by all the concerned departments. It may include:
- NOTE: **at least 75% attendance is mandatory** to appear in the annual university examination.

- Exam branch is responsible to maintain the attendance record for Main Campus in coordination with all the concerned departments.

11.2.2 University Annual Exam: Total 90%

- Annual Exam has 90% marks in total
- It includes theory and OSPE / OSCE.
- Each written paper consists of 100 MCQs and 10 SEQs and internal assessment marks will be added to the final marks.

11.3 METHODS OF ASSESSMENT

11.3.1 Multiple Choice Questions

- Single best type MCQs having five options with one correct answer and four distractors are part of assessment.
- Total 100 MCQs are included which are formulated through the table of specification from learning objectives of Module interactive lectures.
- Time duration for MCQs will be 1 and half hour.
- MCQs are used to assess objectives covered in each module.
- Students after reading the statement / scenarios select one appropriate response from the given options.
- Correct answer carries one mark, and incorrect will be marked zero. Rule of negative marking is not applicable.
- Students attempt the MCQs exam on Computer screen on Moodle / LMS program in IT Lab.

11.3.2 Short Essay Questions (SEQs):

- Short-answer questions are structured way of asking open-ended questions that require students to create their answers based on their knowledge.
- Commonly used in examinations to assess the depth of knowledge and understanding.
- Includes 10 questions each carrying 10 marks.
- Time Duration for Essay type paper is 2 hours.
- Questions are selected from the specific learning objectives of the specific ongoing module.

11.3.3 OSPE / OSCE

- Each student will be assessed on the same content and have same time to complete the task.
- Time allocated for each station is five minutes as per Examination rules of Ibn e Sina University, Mirpurkhas
- All students are rotated through the same stations.
- OSPE / OSCE Comprises of 15 - 20 stations.
- Each station may assess a variety of diagrammatic identifications and clinical tasks. These

tasks may include history taking, physical examination, skills and application of skills and knowledge

- Stations are Interactive, observed, unobserved (static) and rest stations.
  - Interactive Stations:
    - In this station, examiner ask questions related to the task within the allocated time.
  - Observed Stations:
    - In observed stations, internal or external examiner don't interact with candidate and just observe the performance of the skills or procedures.
  - Unobserved (static) Stations:
    - It will be static stations in which there may be models, specimens, multiple identification points, X-ray, Labs reports, flowcharts, pictures, or clinical scenarios (to assess cognitive domain) with related questions for students will be used to answer on the provided answer copy.
  - Rest station
    - It is a station where there is no task given and in this time student can organize his/her thoughts

11.3.4 ASSIGNMENTS

- An online assignment on the Ibn-e-Sina University moodle uploaded according to the topic of the week.
- All assignments should be checked by the teacher who has taken the lecture on the topic during the same week.
- The assignment should cover enough material to include the requirement of the curriculum and syllabus, so the student should be able to answer the annual examination questions by revising these notes (assignments) only.
- The assignments are checked and graded also with comment to guide, motivate and encourage the students to work whole heartedly. Frequent guidance and motivation will go a long way in improving the students' performance.
- Assignments of the whole Professional year MBBS are counted as in Internal Assessment.

11.3.5 WEEKLY TESTS

- The weekly tests are conducted for all classes. The tests are conducted online and are on topics displayed on the portal (Moodle). It consists of 35 MCQs. 5 MCQs will be from the previous weeks (slightly altered to change the answer or the right option). Everyone taking lectures, submit two MCQs to the Chairperson of the department who will check and pass them to the class moderator. MCQs can also be sent directly to the class moderator, who submits the MCQs to IT department for final placement on the moodle.

- The MCQs are not merely simple recall, but test higher level of cognition. As far as possible, they test an important concept related to one of the topics of the week.

- It is different from the summative assessment (Annual or Semester Examinations) in that the goal of summative assessment is to evaluate student's learning at the end of an instructional

unit by comparing it against some standard or benchmark, to decide if the student can be promoted or not, whereas the goal of these weekly tests is to check the understanding of the students on the important concepts related to the topics that have been displayed on the portal for the week, the teachers have taught them and the students have made assignments on them.

- Results of weekly tests of the whole Professional year MBBS are counted as in Internal Assessment.

11.3.6 POST-TEST DISCUSSION (PTD)

- Every student has to prepare a special assignment where he/she selects all the questions he/she got wrong. Then he/she makes 3 boxes. In box A he/she writes the questions he/she got wrong in his/her own words, highlighting and underlining the keywords. In box B the student explains why he/she has chosen this answer. In box C the student mentions what he/she has learnt after reading the explanation and how the concept has got clear now.

- The moderator will check, assess and grade PTD

- Next day, the class moderator of the class conducts a class where he/she discusses the mistakes committed and the post-test assignments submitted in detail with the class

- PTD assignments of the whole Professional year MBBS are counted as in Internal Assessment.

12. GRADING POLICY

Marks obtained in Percentage range	Numerical Grade	Alphabetical Grade
80-100	4.0	**A+**
75-79	4.0	**A**
70-74	3.7	**A-**
67-69	3.3	**B+**
63-66	3.0	**B**
60-62	2.7	**B-**
56-59	2.3	**C+**
50-55	2.0	**C**
<50 Non gradable	0	**N**

- A student obtaining GPA less than 2.0 (50%) is declared fail or Non gradable

13. ASSESSMENT BLUEPRINT

REPRODUCTION-I MODULE

Assessment is based on Table of Specification (TOS)

	ASSESMENT	TOOLS	MARKS
MODULE EXAM	THEORY	MCQ's	100
		SEQ's	100
	OSPE	OSPE Static	50
		OSPE Interactive	50
		Total	300

14. RECOMMENDED BOOKS

ANATOMY

- **CLINICALLY ORIENTED ANATOMY**

KEITH.L. MOORE, ARTHUR F. DALLEY, ANNE M.R. AGUR
7TH OR LATEST EDITION

- **GRAY'S ANATOMY FOR STUDENTS**

DRAKE & VOGL & MITCHELL
3RD OR LATEST EDITION

- **CLINICAL ANATOMY BY REGIONS (REFERENCE BOOK)**

RICHARD S. SNELL
9TH EDITION

- **LAST'S ANATOMY: REGIONAL & APPLIED (REFERENCE BOOK)**

CHUMMY S. SINNATAMBY
12TH OR LATEST EDITION

- **ATLAS OF HUMAN ANATOMY**

FRANK H. NETTER
6TH EDITION

EMBRYOLOGY

- **LANGMAN'S MEDICAL EMBRYOLOGY**

T.W. SADLER
13TH EDITION

- **THE DEVELOPING HUMAN CLINICALLY ORIENTED EMBRYOLOGY (REFERENCE BOOK)**

MOORE & PERSAUD & TORCHIA
10TH EDITION

HISTOLOGY

- **MEDICAL HISTOLOGY**

LAIQ HUSSAIN SIDDIQUI
5TH OR LATEST EDITION

- **WHEATERS FUNCTIONAL HISTOLOGY**

BARBARA YOUNG
5TH EDITION

- **BASIC HISTOLOGY (TEXT AND ATLAS) (REFERENCE BOOK)**

LUIZ JUNQUEIRA, JOSE CARNEIRO
11TH OR LATEST EDITION

PHYSIOLOGY

- **GUYTON AND HALL TEXTBOOK OF MEDICAL PHYSIOLOGY**

GUYTON AND HALL
13TH EDITION

BIOCHEMISTRY

- **LIPPINCOTT'S ILLUSTRATED REVIEWS SERIES**

DENISE R. FERRIER
6TH EDITION

- **HARPERS ILLUSTRATED BIOCHEMISTRY (REFERENCE BOOK)**

VICTOR RODWELL, DAVID BENDER, KATHLEEN M. BOTHAM, PETER J. KENNELLY, P. ANTHONY WEIL
28TH EDITION

COMMUNITY MEDCINE

- **PARK'S TEXTBOOK OF PREVENTIVE AND SOCIAL MEDICINE**

K. PARK
26TH EDITION

PATHOLOGY

- **ROBBINS & COTRAN PATHOLOGIC BASIS OF DISEASE**

VINAY KUMAR, ABUL K. ABBAS, JON C. ASTER
10TH EDITION

PHARMACOLOGY

- **LIPPINCOTT ILLUSTRATED REVIEWS: PHARMACOLOGY**
  KAREN WHALEN, CARINDA FEILD, RAJAN RADHAKRISHNAN
  7TH EDITION

IBN-E-SINA UNIVERSITY MIRPURKHAS
FACULTY OF BASIC MEDICAL SCIENCES

Course Feedback Form

Course Title: _____

Semester/Module_____ Dates:_____

Please fill the short questionnaire to make the course better.

Please respond below with 1, 2, 3, 4 or 5, where 1 and 5 are explained.

THE DESIGN OF THE MODLUE

A. Were objectives of the course clear to you? Y ☐ N ☐

B. The course contents met with your expectations
l. Strongly disagree 5. Strongly agree ☐

C. The lecture sequence was well-planned
l. Strongly disagree 5. Strongly agree ☐

D. The contents were illustrated with
l. Too few examples 5. Adequate examples ☐

E. The level of the course was
l. Too low 5. Too high ☐

F. The course contents compared with your expectations
l. Too theoretical 5. Too empirical ☐

G. The course exposed you to new knowledge and practices
l. Strongly disagree 5. Strongly agree ☐

H. Will you recommend this course to your colleagues?
l. Not at all 5. Very strongly ☐

THE CONDUCT OF THE MODLUE

A. The lectures were clear and easy to understand
l. Strongly disagree 5. Strongly agree ☐

B. The teaching aids were effectively used
l. Strongly disagree 5. Strongly agree ☐

C. The course material handed out was adequate
l. Strongly disagree 5. Strongly agree ☐

D. The instructors encouraged interaction and were helpful
l. Strongly disagree 5. Strongly agree ☐

E. Were objectives of the course realized? Yes ☐ No ☐

F. Please give overall rating of the course

90% - l00%	( )	60% - 70%	( )
80% - 90%	( )	50% - 60%	( )
70% - 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

Please comment on the weaknesses of the course and the way it was conducted.

Please give suggestions for the improvement of the course.

Optional - Your name and contact address:

Thank you!!