

# STUDENT STUDY GUIDE



**Integrated Modular System**  
**4<sup>th</sup> Professional MBBS**



**Liaquat University**  
of Medical & Health Sciences,  
Jamshoro

# TABLE OF CONTENTS

P R E F A C E .....	4
S T U D Y G U I D E .....	6
A B B R E V I A T I O N S .....	7
C O N T R I B U T I O N S .....	8
01 OPHTHALMOLOGY MODULE .....	13
.....	13
Introduction .....	13
Duration .....	13
Learning Outcomes.....	13
Themes .....	13
Topics with Specific Learning Objectives and Teaching Strategies .....	14
02 OTORHINOLARYNGOLOGY (ENT) MODULE .....	18
Introduction .....	18
Duration .....	18
Learning Outcomes.....	18
Themes: .....	19
Topics with Specific Learning Objectives and Teaching Strategies .....	20
03 ORTHOPAEDIC & TRAUMATOLOGY MODULE .....	23
Orthopaedics.....	23
Introduction .....	23
Duration .....	23
Learning Outcomes:.....	23
Themes: .....	23
Topics with specific learning objectives and teaching strategies .....	24
Neurosurgery .....	27
Learning Objectives.....	27
Themes .....	27
Topics with specific learning objectives and teaching strategies .....	27
Basic Sciences .....	30
Introduction .....	30
Duration: .....	30
Learning outcomes.....	30
Themes .....	30
Topics with specific learning objectives and teaching strategies .....	30
04 NEUROSCIENCES MODULE .....	33
Neurology.....	33
Psychiatry.....	33
Duration .....	33



Learning Outcomes.....	33
Themes .....	34
Topics with Specific Learning Objectives and Teaching Strategies .....	34
Basic Sciences .....	43
Introduction .....	43
Learning outcomes.....	43
Themes .....	43
Topics with specific learning objectives and teaching strategies .....	43
<b>05 CARDIOLOGY.....</b>	<b>45</b>
Introduction .....	45
Duration .....	45
Learning Outcomes.....	45
Themes .....	45
Topics with specific learning objectives and teaching strategies .....	46
Nephrology.....	48
<b>06 EXCRETORY &amp; RENAL MODULE -III.....</b>	<b>48</b>
Introduction .....	48
Duration .....	48
Learning outcomes.....	48
Themes .....	48
Topics with specific learning objectives and teaching strategies .....	49
Urology .....	51
Introduction .....	51
Learning Outcomes.....	51
Topics with specific learning objectives and teaching strategies .....	51
Basic Sciences .....	52
Introduction .....	52
Learning Outcomes.....	53
Themes .....	53
Topics with specific learning objectives and teaching strategies .....	53
<b>07 INTEGUMENTARY MODULE .....</b>	<b>56</b>
Dermatology.....	56
Introduction .....	56
Learning Outcomes.....	56
Plastic Surgery/ Burns.....	56
Themes .....	57
Duration .....	57
Topics with specific learning objectives and teaching strategies .....	57
<b>08 REPRODUCTIVE MODULE.....</b>	<b>60</b>



Introduction .....	60
Duration: .....	60
Learning Outcomes.....	60
Themes .....	60
Topics with specific learning objectives and teaching strategies .....	61
09 ASSESSMENT.....	62
10 LEARNING RESOURCES .....	62

## P R E F A C E

The MBBS curriculum is designed to prepare the medical student to assume the role of the principal carer for patients. The majority of instruction in the various basic and clinical science disciplines is focused on attaining this objective. The amount of material and specificity that the student must acquire in order to complete the MBBS programme as a whole is substantial. Subject-based instruction affords students the chance to develop comprehensive and profound understanding of each respective subject. However, this instructional framework might result in the student failing to recognize the interconnectedness of knowledge across different disciplines, their interrelation, and most significantly, their significance in the context of patient care.

Over the years, numerous inventive approaches have been devised to tackle these obstacles. One such approach is the integration of instruction at multiple levels, which eliminates and reduces boundaries within subjects, both vertically and horizontally, across phases. LUMHS, while acknowledging the merits of these methodologies, has endeavoured to seize the opportunity to comprehend the interdependencies and minimize duplication in the subjects being instructed through the implementation of an integrated modular approach.

The cardiovascular system, musculoskeletal system, and respiratory system are few examples of system-based modules in an integrated modular curriculum that connects basic scientific knowledge to clinical problems. By means of integrated instruction, subjects are presented as a unified whole. Students can enhance their comprehension of basic scientific principles through consistent application of clinical examples in their learning. A skills lab provides early exposure to the acquisition of skills, case-based discussions, and self-directed learning are all elements of an integrated teaching programme.

### LEARNING STRATEGIES

The following instructional and learning strategies are implemented to foster greater comprehension:

- ❖ Interactive Lectures
- ❖ Small group sessions
- ❖ Case-Based Learning (CBL),
- ❖ Self-Study,
- ❖ Practical,
- ❖ Skills lab sessions,
- ❖ Demonstrations
- ❖ Field visits

### INTERACTIVE LECTURES



In large group, the lecturer actively involves the students by introducing the topic or common clinical conditions and explains the underlying phenomena by questions, pictures, videos of patients' interviews, exercises, etc. in order to enhance their learning process.

### **SMALL GROUP TEACHING (SGT):**

This strategy is helpful for the students to make their concepts clear, and s acquiring skills or attitudes. These sessions are organized with the help of specific tasks such as patient case, interviews or discussion topics. Students are than encouraged to exchange their ideas and apply knowledge gained from lectures, tutorials and self-study. The facilitator employs probing questioning, summarization, or rephrasing techniques to enhance the understanding of concepts.

### **CASE- BASED LEARNING:**

A format of small group discussion that centres on a sequence of questions derived from a clinical scenario, with the aim of facilitating learning. Students engage in discussions and provide answers by applying pertinent knowledge acquired in clinical and basic health sciences throughout the curriculum.

### **PRACTICAL:**

Basic science practical related to anatomy, biochemistry, pathology, pharmacology and physiology are scheduled to promote student learning by application.

### **SKILLS LAB SESSION:**

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

### **SELF DIRECTED LEARNING:**

Students take on the responsibility of their own learning by engaging in independent study, collaborating and talking with classmates, accessing knowledge from the Learning Resources available, teachers, and other experts. Students can make use of the designated self-study hours provided by the college.

### **FIELD VISITS:**

Students visit community health areas to understand the common diseases and their preventive measures.

### **HOSPITAL POSTINGS:**

Students attend tertiary care hospital postings and learn common diseases and their management.

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# STUDY GUIDE

A study guide is a strategic and effective approach to:

- ❖ Provide students a detailed framework of the modules organization
  - ❖ Support students in organising and managing their studies throughout academic year.
  - ❖ Provide students information on assessment methods and the rules and regulations that apply.
- 
- It outlines the outcomes which are expected to be achieved at the end of each module.
  - Ascertains the education strategies such as lectures, small group teachings, demonstration, tutorial and case based learning that will be implemented to achieve the module objectives.
  - Provides a list of learning resources for students in order to increase their learning.
  - Emphasizes information on the contribution of attendance, end module tests, block examinations and annual examinations on the student's overall performance.
  - Includes information on the assessment methods that will be held to determine every student's achievement of objectives.



# ABBREVIATIONS

OPHTHALMOLOGY	Opth
OTORHINOLOGY	ENT
ORTHOPAEDICS & TRAUMATOLOGY	Orth-T
ORTHOPAEDICS	Ortho
NEUROSURGERY	Nsurg
NEUROSCIENCE	NS
NEUROLOGY	NeuM
PSYCHIATRY	PSY
RENAL & EXCRETORY	EXC
NEPHROLOGY	Neph
UROLOGY	Uro
PHARMACOLOGY	Pharm
SPIRAL	S
INTEGUMENTARY	IM
PLASTIC SURGERY	Psurg
DERMATOLOGY	Derm
RADIOLOGY	Rad



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<b>CLINICAL DEMONSTRATOR</b>	
11	Dr. Saima Zafar
12	Dr. Abu Zafar Moinual Haque



# 01 OPHTHALMOLOGY MODULE

## Introduction

- To feel more comfortable performing a basic eye examination
- To identify common eye conditions and be able to treat or triage these disorders.
- To expose students to the field of ophthalmology
- To identify potential longitudinal patients that could be followed in other clinics.

## Rationale:

The purpose of the Ophthalmology curriculum is to produce doctors with the generic professional and specialty specific capabilities needed to understand and diagnose a wide range of medical conditions affecting the eyes, orbits and visual pathways. Eye disorders are frequently seen in the practice of medicine in all age groups. The scope of medical ophthalmology is broad and includes refraction problems, ocular inflammatory diseases like conjunctivitis, cataracts, glaucoma, retina disorders, neuro-ophthalmic conditions and urgent eye care in adults and children. A physician also has to understand the fundamentals of fundoscopy in order to evaluate common eye problems.

## Duration

04 Weeks

## Learning Outcomes

- Review the anatomy of Eye, Orbit and Visual System
- Physiology of vision, optic and pharmacology of ocular drugs
- How to perform a basic Eye examination
- Discuss the pathophysiology, diagnosis and management of Cataract and Glaucoma
- Demonstrate the clinical significance of neuro-ophthalmology.
- Explain the role of laser in the management of eye disorders.
- Recognize when it is necessary to urgently refer a patient to Ophthalmology.
- Recognize the importance of Ophthalmological exams in different systemic conditions.

## Themes

1. Basic Physiology and Anatomy of Eye
2. Eye Lid
3. Nasolacrimal System
4. Conjunctiva
5. Cornea
6. Cataract
7. Glaucoma
8. Sclera
9. Orbit
10. Uveal tract
11. Retina
12. Neuro-ophthalmology
13. Pediatric ophthalmology & Strabismus
14. Systemic diseases & Eye
15. Ocular Injuries
16. Refractive Errors
17. Lasers in Ophthalmology
18. Ocular Pharmacology
19. Blindness
20. Ocular Examination



## Topics with Specific Learning Objectives and Teaching Strategies

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
1	Discuss basic physiology and anatomy of eye	<b>Opth-S2-Ana-1</b> <b>Review &amp; Revisit</b> <b>Anatomy of Eye</b> Orbit: Bones and Contents (Eye ball, lacrimal apparatus, orbital fascia, muscles, nerves, Blood vessels of orbit, II, III, IV, VI cranial nerves) Eyelid	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
		<b>Opth-S2-Phy-1</b> <b>Review &amp; Revisit</b> <b>Physiology of Eye</b> The basic physiology of eye and principles of optics.		
2	Diagnose and manage common lid and adnexa diseases.	<b>Opth-S2-Opth-1</b> <b>Lid and Lashes Abnormalities:</b> Styte, Chalazion, Blepharitis, Trichiasis, Entropion, Ectropion, Ptosis.		
		<b>Opth-S2-Opth-2</b> <b>Malignant Lid Tumors</b> Basal cell carcinoma Squamous cell carcinoma		
3	Diagnose and manage Dacryocystitis and NLDB.	<b>Opth-S2-Opth-3</b> <b>Nasolacrimal System</b> Evaluation of epiphora, congenital NLD block Acute/chronic dacryocystitis Treatment of lacrimal obstruction		
4	Diagnose and manage common conjunctival diseases.	<b>Opth-S2-Opth-4</b> <b>Conjunctiva</b> Viral Conjunctivits Bacterial Conjunctivitis Ophthalmia Neonatorum Pterygium-Pingecula Trachoma Vernal Catarrh		
5	Diagnose and manage common corneal diseases.	<b>Opth-S2-Opth-5</b> <b>Cornea</b> Corneal ulcer (viral/bacterial/fungal/amoebia) Contact lens related problems		
		<b>Opth-S2-Opth-6</b> Keratorefractive surgeries and keratoplasty		
6	Diagnose and Manage Cataract.	<b>Opth-S2-Opth-7</b> <b>Cataract</b> Definition, Classification, Causes, management of age-		



		related cataract and different Options		
7	Enumerate the types of cataract surgery and intra-operative and post-operative complications of cataract surgery	<b>Opth-S2-Opth-8</b> Types of cataract surgery and intra-operative and post-operative complications of cataract surgery	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
8	Diagnose and manage Glaucoma.	<b>Opth-S2-Opth-9</b> <b>Glaucoma</b> Classification Primary open angle glaucoma Primary Angle Closure Glaucoma Diagnostic Toll Congenital Glaucoma Secondary Glaucoma-Lens induced, neovascular.		
9	Diagnose and Manage Episcleritis & Scleritis.	<b>Opth-S2-Opth-10</b> <b>Scleritis &amp; Episcleritis</b> Definition Classification Clinical feature Systemic Association Treatment		
10	Diagnose and Manage different Diseases of the Orbit	<b>Opth-S2-Opth-11</b> Clinical Evaluation of Orbital Diseases Thyroid Eye Disease Preseptal Cellulitis Orbital Cellulitis		
11	Diagnose and manage of iritis, iridocyclitis and choroiditis.	<b>Opth-S2-Opth-12</b> Classification and Clinical features of uveitis. Acute and chronic uveitis Management of uveitis		
12	Diagnose and manage retinal and retinal vascular occlusions diseases	<b>Opth-S2-Opth-13</b> <b>Diabetes and the Eye</b> complications in the Diabetic Eye and management		
		<b>Opth-S2-Opth-14</b> <b>Medical Retina</b> Hypertension Central retinal artery occlusion (including giant cell arteritis) Central/ branch vein occlusion		
13	Understand pupillary pathway, visual pathway and its field defects,	<b>Opth-S2-Opth-15</b> <b>Neurophthalmology</b> Visual pathway Pupillary pathway and pathology RAPD		
		<b>Opth-S2-Opth-16</b> <b>Optic Disc Disorders</b> Optic neuritis, Papilledema, Optic atrophy		



14	Describe the vitreo-retinal procedures.	<b>Opth-S2-Opth-17</b> <b>Surgical Vitreo-Retina</b> Classification Basic pathophysiology and clinical concept, presentation of retinal detachment	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
		<b>Opth-S2-Opth-18</b> broad principles of management of retinal detachment, Vitreous emorrhage		
15	Explain the concept of early childhood ocular diseases and their management.	<b>Opth-S2-Opth-19</b> <b>White Pupil</b> Differential diagnosis of leukocoria in a child congenital cataract and its management retinoblastoma, retinopathy of prematurity.		
		<b>Opth-S2-Opth-20</b> <b>Strabismus</b> Amblyopia Non paralytic squint Paralytic squint		
16	Recognize eye problems associated with systemic diseases.	<b>Opth-S2-Opth-21</b> <b>Systemic Diseases and Eye</b> Connective Tissue Disorders Systemic Diseases Affecting the Eye Acquired Immune Deficiency Syndrome (AIDS) T.B		
17	Discuss the etiology, clinical features & Management of ocular trauma	<b>Opth-S2-Opth-22</b> <b>Ocular Injuries</b> Fractures of orbit Penetrating injuries of the eye Extra ocular F.bodies Blunt injuries of the eye Chemical injuries (Acid burns Alkaline burns)		
18	Describe the various refractive error and their correction	<b>Opth-S2-Opth-23</b> <b>Refractive Errors</b> Emetropia, Myopia, Hypermetropia, Astigmatism, Presbyopia		
19	Enumerate indications for laser therapy in the eye	<b>Opth-S2-Opth-24</b> <b>Lasers</b> Role of laser therapy in the treatment of retinal diseases Role of laser therapy in refractive surgery and Glaucoma		
20	Recognize the indication and systemic local side effects of ocular drugs.	<b>Opth-S2-Pharm-1</b> <b>Pharmacology of Ocular Drugs with Side Effects</b> Local anesthetic drugs, Antibiotics, Antiviral, Steroids, Antiglaucoma Mydriatics, Lubricants, Steven Johnson's Syndrome		





21	Define the Epidemiology of blindness and awareness of low visual aids.	<b>Opth-S2-Opth-25 Blindness</b> Definition of Blindness (WHO) Epidemiology Of Blindness , Blindness And Low Visual Aids		
22	Understanding the basic Eye Examinations And instillation of eye drops.	<b>Opth-S2-Opth-26 Eye Examination</b> Assess visual acuity using a Snellen chart (with & without pin hole). Instillation of eye drops Examine the pupil reaction. Perform ocular motility. Direct Ophthalmoscopy	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam



# 02 OTORHINOLARYNGOLOGY (ENT) MODULE

## Introduction

This module uses an integrated curriculum of basic science and clinical material to develop the student's knowledge and ability to describe and diagnose conditions related to Ear, Nose and Throat. It covers learning a wide range of areas using team-based and small-group learning exercises, lectures, anatomy labs, hands-on clinical skills labs, independent learning, clinical experiences and radiological imaging. In addition, the students will learn the microbiology, physiology and pharmacology of the upper respiratory region. The goal of this module is to provide medical students with a comprehensive pathophysiologic understanding of the Ear, Nose and Throat and their diseases. Otorhinolaryngology, is an important, interesting and diverse specialty and the study guide is carefully designed in such manner that the students are able to better comprehend and analyze the objectives of their course of the ENT department.

## Rationale

The knowledge and skills acquired in this module will enable students to appropriately evaluate, diagnose, treat and manage a broad spectrum of common problems like hearing loss, ear ache and discharge, rhinorrhea, sore throat. Student can order suitable investigations and diagnose common conditions and be able to undertake adequate referral where appropriate. This module will act as a guide to identify various common ENT conditions and implement their knowledge in medical practices.

## Duration

04 Weeks

## Learning Outcomes

### Knowledge

**At the end of the course, the student should have knowledge of:**

- Common problems affecting the Ear, Nose and Throat.
- Principles of management of major ENT emergencies
- Effects of local and systemic diseases on patient and the necessary action required to minimize the sequelae of such diseases;

### Skills

**At the end of the course, the student should be able to:**

- Know how to remove the foreign bodies from the ear, nose and throat.
- know the indication for tracheostomy and explain its procedure postoperative care and complications
- know the methods to control the Epistaxis

### Attitude

**At the end of course, the student should have:**

- **Patient-Centered Attitude:**



- Cultivate respect and compassion for patients, actively listening to their concerns and involving them in their care.
- **Empathetic Understanding:**
  - Develop empathy for patients experiencing discomfort, acknowledging their emotional and physical challenges.
- **Cultural Sensitivity:**
  - Appreciate the importance of culturally sensitive care, respecting diverse backgrounds of patients.
- **Ethical Commitment:**
  - Uphold ethical standards, maintaining patient confidentiality and informed consent.
- **Interdisciplinary Collaboration:**
  - Respect collaboration with other professionals for comprehensive patient care.

## Themes:

- Theme 1: Disorders of Ear and Audio-Vestibular System  
(Pain, Itching, Discharge, Facial Palsy, Tinnitus, Vertigo, Deafness)
- Theme 2: Disorders of Nose & Para Nasal Sinuses  
(Nasal Obstruction, Rhinorhea, Sneezing, Itching, Impaired Smell, Epistaxis, Headache)
- Theme 3: Disorders of Oral Cavity, Pharynx and Oesophagus  
(Sore Throat, Difficulty in Swallowing, Change of Voice)
- Theme 4: Disorders of Larynx Trachea and Bronchi  
(Cough, Hoarseness of Voice, Difficulty in Breathing)



## Topics with Specific Learning Objectives and Teaching Strategies

### Theme 1: Disorders of Ear and Audio-Vestibular System (Pain, Itching, Discharge, Facial Palsy, Tinnitus, Vertigo, Deafness)

S #	LEARNING OBJECTIVES	THEME AND SUB-THEMES	TEACHING STRATEGY	ASSESSMENT
1	Explain Anatomy & Physiology of the Ear	<b>ENT-S2-Ana-1</b> Clinical Basis of EAR		
2	Discuss the Causes, clinical features, investigation & management	<b>ENT-S2-ENT-1</b> <b>PAIN</b> A. D/D of Earache & referred earache B. Disorder of External Ear. 1. Traumatic- Frost Bite, Perichondritis and Aural Hematoma. 2. Inflammatory a. Bacterial- i. Acute Otitis Externa ii. Diffuse and Malignant Otitis Externa b. Viral-Herpes Zoster Oticus. C. Disorder of Middle Ear. i. Acute Otitis Media. ii. Otitis Media with Effusion iii. Otitic Baro-trauma		
3	Diagnosis & management	<b>ENT-S2-ENT-2</b> <b>ITCHING</b> Wax and Foreign Bodies in Ear Fungus- Otomycosis	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
4	Discuss the Causes, clinical features, investigation & management	<b>ENT-S2-ENT-3</b> <b>DISCHARGE</b> Disorder of Middle Ear. Chronic Suppurative Otitis Media, Cholesteatoma and Complications		
5	Causes, Investigation & management	<b>ENT-S2-ENT-4</b> <b>FACIAL PALSY</b> Facial Nerve Palsy Middle Ear Surgery & its complications		
6	Describe the clinical features, investigation & principle of management	<b>ENT-S2-ENT-5</b> <b>TINNITUS</b> D/D of Tinnitus, Glomus tumor, Acoustic neuroma & Otosclerosis <b>ENT-S2-ENT-6</b> <b>VERTIGO</b> D/D of Vertigo, Labrynthitis, BPPV / Meinear's Disease.		



7	Discuss causes, clinical features, investigations/assessment and management of congenital and Acquired conditions causing Hearing Deficit.	<b>ENT-S2-ENT-7 DEAFNESS</b> Causes and assessment of hearing impairment. D/D of Conductive and Sensory neural hearing deficit, Disorder of Inner Ear. Noise Induced Hearing Loss / Ototoxicity/ Presbiacuses.		
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## Theme 2: Disorders of Nose & Para Nasal Sinuses (Nasal Obstruction, Rhinorhea, Sneezing, Itching, Impaired Smell, Epistaxis, Headache)

S #	LEARNING OBJECTIVES	THEME AND SUB-THEMES	TEACHING STRATEGY	ASSESSMENT
8	Explain Anatomy & Physiology of Nose and Paranasal Sinuses	<b>ENT-S2-Ana-2</b> Clinical Basis of Nose & Paranasal sinuses		
9	Discuss the Causes, clinical features, investigation & management	<b>ENT-S2-ENT-8</b> NASAL OBSTRUCTION <ul style="list-style-type: none"> <li>D/D of Nasal obstruction</li> <li>Septal Deformities</li> </ul> Adenoid Hypertrophy	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
		<b>ENT-S2-ENT-9</b> RHINORHEA <ul style="list-style-type: none"> <li>D/D of Rhinorhea</li> </ul> Rhino-sinusitis		
		<b>ENT-S2-ENT-10</b> SNEEZING <ul style="list-style-type: none"> <li>Allergic Rhinitis</li> <li>Non Allergic Rhinitis</li> </ul>		
		<b>ENT-S2-ENT-11</b> ITCHING Foreign Bodies & Rhinolith		
		<b>ENT-S2-ENT-12</b> IMPAIRED SMELL Sino-Nasal Polyps		
		<b>ENT-S2-ENT-13</b> EPISTAXIS <ul style="list-style-type: none"> <li>D/D of Epistaxis</li> <li>Angiofibroma</li> </ul> Hemangioma		
		<b>ENT-S2-ENT-14</b> HEADACHE <ul style="list-style-type: none"> <li>Sinusitis</li> </ul> Sino-Nasal Tumors		



### Theme 3: Disorders of Oral Cavity, Pharynx and Oesophagus (Sore Throat, Difficulty in Swallowing, Change of Voice)

S #	LEARNING OBJECTIVES	THEME AND SUB-THEMES	TEACHING STRATEGY	ASSESSMENT
10	Explain Anatomy & Physiology of Digestive track	<b>ENT-S2-Ana-3</b> Clinical Basis Digestive track		
11	Discuss the Causes, clinical features, investigation & management	<b>ENT-S2-ENT-15</b> SORE THROAT <ul style="list-style-type: none"> <li>• D/D of Sore throat</li> <li>• Mouth Ulcers</li> <li>• Pharyngitis &amp; Tonsillitis</li> <li>• Infectious mononucleosis</li> </ul> Diphtheria/ Vincent Angina/ Scarlet fever	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
		<b>ENT-S2-ENT-16</b> DIFFICULTY IN SWALLOWING Dysphagia → causes & management		
		<b>ENT-S2-ENT-17</b> CHANGE OF VOICE <ul style="list-style-type: none"> <li>• Rhinolalia Clausa &amp; Aperta</li> </ul> Tumors of Pharynx		

### Theme 4: Disorders of Larynx Trachea and Bronchi (Cough, Hoarseness of Voice, Difficulty in Breathing)

S #	LEARNING OBJECTIVES	THEME AND SUB-THEMES	TEACHING STRATEGY	ASSESSMENT
12	Explain Anatomy & Physiology of Airway track	<b>ENT-S2-Ana-4</b> Clinical Basis of Airway track		
13	Discuss the Causes, clinical features, investigation & management	<b>ENT-S2-ENT-18</b> COUGH Airway Foreign Bodies	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
		<b>ENT-S2-ENT-19</b> HOARSENESS OF VOICE <ul style="list-style-type: none"> <li>• Congenital → Laryngeal web / Laryngocele</li> <li>• Inflammatory → Acute Laryngo-tracheo-bronchitis / Tuberculus Laryngitis</li> <li>• Non- Neoplastic → Vocal Nodule / Vocal polyps</li> <li>• Neoplastic → Laryngeal papillomatosis / Malignant lesions</li> </ul> Recurrent laryngeal Palsy		
		<b>ENT-S2-ENT-20</b> DIFFICULTY IN BREATHING <ul style="list-style-type: none"> <li>• Laryngomalacia</li> <li>• Acute Epiglottitis</li> <li>• Subglottic/Tracheal stenosis</li> </ul> Airway management		



# 03 ORTHOPAEDIC & TRAUMATOLOGY MODULE

## Orthopaedics

### Introduction

### Rationale

The integrated module on Orthopaedic Surgery, Traumatology and musculoskeletal system is multi-fold, it provides the students with basic knowledge of bone and joint problems. Interdisciplinary learning is fostered, simulating real-world medical scenarios where collaborative care is crucial. The integration also cultivates a well-rounded skill set by comparing immediate emergency interventions with long-term therapeutic strategies. Including musculoskeletal trauma, fractures, infections, tumours, Degenerative and metabolic disorders. Therefore, the module is designed to offer a balanced, resourceful, and interdisciplinary approach to medical education aimed to impart at undergraduate level. The Orthopaedics and Traumatology module in the basic cycle has already provided a sound basis of the related anatomy, physiology, surgical and pathological basis of bone diseases. In this 2<sup>nd</sup> clinical spiral, apart from basic revision of different subjects, students will be able to define and learn the clinical presentations, diagnoses and management of these diseases.

### Duration

06 Weeks

### Learning Outcomes:

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

- Demonstrate the principles and clinical considerations in Orthopaedics and Traumatology, including diagnoses and treatment.
- Develop immediate and long-term treatment strategies for orthopaedic and traumatic conditions.
- Adopt a patient-centered approach, considering both immediate and long-term needs in treatment planning.
- Take and demonstrate history taking, and also able to perform physical examination.
- Make proper differential diagnoses and prescribe medicine accordingly.

### Themes:

- Theme 1: Fractures & Dislocations
- Theme 2: Infections
- Theme 3: Metabolic Bone Disorders
- Theme 4: Bone Tumors
- Theme 5: Congenital Anomalies
- Theme 6: Degenerative Disorders



## Topics with specific learning objectives and teaching strategies

### Theme 1: Fracture and Dislocation

S. #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
1	Discuss structure of bone, joints movements and blood supply	<b>ORTH-T-S2-Ana-1</b> Re-visit of bone and joint anatomy with blood supply	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
2	Discuss development of bone	<b>ORTH-T-S2-Ana-2-E-1</b> Bone development ossification of bone & joint		
3	<ul style="list-style-type: none"> <li>Define fracture</li> <li>Classify types of fractures</li> </ul>	<b>ORTH-T-S2-Orth-1</b> Definition of fracture, types		
4	Identify bone lesions in the imaging scans	<b>ORTH-S2-Rad-1</b> X-Ray Definition X-ray reading & views		
5	Define different types of fractures based on clinical presentation	<b>ORTH-T-S2-Orth-2</b> Sign & symptoms of fractures open & closed fractures		
6	Define joint dislocations	<b>ORTH-T-S2-Orth-3</b> Types of dislocations & subluxations		
7	Assess the patient for fractures and bone disorders	<b>ORTH-T-S2-Orth-4</b> History taking & bed side teaching		
8	Identify different types of congenital bone defects	<b>ORTH-T-S2-Ana-3</b> Developmental abnormalities and bone structures		
9	Discuss management of open and closed type of fractures	<b>ORTH-T-S2-Orth-6</b> Management of open and close fracture		
10	Describe consequences of fractures & dislocations	<b>ORTH-T-S2-Orth-7</b> Complications of Open fractures and dislocations		
11	Discuss Imaging techniques	<b>ORTH-T-S2-Rad-2</b> Imaging techniques X-ray CT-Scan and MRI		
12	Discuss post-surgical complications	<b>ORTH-S2-Orth-8</b> Complications of open fractures and post-surgical complications		
13	Prevention and multidisciplinary approach	<b>ORTH-S2-Orth-9</b> Rehabilitation and physiotherapy		
14	Pathophysiological changes in fracture healing	<b>ORTH-T-S2-Phy-1</b> Fracture healing, Remodeling functions of Osteoclasts & Osteoblasts		
15	Types of bone union	<b>ORTH-S2-Orth-10</b> Fracture union Primary and Secondary union		
16	Bone findings on Imaging	<b>ORTH-S2-Orth-11</b> X-ray Reading		
17	Approach to patient with bone disorder, fracture	History taking and bed side teaching		

### Theme 2: Infections





## Theme 3: Metabolic Bone Diseases

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
18	Bone infections, pathophysiology	<b>ORTH-T-S2-Path-1</b> Bone Infection Types of infection, Patho-Physiology of Osteomyelitis	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	s & OSVE, OSCE, Clinical Exam
19	Define osteomyelitis and its types	<b>ORTH-T-S2-Orth-1</b> Definition of Osteomyelitis Types of Osteomyelitis		
20	Diagnosis and management of osteomyelitis	<b>ORTH-T-S2-Orth-2</b> Investigations and treatment options		
21	Assess findings of osteomyelitis by imaging techniques	<b>ORTH-T-S2-Rad-1</b> Imaging and Osteomyelitis X-ray Ct-scan and MRI		
22	Surgical management of osteomyelitis	<b>ORTH-T-S2-Orth-3</b> Surgical Interventions and osteomyelitis		
23	Prevention and multidisciplinary approach to management	<b>ORTH-T-S2-Orth-4</b> Rehabilitation and Infection Prevention		
24	Discuss Calcium and vitamin D metabolism	<b>ORTH-T-S2-Bio-1</b> Calcium Metabolism Parathyroid hormone and vitamin D Metabolism		
25	Definition, causes and bone changes in rickets	<b>ORTH-T-S2-Orth-5</b> Definition of Rickets, effects of Calcium & Vitamin D on Bone		
26	Discuss clinical features, treatment and prevention of Rickets & osteomalacia	<b>ORTH-T-S2-Orth-6</b> Clinical Feature of Rickets and Osteomalacia Treatment and Prevention		
27	Define osteoporosis and osteomalacia	<b>ORTH-T-S2-Phy-1</b> Osteoporosis & Osteomalacia		
28	Discuss hyperparathyroidism and its clinical presentation	<b>ORTH-T-S2-Orth-7</b> Diagnosis, Clinical Features and Management of Hyper-Parathyroidism		
29	Discuss Management and prevention of Osteoporosis and Osteomalacia	<b>ORTH-T-S2-Orth-8</b> Management and prevention of Osteoporosis and Osteomalacia		
30	Define WHO Classification of bone tumors	<b>ORTH-T-S2-Path-2</b> Bone tumors and WHO Classification		
31	Define a management plan of trauma patient	<b>ORTH-T-S2-Orth-9</b> Management of Upper Limb Trauma		
32	Discuss Approach to a trauma patient	<b>ORTH-T-S2-Orth-10</b> Approach to Trauma patient		
33	Approach to patient	History taking and bed side teaching		

## Theme 4: Bone Tumors



**Theme 5: Congenital Anomalies**  
**Theme 6: Degenerative Disorders**

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
34	Common sites of benign and malignant tumors	<b>ORTH-T-S2-Path-1</b> Benign & malignant bone Tumor	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
35	Radiographic features of bone tumors	<b>ORTH-T-Rad-1</b> Imaging in Tumor X-ray Ct-Scan and MRI		
36	Discuss Management protocols of bone tumors	<b>ORTH-T-S2-Orth-1</b> Management of bone Tumors		
37	<ul style="list-style-type: none"> <li>Define Bone tumors diagnostic protocols</li> <li>Discuss Basic Principals of tumor biopsies</li> </ul>	<b>ORTH-T-S2-Orth-2</b> Tumor Protocol and Biopsy Principles		
38	Discuss Surgical management of bone tumors	<b>ORTH-T-S2-Orth-3</b> Surgical Interventions and Bone Tumors		
39	Discuss Prosthetic management of bone disorders	<b>ORTH-T-S2-Orth-4</b> Prosthesis and Orthosis		
40	Define types of joints, their structure and functions	<b>ORTH-T-S2-Ana-1</b> Type of joints, joint Lining		
41	<ul style="list-style-type: none"> <li>Define congenital anomalies of bone</li> <li>Discuss clinical features</li> </ul>	<b>ORTH-T-S2-Orth-5</b> Congenital Telepies Equino Varus, Developmental Dysplasia Hip, Sign & Symptoms & Clinical Features		
42	Discuss treatment and prevention of CTEV and DDH	<b>ORTH-T-S2-Orth H-6</b> Treatment of CTEV and DDH and its prevention		
43	Describe Metabolic pathway of uric acid production and accumulation	<b>ORTH-T-S2-Pharm-1</b> Uric Acid pathway and metabolism		
44	Define the pathophysiology and clinical features of Osteo-Arthritis, Rheumatoid Arthritis, Gout	<b>ORTH-T-S2-Orth-7</b> Degenerative Disorders: Osteo-Arthritis, Rheumatoid Arthritis, Gout		
45	Discuss Diagnostic and Management approach to OA, RA and Gout	<b>ORTH-T-S2-Orth-8</b> Diagnosis and Management of Osteo-Arthritis Rheumatoid Arthritis, Gout		
46	Define appropriate pain management plan	<b>ORTH-T-S2-Pharm-2</b> NSAIDs,DMRDs its Effects and Side Effects		
47	Discuss surgical management of bone degenerative disorders	<b>ORTH-T-S2-ORTH-9</b> Surgical Options in Degenerative Disorders		
48	Define Post- Surgical Complications	<b>ORTH-T-S2-ORTH-10</b> Post- Surgical Complications		
49	Approach to patient	History taking & Bed Side teaching		



# Neurosurgery

## Learning Objectives

By the end of the curriculum the student shall be able to:

- Recall functional neuroanatomy brain and spinal cord.
- Revised embryology and histology of neuron, nerve and neuroglia.
- Enlist the investigations for diagnosing neurological disorder.
- History taking and examination of head injury and spinal cord pathology patient.
- Discuss the assessment and management of raised ICP, cerebral edema and brain herniation.
- Classify brain tumors and evaluate management plan.
- Assess the vascular pathology of brain.
- Know the approach for assessment and management of congenital disorder the brain and spine.

## Themes

- Theme 1: Congenital anomalies of CNS  
Theme 2: Traumatic Brain Injury  
Theme 3: Intracranial hemorrhage  
Theme 4: Composition, Synthesis and Flow of CSF, Hydrocephalus and Its Management  
Theme 5: Approaches and Management of CNS tumors at different ages  
Theme 6: Spinal cord trauma and myelopathy

## Topics with specific learning objectives and teaching strategies

### Theme 1: Congenital Anomalies of CNS

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
1	Revisit the neuroanatomy of brain	<b>ORTH-T-S2-Ana-1</b> Functional Neuroanatomy of Brain	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
2	Revisit the development of the brain	<b>ORTH-T-S2-Ana-2-E1</b> Development of brain		
3	Formulate the cases and consequences of various birth defect and developmental disorder involving CNS	<b>ORTH-T-S2-NSur-1</b> Neural tube defects, fore brain anomalies, posterior fossa anomalies.		
4	Revisit histology of neurons and neuroglia	<b>ORTH-T-S2-Ana-3-H-1</b> Neurons and neuroglia		



## Theme 2: Traumatic Brain Injury

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
5	Predict the general reaction of brain to various injurious processes in terms of brain edema or raised intracranial pressure and develop a management plan	<b>ORTH-T-S2-NSUR-2</b> Assessment of causes and management of cerebral edema, raised intracranial pressure and brain herniation	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
		<b>ORTH-T-S2-Rad-1</b> CT-scan & MRI Brain		
		<b>ORTH-T-S2-NSUR-3</b> <ol style="list-style-type: none"> <li>1. Skull fractures</li> <li>2. Parenchymal injuries <ul style="list-style-type: none"> <li>• Concussion</li> <li>• Direct parenchymal injuries</li> <li>• Diffuse axonal injuries</li> </ul> </li> <li>3. Traumatic vascular injuries <ul style="list-style-type: none"> <li>• Epidural hematoma</li> <li>• Subdural hematoma</li> <li>• Parenchymal</li> </ul> </li> <li>4. Sequelae of brain trauma</li> </ol>		

## Theme 3: Intracranial Hemorrhage

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
6	Manage ischemic or hemorrhagic cerebrovascular events by knowing their effect on brain parenchyma and various clinical effects along with radiological diagnosis	<b>ORTH-T-S2-Ana-4</b> Circulation of brain and basal ganglion	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
		<b>ORTH-T-S2-NSUR-4</b> Intracranial hemorrhage		
		<b>ORTH-T-S2-Rad-2</b> CT Scan & MRI		

## Theme 4: Composition, Synthesis and Flow of CSF, Hydrocephalus and Its Management

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
7	Synthesis and flow of CSF along with its composition, hydrocephalus and its management	<b>ORTH-T-S2-Phy-1</b> Flow and circulation of CSF	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
		<b>ORTH-T-S2-Ana-5</b> Ventricular System		
		<b>ORTH-T-S2-NSUR-5</b> Presentation and management		
		<b>ORTH-T-S2-Rad-3</b> CT Scan & MRI		



## Theme 5: Approaches and Management of CNS tumors at different ages

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
8	Relate the neoplastic processes involving different parts of brain with their clinical presentations and different ages	<b>ORTH-T-S2-Path-1</b> Brain tumor	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
		<b>ORTH-T-S2-NSUR-6</b> Approach and management of CNS Tumors & different ages		
		<b>ORTH-T-S2-Rad-4</b> Radiological appearance of brain tumor		

## Theme 6: Spinal cord trauma and myelopathy

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
9	To localizes the lesion of compressive spinal cord pathology including vascular, neoplastic, infective and traumatic	<b>ORTH-T-S2-Ana-6</b> Brief view of Spinal Cord	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
		<b>ORTH-T-S2-NSUR-7</b> Etiology, clinical presentation and management		
		<b>ORTH-T-S2-Rad-5</b> X-rays, CT-Scan & MRI		



# Basic Sciences

## Introduction

Welcome to the soft tissue and bone module. This exciting module will serve as building block and is very essential to your future work as doctors. This module is designed to make your learning both interesting and productive by including several inter active activities.

This module covers the topics which are basic structure and function of bone, developmental disorders of bone and cartilage, fractures, bone repair and osteomyelitis, arthritis, benign bone and cartilage forming tumors, malignant bone and cartilage forming tumors, tumors of unknown origin and soft tissue tumors. All these topics are interactive and helpful in understanding the soft tissue and bone pathology.

## Rationale

The soft tissue and bone module is designed with a compelling rationale, aiming to equip students with essential knowledge and skills for various disciplines:

## Duration:

02 weeks

## Learning outcomes

At the end of this module, the students will be able to understand pathological conditions, etiology, diagnostic techniques, treatment planning, radiological interpretation, histopathology and clinical correlation.

## Themes

- Theme 1: Developmental Disorders of Bone & Cartilage, Basic Structure & Function of Bone.
- Theme 2: Fractures, Osteomyelitis and Arthritis.
- Theme 3: Benign Bone and Cartilage Forming Tumors, Malignant Bone and Cartilage Forming Tumors and Tumors of Unknown Origin
- Theme 4: Soft Tissue Tumors

## Topics with specific learning objectives and teaching strategies

### Theme 1: Developmental Disorders of Bone & Cartilage, Basic Structure & Function of Bone

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
1	<ul style="list-style-type: none"><li>• Functions of Bone</li><li>• Matrix</li><li>• Cells</li><li>• Development</li><li>• Homeostasis and Remodeling</li></ul>	<b>MSK-S2-Path-1</b> <b>Basic Structure and Function of Bone</b>	Interactive Lecture	SBQs & OSVE
2	<ul style="list-style-type: none"><li>• Diseases Associated with Defects in Nuclear Proteins and Transcription Factors</li><li>• Diseases Associated with defects in Hormones and</li></ul>	<b>MSK-S2-Path-2</b> Developmental Disorders Of Bone And Cartilage		



	<p>Signal Transduction Proteins</p> <ul style="list-style-type: none"> <li>• Diseases Associated with defects in Metabolic Pathways (Enzymes, Ion Channels, and Transporters)</li> <li>• Diseases Associated With Defects in Degradation of Macromolecules</li> </ul>			
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## Theme 2: Fracture, Osteomyelitis and Arthritis

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
3	<ul style="list-style-type: none"> <li>• Define terms related to fracture</li> <li>• Describe mechanism of bone healing</li> <li>• Complications of fracture</li> <li>• Pathophysiology of bone infection (osteomyelitis)</li> </ul>	<b>MSK-S2-Path-3</b> <b>Fractures, bone repair and osteomyelitis</b>	Interactive Lecture	SBQs & OSVE
4	<ul style="list-style-type: none"> <li>• What is arthritis</li> <li>• Define Osteoarthritis and Rheumatoid Arthritis</li> <li>• Explain pathophysiology of osteoarthritis and Rheumatoid Arthritis.</li> <li>• Describe the clinical features of osteoarthritis and Rheumatoid Arthritis</li> <li>• Treatment of osteoarthritis and Rheumatoid Arthritis</li> <li>• Crystal-Induced Arthritis.</li> </ul>	<b>MSK-S2-Path-4</b> <b>Arthritis</b>		

## Theme 3: Benign Bone and Cartilage Forming Tumors, Malignant Bone and Cartilage Forming Tumors and Tumors of Unknown Origin

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
5	<ul style="list-style-type: none"> <li>• Osteoid Osteoma</li> <li>• Osteblastoma</li> <li>• Osteochondroma</li> <li>• Chondroma</li> </ul>	<b>MSK-S2-Path-5</b> Benign Bone and cartilage Forming Tumors	Interactive Lecture	SBQs & OSVE
6	Gross and Microscopic Features	<b>MSK-S2-Path-6</b> Cartilage And Bone Forming Tumors		
7	<ul style="list-style-type: none"> <li>• Osteosarcoma</li> <li>• Chondrosarcoma</li> <li>• Tumors of Unknown Origin</li> <li>• Ewing Sarcoma</li> <li>• Giant Cell Tumor</li> <li>• Aneurysmal Bone Cyst</li> </ul>	<b>MSK-S2-Path-7</b> Malignant Bone and cartilage Forming Tumors Tumors of Unknown Origin		



## Theme 4: Soft Tissue Tumors

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
8	<ul style="list-style-type: none"> <li>• Tumors of Adipose Tissue</li> <li>• Lipoma</li> <li>• Liposarcoma</li> <li>• Fibrous Tumors</li> <li>• Nodular Fasciitis</li> <li>• Fibromatoses</li> <li>• Superficial Fibromatosis</li> <li>• Deep Fibromatosis (Desmoid Tumors)</li> <li>• Skeletal Muscle Tumors</li> <li>• Rhabdomyosarcoma</li> <li>• Smooth Muscle Tumors</li> <li>• Leiomyoma</li> <li>• Leiomyosarcoma</li> </ul>	<b>MSK-S2-Path-8</b> Soft Tissue Tumors	Interactive Lecture	SBQs & OSVE
9	Gross and Microscopic Features	<b>MSK-S2-Path-9</b> Soft Tissue Tumors	Practical	OSPE & OSVE





# 04 NEUROSCIENCES MODULE

## Introduction

### Neurology

Neuroscience is a multidisciplinary field that looks into the causes underlying neurological illness as well as the development and cellular operations of the nervous system. This module includes basic anatomical, physiological and biochemical concepts in relation to the nervous system and its link with clinical aspects related to the diseases of brain and nerves. This curriculum combines the chance to learn about the field broadly with in-depth knowledge in one of the three primary areas of neuroscience: clinical neuroscience, functional and integration neuroscience, and cellular and systems neuroscience.

### Psychiatry

Psychiatry is a fascinating and important area of medicine. Due to the nature of psychiatric illness (which may often be present/co-morbid with other conditions and/or affect the way people behave in a variety of situations), improved knowledge of Psychiatry would benefit professionals working in fields supplementary to Psychiatry and/or likely to come into contact with psychiatric illness on a regular basis.

## Rationale

### Neurology

The main goal of this module is to provide the foundation for understanding the impairments of sensation, action & cognition that accompany injury, disease or dysfunction in the central nervous system. This module will build upon the knowledge acquired through prior studies of cell molecular biology, general physiology & human anatomy with primary focus on the CNS. It will cover the important clinical aspects, pathological features, therapeutics & other common diseases of the CNS. Through this module students will develop an integrated, scientific knowledge and will be able to practice in a clinical setting and develop problem-solving skills helping to progress scientific discovery into neurological aspects of clinical and medical practice.

### Psychiatry

The psychiatry module aims to provide students with an in-depth knowledge of the basic science, characteristics and presentation of psychiatric illness. Psychiatric illnesses are becoming increasingly common in all the socioeconomic as well as ethnic communities in all genders and age groups. This module will be helpful in understanding that how psychiatric illness is managed and the appropriateness of referrals for specific management plans. The students will also develop the ability to critically appraise, synthesise and evaluate research relating to psychiatric illness.

## Duration

06 weeks

## Learning Outcomes

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

- Develop a well-rounded understanding of the neuroanatomy, neurophysiology, and neuropsychology that underlie both neurological and psychiatric disorders.



- Acquire the skills to correlate anatomy, pathology, and pharmacology with clinical presentations in both neurology and psychiatry.
- Demonstrate the utilization of diagnostic tests such as EEG, CT, MRI, and plain X-rays, along with psychiatric evaluation tools, for accurate diagnosis.
- Formulate holistic treatment plans incorporating pharmacological, psychological, and Neuro-rehabilitation strategies for managing both neurological and psychiatric disorders.

## Themes

### Neurology

- Theme 1: Weakness (Monoplegia, Hemiplegia)  
 Theme 2: Loss of Consciousness and Fits  
 Theme 3: Headache  
 Theme 4: Tremors and Difficulty in Walking / Loss of Balance (Ataxia)  
 Theme 5: Vertigo and Loss of Vision  
 Theme 6: Forgetfulness and Loss of Memory  
 Theme 7: Paraplegia, Quadriplegia  
 Theme 8: Loss of Vision  
 Theme 9: Numbness and Parasthesias (Tingling, Needling Sensation)

### Psychiatry

- Theme 1: Psychosis/ Schizophrenia Patho-Physiology, Classification Investigation/ Management  
 Theme 2: Mood Disorders and Anxiety Disorders, Patho-Physiology, Classification Investigation/ Management

## Topics with Specific Learning Objectives and Teaching Strategies

- Theme 1: Weakness (Monoplegia, Hemiplegia)  
 Theme 2: Loss of Consciousness and Fits  
 Theme 3: Headache  
 Theme 4: Tremors and Difficulty in Walking / Loss of Balance (Ataxia)  
 Theme 5: Vertigo and Loss of Vision  
 Theme 6: Forgetfulness and Loss of Memory  
 Theme 7: Paraplegia, Quadriplegia  
 Theme 8: Loss of Vision  
 Theme 9: Numbness and Parasthesias (Tingling, Needling Sensation)

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
1	Revisit the neuro anatomy of brain, cranial nerves and cerebellum <b>(revisit)</b> + Localize the lesion in CNS and PNS + Evaluation of ischemic or hemorrhagic cerebrovascular events and their clinical effect on brain parenchyma	<b>NS-S2-Ana-1</b> Functional Neuroanatomy and blood supply brain  <b>NS-S2-Ana-2</b> Functional Neuroanatomy of Spinal Cord	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam



2	To learn about the pathological processes affecting the neurons system. And Correlation between clinical presentations and pathogenic mechanisms.	<b>NS-S2-PathH-1</b> Cerebral hypoxia and cerebral edema <b>NS-S2-Path-2</b> Degenerative disorders of brain and spinal cord pathological perspective <b>NS-S2-Path-3</b> Pathological perspective/ classification of neuropathies		
3	Investigations for Neurological Disorders + Correlate between clinical presentations and pathogenic mechanisms involved in CNS infections and infestations. + Identify the involvement of isolated or multiple brain regions and structures in degenerative disorders and know resulting clinical syndromes. + Localize the lesion in various neruo axis. + To learn about clinical presentation and diagnosis and investigation about stroke, headache and epilepsy. + Differentiate between different types of anterior horn cell disorders, neuropathies and Myopathies by knowing their pathology, clinical features and investigations. + lesions and their radiological appearance + Predict the general reaction of brain to various injurious processes in terms of brain edema or raised intracranial pressure and develop a management a plan. +	<b>NS-S2-Neu-1</b> Cerebrovascular Disorders diagnosis <b>NS-S2-Neu-2</b> Definition and classification of seizure disorders <b>NS-S2-Neu-3</b> cerebrovascular disorders management <b>NS-S2-Neu-4</b> Diagnosis & mana-gement of epilepsy <b>NS-S2-Neu-5</b> Meningitis <b>NS-S2-Neu-6</b> Encephalitis <b>NS-S2-Neu-7</b> Brain abscess <b>NS-S2-Neu-8</b> Migraine <b>NS-S2-Neu-9</b> Loss of consciousness / coma (approach to diagnosis and management) <b>NS-S2-Neu-10</b> Parkinson disease <b>NS-S2-Neu-11</b> Cerebellar dysfunctions diagnosis and management <b>NS-S2-Neu-12</b> Chorea <b>NS-S2-Neu-13</b> Friedreich's ataxia <b>NS-S2-Neu-14</b> Wilson disease <b>NS-S2-Neu-15</b> Normal pressure hydrocephalus <b>NS-S2-Neu-16</b> Leuko dystrophies <b>NS-S2-Neu-17</b> Alzheimer disease <b>NS-S2-Neu-18</b> Multiples sclerosis <b>NS-S2-Neu-19</b> Transverse mylitis <b>NS-S2-Neu-20</b>		



		Neuro electrophysiology (NCSEMG, VEP, BERA, EEG)		
		<b>NS-S2-Neu-21</b> TB spine		
		<b>NS-S2-Neu-22</b> Acute and chronic peripheral neuropathies		
		<b>NS-S2-Neu-23</b> Sub acute combine degeneration of cord		
		<b>NS-S2-Neu-24</b> Myasthenia gravis		
		<b>NS-S2-Neu-25</b> Muscular dystrophies		
		<b>NS-S2-Neu-26</b> Approach to the visual loss		
		<b>NS-S2-Neu-27</b> Metabolic and inflammatory Myopathies		
4	To learn the basic concept about neuroimaging and their interpretation	<b>NS-S2-Rad-1</b> basics of neuro imagining (X - ray, CT Scan and MRI)		
		<b>NS-S2-Rad-2</b> Neuro imaging of multiple sclerosis		
5	To learn about the indication contraindication of various drugs used for management of common neurological disorders	<b>NS-S2-Pharm-1</b> Anti-epileptic drugs + Drugs for migraine		
		<b>NS-S2-Pharm-2</b> Anti tubercles and drugs for the CNS infections		
		<b>NS-S2-Pharm-3</b> Drugs for parkinsonism		
6	Recognize the importance of Community medicine in neurological disorders	<b>NS-S2-CM-1</b> Overview on global burden of neurological Disorders		
		<b>NS-S2-CM-2</b> Public health principles and awareness about neurological disorders		
7	To learn about the basic knowledge about Neuro rehabilitation	<b>NS-S2-PMR-1</b> Neuro rehabilitation of common UMN and LMN disorders		



## PSYCHIATRY

**Theme 1:      Psychosis/                      Schizophrenia                      Patho-Physiology,  
Classification Investigation/ Management**

**Theme 2:      Mood Disorders and Anxiety Disorders, Patho-Physiology,  
Classification Investigation/ Management**

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
1	<ul style="list-style-type: none"> <li>Explain the neuroanatomical changes associated with mental and behavioral disorders.</li> <li>Identify specific brain regions affected in different disorders.</li> <li>Explain the relationship between brain structures and behavioral manifestations.</li> </ul>	<b>NS-S2-Ana-1</b> Neuroanatomical Changes in Mental and Behavioral Disorders		
2	<ul style="list-style-type: none"> <li>Define psychosis and its key characteristics.</li> <li>Classify different types of psychosis.</li> <li>Explain the clinical presentations of psychosis.</li> <li>Differentiate between positive and negative symptoms of psychosis.</li> </ul>	<b>NS-S2-PSY-1</b> Psychosis Concept and Classifications		
3	<ul style="list-style-type: none"> <li>Describe the clinical features of schizophrenia.</li> <li>Identify the subtypes of schizophrenia.</li> <li>Explain the course and prognosis of the disorder.</li> <li>Explain the challenges in managing schizophrenia.</li> </ul>	<b>NS-S2-PSY-2</b> Schizophrenia	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
4	<ul style="list-style-type: none"> <li>Explain the mechanisms of action of antipsychotic medications.</li> <li>Identify common antipsychotic drugs and their side effects.</li> </ul>	<b>NS-S2-Pharm-1</b> Psycho-pharmacology of Antipsychotic		
5	<ul style="list-style-type: none"> <li>Explore disorders within the schizophrenia spectrum.</li> <li>Explain the similarities and differences between these disorders.</li> </ul>	<b>NS-S2-PSY-3</b> Schizophrenia Spectrum Disorders		
6	<ul style="list-style-type: none"> <li>Apply the bio-psychosocial model in the management of schizophrenia.</li> <li>Develop comprehensive treatment plans considering biological, psychological, and social factors.</li> </ul>	<b>NS-S2-PSY-4</b> Management of Schizophrenia Bio-Psychosocial Model		



7	<ul style="list-style-type: none"> <li>• Explain the role of mood stabilizers in psychiatric treatment.</li> <li>• Identify common mood stabilizers and their mechanisms of action.</li> <li>• Recognize indications and contraindications for mood stabilizer use.</li> </ul>	<b>NS-S2-Pharm-2</b> Psychopharmacology of Mood Stabilizers		
8	<ul style="list-style-type: none"> <li>• Define bipolar disorder and its diagnostic criteria.</li> <li>• Identify the different phases of bipolar disorder.</li> <li>• Explain the challenges in managing bipolar disorder.</li> </ul>	<b>NS-S2-PSY-5</b> Bipolar Disorder		
9	<ul style="list-style-type: none"> <li>• Explore neurophysiological and biochemical changes associated with mental disorders.</li> <li>• Explain the role of neurotransmitters in psychiatric conditions.</li> <li>• Identify key biomarkers related to mental and behavioral disorders.</li> </ul>	<b>NS-S2-Bio-1</b> Neurophysiological/Biochemical Changes in Mental Disorders		
10	<ul style="list-style-type: none"> <li>• Define personality and personality disorders.</li> <li>• Identify different types of personality disorders.</li> <li>• Explain the diagnostic criteria for personality disorders.</li> <li>• Explore the impact of personality disorders on an individual's functioning.</li> </ul>	<b>NS-S2-PSY-6</b> Personality and Personality Disorders		
11	<ul style="list-style-type: none"> <li>• Apply therapeutic approaches in the management of personality disorders.</li> <li>• Develop strategies for coping with challenging behaviors.</li> </ul>	<b>NS-S2-PSY-7</b> Management of Personality Disorders		
12	<ul style="list-style-type: none"> <li>• Explain the applications of neuro-imaging in psychiatric conditions.</li> </ul> <p>Interpret neuro-imaging results in the context of mental health assessment.</p>	<b>NS-S2-Rad-1</b> Basics of Neuro-imaging (CT Scan and MRI)		
13	<ul style="list-style-type: none"> <li>• Identify general medical conditions that may present with acute psychosis.</li> <li>• Explain the relationship between medical conditions and psychiatric symptoms.</li> </ul>	<b>NS-S2-CM-1</b> General Medical Conditions Presented with Acute Psychosis		



14	<ul style="list-style-type: none"> <li>Implement appropriate interventions for the management of psychosis in the context of general medical conditions.</li> <li>Collaborate with medical professionals in addressing underlying medical issues.</li> <li>Explain the importance of a multidisciplinary approach in such cases.</li> </ul>	<b>NS-S2-CM-2</b> Management of General Medical Conditions Presented with Psychosis		
15	<ul style="list-style-type: none"> <li>Explain the mechanisms of action of antidepressant medications.</li> <li>Identify common antidepressant drugs and their side effects.</li> </ul>	<b>NS-S2-Pharm-3</b> Psycho-pharmacology of Antidepressants		
16	<ul style="list-style-type: none"> <li>Define major depressive disorder and its diagnostic criteria.</li> <li>Recognize the symptoms and course of major depressive episodes.</li> <li>Explain the impact of major depressive disorder on individuals and society.</li> </ul>	<b>NS-S2-PSY-8</b> Major Depressive Disorder		
17	<ul style="list-style-type: none"> <li>Apply the bio-psychosocial model in the management of major depressive disorder.</li> <li>Develop comprehensive treatment plans considering biological, psychological, and social factors.</li> </ul>	<b>NS-S2-PSY-9</b> Management of Major Depressive Disorder Bio-Psychosocial Model		
18	<ul style="list-style-type: none"> <li>Explain the social factors influencing suicide.</li> <li>Identify risk and protective factors related to suicide.</li> <li>Discuss the impact of societal attitudes on individuals at risk of suicide.</li> </ul>	<b>NS-S2-PSY-10</b> Social Perspective of Suicide		
19	<ul style="list-style-type: none"> <li>Identify risk factors associated with deliberate self-harm and suicide.</li> <li>Conduct a comprehensive assessment of suicide risk.</li> <li>Develop intervention strategies for individuals at risk.</li> </ul>	<b>NS-S2-PSY-11</b> Deliberate Self-Harm/Suicide Risk Factors and Assessment		
20	<ul style="list-style-type: none"> <li>Explain the mechanisms of action of anxiolytic and sedative medications.</li> <li>Identify common drugs in these categories and their side effects.</li> <li>Explain the role of anxiolytics and sedatives in the treatment of anxiety-related disorders.</li> </ul>	<b>NS-S2-Pharm-4</b> Psycho-pharmacology of Anxiolytics & Sedatives		



21	<ul style="list-style-type: none"> <li>Define anxiety disorders and their key characteristics.</li> <li>Classify different types of anxiety disorders.</li> <li>Explain the clinical presentations of anxiety disorders.</li> </ul>	<b>NS-S2-PSY-12</b> Anxiety Disorders Concept and Classification		
22	<ul style="list-style-type: none"> <li>Apply the bio-psychosocial model in the management of anxiety disorders.</li> <li>Develop comprehensive treatment plans considering biological, psychological, and social factors.</li> <li>Implement strategies for coping with anxiety symptoms.</li> </ul>	<b>NS-S2-PSY-13</b> Management of Anxiety Disorder Bio- Psychosocial Model		
23	<ul style="list-style-type: none"> <li>Define acute stress disorder and post-traumatic stress disorder.</li> <li>Identify the diagnostic criteria and symptoms associated with each disorder.</li> <li>Explain the impact of trauma on mental health. 4. Develop strategies for managing acute stress and PTSD.</li> </ul>	<b>NS-S2-PSY-14</b> Acute Stress Disorder & Post Traumatic Stress Disorder		
24	<ul style="list-style-type: none"> <li>Explore the relationship between stress and physical/mental health.</li> <li>Explain the physiological and psychological effects of stress.</li> <li>Identify coping mechanisms for stress management.</li> </ul>	<b>NS-S2-PSY-15</b> Stress and its Relationship with Illness		
25	<ul style="list-style-type: none"> <li>Define adjustment disorder and its diagnostic criteria.</li> <li>Identify common stressors leading to adjustment disorder.</li> <li>Explain the impact of adjustment disorder on an individual's functioning.</li> <li>Develop interventions for coping with adjustment difficulties.</li> </ul>	<b>NS-S2-PSY-16</b> Adjustment Disorder		
26	<ul style="list-style-type: none"> <li>Implement strategies for the management of acute stress disorder.</li> <li>Provide psychoeducation on coping with acute stress.</li> <li>Address immediate and long-term needs of individuals experiencing acute stress.</li> </ul>	<b>NS-S2-PSY-17</b> Management of Acute Stress Disorder		
27	<ul style="list-style-type: none"> <li>Classify different types of sleep disorders.</li> <li>Explain the diagnostic criteria for common sleep disorders.</li> <li>Explore the impact of sleep disorders on mental and physical health.</li> </ul>	<b>NS-S2-PSY-18</b> Sleep Disorders: Classification and Management		





	<ul style="list-style-type: none"> <li>Develop management strategies for various sleep disorders.</li> </ul>			
28	<ul style="list-style-type: none"> <li>Define somatoform and dissociative disorders.</li> <li>Classify different types of somatoform and dissociative disorders.</li> <li>Explain the clinical presentations of these disorders.</li> <li>Explore the relationship between psychological factors and somatic symptoms.</li> </ul>	<b>NS-S2-PSY-19</b> Somatoform & Dissociative Disorders Classification and Clinical Presentations		
29	<ul style="list-style-type: none"> <li>Apply therapeutic approaches in the management of somatoform and dissociative disorders.</li> <li>Develop strategies for addressing somatic symptoms in a holistic manner.</li> <li>Collaborate with healthcare professionals for comprehensive care.</li> </ul>	<b>NS-S2-PSY-20</b> Management of Somatoform & Dissociative Disorders		
30	<ul style="list-style-type: none"> <li>Explain the neurobiological basis of addiction.</li> <li>Identify the impact of substances on the brain's reward system.</li> <li>Explore the concept of tolerance, dependence, and withdrawal.</li> <li>Recognize the role of genetics in addiction susceptibility.</li> </ul>	<b>NS-S2-PSY-21</b> Neurobiological Basis of Addiction		
31	<ul style="list-style-type: none"> <li>Conduct a comprehensive assessment for substance use disorders.</li> <li>Identify diagnostic criteria for different substance use disorders.</li> <li>Explain the impact of substance use on mental and physical health.</li> <li>Differentiate between substance abuse and dependence.</li> </ul>	<b>NS-S2-PSY-22</b> Substance Use Disorders: Assessment and Diagnosis		
32	<ul style="list-style-type: none"> <li>Develop individualized treatment plans for substance use disorders.</li> <li>Implement evidence-based interventions for substance use disorders.</li> <li>Address co-occurring mental health issues in the context of substance use.</li> </ul>	<b>NS-S2-PSY-23</b> Management of Substance Use Disorder		
33	<ul style="list-style-type: none"> <li>Explain the stages of child development.</li> <li>Identify key milestones in cognitive, social, and emotional development.</li> <li>Explore factors influencing child development.</li> </ul>	<b>NS-S2-PSY-24</b> Child Development		



34	<ul style="list-style-type: none"> <li>Define pervasive developmental disorders (autism spectrum disorders).</li> <li>Identify diagnostic criteria for different disorders within the spectrum.</li> <li>Explain the challenges faced by individuals with pervasive developmental disorders.</li> </ul>	<b>NS-S2-PSY-25</b> Pervasive Developmental Disorders		
35	<ul style="list-style-type: none"> <li>Conduct comprehensive assessments for developmental disorders.</li> <li>Develop intervention plans tailored to the individual needs of children with developmental disorders.</li> </ul>	<b>NS-S2-PSY-26</b> Assessment and Management of Developmental Disorders		
36	<ul style="list-style-type: none"> <li>Differentiate between dementia and delirium.</li> <li>Explain the clinical presentations of dementia and delirium.</li> <li>Identify risk factors for these disorders.</li> </ul>	<b>NS-S2-PSY-27</b> Dementia and Delirium		
37	<ul style="list-style-type: none"> <li>Recognize the signs and symptoms of dementia and delirium.</li> <li>Explain the progression of cognitive decline in dementia.</li> <li>Identify reversible causes of delirium.</li> </ul>	<b>NS-S2-PSY-28</b> Clinical Presentations of Dementia and Delirium		
38	<ul style="list-style-type: none"> <li>Implement strategies for managing behavioral and cognitive symptoms in dementia.</li> <li>Provide support for individuals and caregivers coping with dementia</li> </ul>	<b>NS-S2-PSY-29</b> Management of Dementia and Delirium		
39	<ul style="list-style-type: none"> <li>Explain the concept of stigma in the context of mental health.</li> <li>Explore the impact of stigma on individuals seeking mental health services.</li> <li>Engage in mental health advocacy to reduce stigma.</li> </ul>	<b>NS-S2-PSY-29</b> Stigma & Mental Health Advocacy		
40	<ul style="list-style-type: none"> <li>Explain the legal framework surrounding mental health.</li> <li>Identify the rights and responsibilities of individuals with mental health issues.</li> <li>Navigate the legal processes related to involuntary commitment and treatment.</li> </ul>	<b>NS-S2-PSY-30</b> Legal Aspects of Mental Health		



## Introduction

Welcome to the Neuroscience module-II. This exciting module will serve as building block and is very essential to your future work as doctors. This module is designed to make your learning both interesting and productive by including several inter active activities.

This module covers the topics which are Pathogenesis of infective and tumorous conditions of nervous system like meningitis including bacterial, viral, tuberculous and fungal meningitis CSF findings to differentiate various types of meningitis and brain tumors including both central and peripheral nervous system tumors like gliomas, neuronal tumors, meningiomas, peripheral nerve sheath tumors and others. All these topics are interactive and helpful in understanding the renal pathology.

## Rationale

Diseases of the nervous system are common all over the world. Timely diagnosis and management of acute CNS problems like cerebrovascular accidents and infections prevents morbidity and mortality. Early diagnosis and prompt treatment of ischemic, infective and tumorous conditions like meningitis, cerebrovascular accident and brain tumors is important to reduce the occurrence of disability burden on community. After Understanding the structure and function of nervous system and its relationship with pathophysiology of diseases in neuroscience module-I, the students will be able to understand various infective and tumorous conditions of nervous system the neuropathology module-II by integrating the teachings of basic and clinical pathology, clinical medicine and surgery related to the disorders of the central and peripheral nervous system.

## Learning outcomes

At the end of this module, the students will be able to understand common clinical problems like meningitis and brain tumors and to correlate with Pathogenesis of diseases of meninges and brain parenchymal disease, related investigations like CSF examination and biopsies

## Themes

- Theme 1: Inflammatory and Infective Diseases of CNS
- Theme 2: Tumors of Central Nervous System

## Topics with specific learning objectives and teaching strategies

### Theme 1: Inflammatory and Infective Diseases of CNS

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
<b>Pathology</b>				
1	<ul style="list-style-type: none"> <li>• Define meningitis and encephalitis</li> <li>• Discuss common Central Nervous System infections including acute (pyogenic) bacterial infections, acute aseptic viral infections, chronic bacterial meningo-encephalitis, and fungal</li> </ul>	<b>NS-S2-Path-1</b> Inflammation and infections of CNS-1	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam



	meningo-encephalitis			
2	Viral pathogens causing meningitis, Enteroviruses, HSV-2, Arboviruses	<b>NS-S2-Path-2</b> Inflammation and infections of CNS-2		
	Discuss pathogenesis of cerebral malaria, Naegleria fowleri and Cysticercosis	<b>NS-S2-Path-3</b> Inflammation and infections of CNS-3		
	Infection of Brain & Meninges & CSF interpretation	<b>NS-S2-Path-4</b> Inflammation and infections of CNS-4		
	List the most common organisms that cause CNS infection in different age groups	<b>NS-S2-Path-5</b> Inflammation and infections of CNS-5		
	Discuss CSF findings of bacterial, tuberculous, viral and fungal meningitis	<b>NS-S2-Path-6</b> Inflammation and infections of CNS-6		

## Theme 2: Tumors of Central Nervous System

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
3	<ul style="list-style-type: none"> <li>Classify CNS tumors according to WHO classification</li> <li>List genetic mutations, pathogenesis, morphology and clinical features of brain tumors</li> <li>Including all types of Glioma, Ependymoma, Medulloblastoma and Meningioma</li> <li>Discuss the metastatic tumors to brain</li> </ul>	<b>NS-S2-Path-7</b> Brain tumors	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
4	<ul style="list-style-type: none"> <li>Classify different types of antiepileptic agents.</li> <li>Describe the mechanism of action, and adverse effects.</li> </ul>	<b>NS-S2-Pharm-1</b> Antiepileptics		
5	<ul style="list-style-type: none"> <li>Classify different types of antipsychotic agents.</li> <li>Describe the mechanism of action, and adverse effects.</li> </ul>	<b>NS-S2-Pharm-2</b> Antipsychotics		
6	<ul style="list-style-type: none"> <li>Enlist different drugs that are used for the treatment of Parkinson disease.</li> <li>Describe their mechanism of action and adverse effects.</li> </ul>	<b>NS-S2-Pharm-3</b> Treatment of Parkinson Disease		
7	<ul style="list-style-type: none"> <li>Discuss the pathophysiology of migraine headaches</li> <li>Discuss both pharmacologic and non-pharmacologic treatment strategies for migraine.</li> </ul>	<b>NS-S2-Pharm-4</b> Treatment of Migraine		



# 05 CARDIOLOGY

## Introduction

Welcome to the Cardiology module. This interesting module very essential to build your foundation in medicine and allied. This module is designed to make your learning both interesting and productive by including several inter active activities.

This module comprehensively covers the clinical applications that we encounter in everyday life as a cardiologist. All these topics are interactive and helpful in understanding the disease process as well as their management.

## Rationale

Heart is the one of if not the most essential organ of the body, it has a complex interaction with other essential organs of the body, its importance in human life is critical for survival of human being to understand the complex functioning as well as the common disease process is critical for every medical student to learn and by understanding it one can truly excel in medicine.

## Duration

02 Weeks

## Learning Outcomes

**After completion of MBBS course the student should be able to:**

- Recognize the clinical presentations of common cardiovascular diseases in the community.
- Diagnose these diseases on the basis of history, examination and clinical investigations.
- Identify the preventive measures for counseling their patients.
- Practice basic principles of management of common disease and make appropriate referral.
- Recognize of the prognosis to counsel their patients.
- Be aware of the specific diagnostic tools for cardiovascular diseases, and their interpretation.

## Themes

Theme 1: Ischemia, Heart Failure, Congenital Heart Diseases and Vascular Diseases  
Theme 2: Arrhythmias, Valvular Heart Disease and Heart Diseases and Pregnancy



## Topics with specific learning objectives and teaching strategies

### Theme 1: Ischemia, Heart Failure, Congenital Heart Diseases and Vascular Diseases

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
1	<ul style="list-style-type: none"> <li>NSTE-ACS:                             <ul style="list-style-type: none"> <li>Unstable Angina</li> <li>NSTEMI</li> </ul> </li> <li>STEMI</li> </ul>	<b>CAR-S2-Cardio-1</b> Acute Coronary Syndrome	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
2	<ul style="list-style-type: none"> <li>Introduction</li> <li>Clinical Presentation</li> <li>Diagnostic testing</li> <li>Therapy</li> </ul>	<b>CAR-S2-Cardio-2</b> Chronic Coronary Syndrome		
3	<ul style="list-style-type: none"> <li>Heart Failure with systolic Dysfunction</li> <li>Heart Failure with preserved ejection fraction</li> </ul>	<b>CAR-S2-Cardio-3</b> Heart Failure		
4	<ul style="list-style-type: none"> <li>ASD</li> <li>VSD</li> <li>PDA</li> <li>Coarctation of Aorta\</li> <li>Tetralogy of Fallot</li> </ul>	<b>CAR-S2-Cardio-4</b> Congenital Heart Diseases		
5	<ul style="list-style-type: none"> <li>Venous thromboembolism</li> <li>Peripheral Arterial disease</li> <li>Carotid artery disease.</li> </ul>	<b>CAR-S2-Cardio-5</b> Vascular Diseases		

### Theme 2: Arrhythmias, Valvular Heart Disease and Heart Diseases and Pregnancy

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
1	<ul style="list-style-type: none"> <li>Supraventricular arrhythmias</li> <li>Ventricular arrhythmias</li> </ul>	<b>CAR-S2-Cardio-6</b> Tachyarrhythmia	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
2	<ul style="list-style-type: none"> <li>Sinus Node Dysfunction</li> <li>1<sup>st</sup> degree AV Blocks</li> <li>2<sup>nd</sup> degree AV Block</li> <li>3<sup>rd</sup> degree AV Block</li> </ul>	<b>CAR-S2-Cardio-7</b> Bradyarrhythmias		
3	<ul style="list-style-type: none"> <li>Mitral Valve Disease</li> <li>Mitral stenosis</li> <li>Mitral Regurgitation</li> </ul>	<b>CAR-S2-Cardio-8</b> Valvular Heart Disease		
4	<ul style="list-style-type: none"> <li>Aortic Valve Disease</li> <li>Aortic stenosis</li> <li>Aortic Regurgitation</li> </ul>	<b>CAR-S2-Cardio-9</b> Valvular Heart Disease		
5	<ul style="list-style-type: none"> <li>Introduction</li> </ul>	<b>CAR-S2-Cardio-10</b>		



	<ul style="list-style-type: none"><li>• Normal Physiologic changes during pregnancy</li><li>• Cardiovascular evaluation during pregnancy</li><li>• Pregnancy in women with CHD</li><li>• VHD and pregnancy</li><li>• Hypertensive disorders in Pregnancy</li></ul>	Heart Diseases and Pregnancy		
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# 06 EXCRETORY & RENAL MODULE -III

## Nephrology

### Introduction

Welcome to the Nephrology module. This module is very essential to build foundation in the field of medicine and allied. This module is designed to make learning both interesting and productive by including several interactions.

This module covers the structural anatomy, and physiology of the kidneys, as well as common renal disorders encounter in our society. All these topics are interactive and helpful in understanding the renal diseases.

### Rationale

The kidneys are very important the organs of the body, Maintaining the blood pressure (hemodynamic status), pH, electrolytes, body volume & excretion of waste products from the body. The kidneys are vulnerable to many systemic diseases, genetic diseases, and environmental diseases, infections, communicable & non communicable diseases. Understanding therapeutic and preventive measures for many renal diseases is the need of time, not only to save the cost of treatment which is very high for managing kidney diseases but also for maintaining the better quality of life. At the end of module, the student shall gain the understanding to diagnose & manage common renal problems including Acute Kidney Injury, Chronic Kidney Injury, and Electrolyte disorders such as sodium, potassium, calcium, magnesium & interpretation of ABGs disorders. Understanding the clinical renal module will not only will be important for patients management but will also be helpful for clearing in various licensing examination for many countries.

### Duration

04 Weeks

### Learning outcomes

**After completion of MBBS course the student should be able to:**

- Recognize the clinical presentations of common renal disorders.
- Diagnose these disorders on the basis of history, examination and clinical investigations.
- Identify the preventive measures for counseling regarding the non-communicable diseases.
- Practice basic principles of management of common disease and make appropriate referral.
- Estimate the prognosis to counsel the patients and family members.
- Aware of the specific diagnostic tools for renal diseases, and their interpretation.

### Themes

- Theme 1: Glomerular Conditions Including Glomerular Syndromes, Conditions Associated with Systemic Disorders and Isolated Glomerular Abnormalities
- Theme 2: Renal Excretory Infections and Vascular Disease
- Theme 3: Obstructive Uropathy (Urolithiasis, Hydronephrosis)
- Theme 4: Tumors of Renal/ Excretory System





## Topics with specific learning objectives and teaching strategies

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
1	<ul style="list-style-type: none"> <li>Basic and advance renal investigations</li> <li>When, how, which and what type of investigation to be sent according to renal illness</li> <li>The basics that how such investigation to be interpret</li> <li>The significance of test in disease, its prognosis and monitoring.</li> <li>Basic case scenarios on various important investigations.</li> </ul>	<b>EXC-S2-Neph-1</b> Investigations in renal medicine	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
2	<ul style="list-style-type: none"> <li>Definition of terms</li> <li>Basic classification of glomerular diseases</li> <li>Proteinuria and its types</li> <li>Difference b/w nephritic and nephrotic syndrome</li> <li>Approach to a patient with glomerular diseases</li> <li>Management of nephritic and nephrotic syndrome</li> <li>Case based scenarios on various glomerular diseases.</li> </ul>	<b>EXC-S2-Neph-2</b> Clinical presentation and basic management of glomerular diseases: nephritic & nephrotic syndrome		
3	<ul style="list-style-type: none"> <li>Describe an over view of anatomy &amp; physiology of urinary system.</li> <li>Explain the classification of acute renal injury.</li> <li>Discuss the clinical picture and presentation of acute renal injury.</li> <li>Basic management</li> <li>Case based scenarios.</li> </ul>	<b>EXC-S2-Neph-3</b> Acute kidney injury		
4	<ul style="list-style-type: none"> <li>Identify the causes of chronic kidney disease</li> <li>Explain the pathogenesis of chronic kidney disease</li> <li>Describe the signs and symptoms and presentation of chronic kidney disease</li> <li>Management Clinical case-based scenarios</li> </ul>	<b>EXC-S2-Neph-4</b> Chronic kidney disease		
5	<ul style="list-style-type: none"> <li>Different modalities of dialysis</li> <li>Over view of renal transplant</li> <li>Common post renal transplant medical complications.</li> </ul>	<b>EXC-S2-Neph-5</b> Renal replacement therapy		

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
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1	<ul style="list-style-type: none"> <li>Describe the distribution of potassium in the body.</li> <li>Enlist the causes of hypokalemia and hyperkalemia.</li> <li>Discuss the diagnosis and management of these disorders</li> </ul>	<b>EXC-S2-Phy-1</b> Potassium Disorders	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
2	<ul style="list-style-type: none"> <li>Describe the distribution of sodium in the body.</li> <li>Enlist the causes of hyponatremia and hypernatremia.</li> <li>Discuss the diagnosis and management of these disorders</li> </ul>	<b>EXC-S2-Phy-2</b> Sodium disorders		
3	<ul style="list-style-type: none"> <li>Physiology of acid base homeostasis</li> <li>Metabolic acidosis: causes. Pathophysiology, case-based interpretation with compensation.</li> <li>Metabolic alkalosis: causes. Pathophysiology, case-based interpretation with compensation</li> <li>Respiratory acidosis: causes. Pathophysiology, case-based interpretation with compensation</li> <li>Respiratory alkalosis: causes. Pathophysiology, case-based interpretation with compensation</li> <li>Mixed disorders, diagnosis</li> </ul>	<b>EXC-S2-Neph-6</b> Management of Acid base disorders & Arterial blood Gases interpretation (two days)		
4	<p>Case based scenarios (50 questions).</p> <ul style="list-style-type: none"> <li>Clinical examination at bed side history/systemic examination.</li> </ul>	Assessment	<b>Award to best student of the group</b>	<b>SBQs &amp; OSVE</b>



# Urology

## Introduction

Its Renal Excretory Module, module comprises of conditions related with Kidneys, Ureter, Urinary Bladder, Prostate, Male Genitalia and accessory glands. It is collectively known as Urology. It is one of most diverse fields of medicine which share major chunk of innovations in the field of medicine.

This module will enable you to understand conditions related to organs which are related to this module, its clinical implications and ways for treating the related diseases in most constructive and interactive manner.

## Rationale

This module comprises of multiple important organs of body. They are having pivotal role in the homeostasis of the human body. Organs like kidneys, ureter, bladder, prostate and male genitals are complex organs and functions in very diverse ways so disease process also take very unusual pathways so it is beyond discussion that it is very important to know treating strategy for urological conditions like urolithiasis, urological neoplasms, infertility and paediatric urological conditions etc and preventing the recurrence of the disease.

## Learning Outcomes

**At the end of module candidate should be able to:**

- Understand the normal functioning of organs in the module.
- Take thorough history, clinical examination emphasising on Urological structures.
- Interpret diagnostic tests and their proper indications.
- Diagnose clinical conditions involving mentioned organs with the help of basic as well as advanced investigative tools.
- Advise proper treatment modalities to commonly occurring conditions.
- Design preventive measures for different conditions discussed in module.
- Provide proper follow-ups to get good prognosis.

## Topics with specific learning objectives and teaching strategies

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
1	Pathogenesis of stone formation with different theories	<b>EXC-S2-URO-1</b> Stone disease 1	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
2	Diagnosis with brief introduction to investigations	<b>EXC-S2-URO-2</b> Stone disease 2		
3	Pathogenesis of BPE and carcinoma of prostate, overview of investigative modalities	<b>EXC-S2-URO-3</b> Prostate (benign and Malignant)		
4	Types of bladder tumors, pathogenesis and diagnosis	<b>EXC-S2-URO-4</b> Urinary bladder Neoplasms		

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
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1	History, Clinical examination, Investigations, medical and surgical management	<b>EXC-S2-URO-5</b> Urolithiasis	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
2	History, Clinical examination, Investigations, medical and surgical management.	<b>EXC-S2-URO-6</b> Benign prostatic enlargement		
3	History, Clinical examination, Investigations, medical and surgical management, prognosis, follow up.	<b>EXC-S2-URO-7</b> Prostatic neoplasms		
4	History, Clinical examination, Investigations, management.	<b>EXC-S2-URO-8</b> Urinary tract infection		
5	History, clinical examination, diagnosis, Medical and surgical management, followup and prognosis	<b>EXC-S2-URO-9</b> Renal Neoplasms		
6	PUJO, PUV, VUR, cryptorchidism	<b>EXC-S2-URO-10</b> Paediatric Urology		
7	Renal, ureter, bladder, male genitals	<b>EXC-S2-URO-11</b> Urological Trauma		
8	Hydrocele, varicocele, epididymal cyst.	<b>EXC-S2-URO-12</b> Benign scrotal conditions		
9	History, Clinical examination, Investigations, management. History, clinical examination, diagnosis, Medical and surgical management, followup and prognosis	<b>EXC-S2-URO-13</b> Malignant scrotal conditions		
10	Oral/ MCQs	Assessment		

## Basic Sciences

### Introduction

Welcome to the Renal & excretory module. This exciting module will serve as building block and is very essential to your future work as doctors. This module is designed to make your learning both interesting and productive by including several inter active activities.

This module covers the topics which are Pathogenesis of glomerular disease, Glomerular conditions associated with system disorders and Isolated glomerular abnormalities, Renal vascular disease, Obstructive uropathy (Urolithiasis, Hydronephrosis), Tumors of Renal and Lower Urinary System, Kidney function tests, Urine Analysis and Urine C/S. All these topics are interactive and helpful in understanding the renal pathology.

### Rationale

Renal system and excretory system is Responsible for the body to get rid of waste and toxic substances. In this module the renal and excretory system will be examined in detail with emphasis on Pathogenesis of glomerular disease, Glomerular conditions associated with system disorders and Isolated glomerular abnormalities, Renal vascular disease, Obstructive uropathy (Urolithiasis, Hydronephrosis), Tumors of Renal and Lower Urinary System, Kidney function tests, Urine Analysis and Urine C/S.

This module will enable the students of third year to recognize the clinical presentations of common renal diseases and relate clinical manifestations to basic sciences.



## Learning Outcomes

At the end of this module, the students will be able to understand common clinical problems like kidney syndromes and to correlate with Pathogenesis of glomerular disease, Glomerular conditions associated with systemic disorders and Isolated glomerular abnormalities, Renal vascular disease, like benign and malignant nephrosclerosis, Obstructive uropathy (Urolithiasis, Hydronephrosis), Tumors of Renal and Lower Urinary System, Kidney function tests, Urine Analysis and Urine C/S.

## Themes

- Theme 1: Glomerular conditions including glomerular syndromes, conditions associated with systemic disorders and Isolated glomerular abnormalities.  
 Theme 2: Kidney/ Excretory Infections and Renal Vascular Disorders  
 Theme 3: Obstructive uropathy (Urolithiasis, Hydronephrosis)  
 Theme 4: Tumors of Renal/ excretory System

## Topics with specific learning objectives and teaching strategies

### Theme 1: Glomerular Conditions Including Glomerular Syndromes, Conditions Associated with Systemic Disorders and Isolated Glomerular Abnormalities

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
1	<ul style="list-style-type: none"> <li>Classify glomerular disease.</li> <li>Define glomerular syndrome</li> <li>Discuss pathogenesis of glomerular injury and mediators of glomerular injury.</li> </ul>	<b>EXC-S2-Path-1</b> Glomerular diseases	Interactive Lecture	SBQs & OSVE
2	<ul style="list-style-type: none"> <li>Describe various glomerular syndromes</li> <li>Define nephritic syndrome</li> <li>Describe pathophysiology and clinical features of nephritic syndrome</li> <li>Differentiate between nephritic and nephrotic syndrome.</li> </ul>	<b>EXC-S2-Path-2</b> Nephritic Syndrome		
3	<ul style="list-style-type: none"> <li>Define and describe causes:</li> <li>Pathophysiology and clinical features of nephrotic syndrome.</li> <li>Differentiate between nephritic and nephrotic syndrome.</li> </ul>	<b>EXC-S2-Path-3</b> Nephrotic Syndrome		
4	<ul style="list-style-type: none"> <li>Discuss the pathophysiology, morphology and clinical features in glomerular conditions associated with systemic disease e.g Diabetic nephropathy, Lupus nephritis, henoch schonlein purpura.</li> <li>Explain isolated glomerular abnormalities including IGA</li> </ul>	<b>EXC-S2-Path-4</b> Glomerular conditions associated with system disorders and Isolated glomerular abnormalities		



	nephropathy, Hereditary nephritis, Alport syndrome.			
5	<ul style="list-style-type: none"> <li>Name kidney function test</li> <li>Mention clinical interpretation of serum urea, creatinine, BUN and creatinine clearance test.</li> </ul>	<b>EXC-S2-Path-5</b> Kidney function tests		

## Theme 2: Kidney/ Excretory Infections and Renal Vascular Disorders

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
6	<ul style="list-style-type: none"> <li>Describe causes and pathogenic mechanism of tubulointerstitial injury</li> <li>Etiology, pathogenesis and morphology of acute tubular necrosis.</li> <li>Describe etiopathogenesis and morphology of tubulointerstitial nephritis.</li> </ul>	<b>EXC-S2-Path-6</b> Tubulointerstitial Injury		
7	<ul style="list-style-type: none"> <li>Identify predisposing factors of pyelonephritis</li> <li>Describe causes, pathogenic mechanisms and morphology of acute pyelonephritis.</li> <li>Describe clinical course and complications of acute pyelonephritis.</li> </ul>	<b>EXC-S2-Path-7</b> Pyelonephritis	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
8	<ul style="list-style-type: none"> <li>Define chronic pyelonephritis</li> <li>Enumerate causes and morphological features of chronic pyelonephritis.</li> </ul>	<b>EXC-S2-Path-8</b> Chronic Pyelonephritis		
9	<ul style="list-style-type: none"> <li>Identify the causes of UTI.</li> <li>Describe predisposing factors and clinical presentation.</li> </ul>	<b>EXC-S2-Path-9</b> Urinary tract infections		
10	<ul style="list-style-type: none"> <li>Classify renal vascular disease.</li> <li>Discuss etiology, pathogenesis, morphology, clinical features of benign and malignant nephrosclerosis.</li> <li>Define renal artery stenosis mention its causes, clinical features. Describe thrombotic microangiopathy and other vascular disorders</li> </ul>	<b>EXC-S2-Path-10</b> Renal Vascular disease		
11	Describe urine detail report and different methods of urine culture	<b>EXC-S2-Path-11</b> Urine Analysis and Urine Culture	Practical	OSPE & OSVE

## Theme 3: Obstructive Uropathy (Urolithiasis, Hydronephrosis)

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
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12	<ul style="list-style-type: none"> <li>Name various types of renal calculi.</li> <li>Describe etiopathology causes and complication</li> </ul>	<b>EXC-S2-Path-12</b> Kidney stones	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
13	Identify causes, pathophysiology, gross and microscopic features & clinical features of hydronephrosis.	<b>EXC-S2-Path-13</b> Hydronephrosis		

## Theme 4: Tumors of Renal/ Excretory System

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
14	<ul style="list-style-type: none"> <li>Name benign and malignant tumor of kidney.</li> <li>Describe etiopathology, risk factor and morphology and clinical features of Renal Cell Carcinoma.</li> </ul>	<b>EXC-S2-Path-14</b> <b>Tumors of Kidney-I</b>	Interactive Lecture	SBQs & OSVE
15	<ul style="list-style-type: none"> <li>Classify urothelial tumor.</li> <li>Discuss etiology, pathogenesis, morphology, clinical features and diagnosis of urothelial tumors.</li> </ul>	<b>EXC-S2-Path-15</b> <b>Tumor of Urinary System-II</b>		
16	Describe gross and microscopic features of benign & malignant kidney and urinary bladder tumors	<b>EXC-S2-Path-16</b> <b>Kidney and urinary bladder tumors</b>	Practical	OSPE & OSVE
17	Classify difference types of Diuretics, Describe the mechanism of action of Diuretics Identify the clinical uses and adverse effects of Diuretics	<b>EXC-S2-Pharm-1</b>	Interactive Lecture	SBQs & OSVE



# 07 INTEGUMENTARY MODULE

## Dermatology

### Introduction

Welcome to the Integumentary module. This interesting module very essential to build your foundation in medicine and allied. This module is designed to make your learning both interesting and productive by including several inter active activities.

This module covers the structural anatomy and physiology of the skin as well as common skin disorders encounter in our society. All these topics are interactive and helpful in understanding the skin diseases.

### Rationale

Skin is the largest organ of the body. Its exposed position makes it susceptible to a large number of disorders which include, allergic conditions, infections, and involvement in metabolic disorders. In this dermatology module the student shall gain the understanding of skin diseases, their clinical presentation, diagnosis and their management.

### Learning Outcomes

**After completion of MBBS course the student should be able to:**

- Recognize the clinical presentations of common Skin diseases in the community.
- Diagnose these diseases on the basis of history, examination and clinical investigations.
- Identify the preventive measures for counseling their patients.
- Practice basic principles of management of common disease and make appropriate referral.
- Recognize of the prognosis to counsel their patients.
- Be aware of the specific diagnostic tools for Skin diseases, and their interpretation.

### Themes

- Theme 1: Introduction and Inflammatory Dermatitis
- Theme 2: Infections of Skin

### Plastic Surgery/ Burns

**By the end of this module, 4th-year undergraduate medical students should be able to:**

- Enlist the type of skin and its behavior after injuries like pigmentation, hypertrophic scar and Keloid.
- Enumerate the relevant investigation in a given scenario including blood investigations, relevant X-ray, Echo, CT and MRI scan.
- Diagnose the type of wound and its management.
- Enlist the different skin lesion and tumor and its management on the basis of local and regional flaps.
- Discuss the axial pattern flap for distant area coverage.
- Explain the biological and artificial skin for coverage.
- Describe the acute burn care.





- Discuss how the graft applied
- Enumerate and identify various benign and malignant skin lesions.
- Enlist and describe various congenital anomalies dealt in Plastic surgery.
- Identify appropriate patient referral for further management.

## Themes

- Theme 1: Basic
- Theme 2: Burns and wound healing
- Theme 3: Sin Lesions/ Tumours

## Duration

03 Weeks

## Topics with specific learning objectives and teaching strategies

### Theme 1: Introduction and Inflammatory Dermatoses

S. #	LEARNING OBJECTIVES	TOPICS	TEACHING STRATEGY	ASSESSMENT
1	<ul style="list-style-type: none"> <li>• Recognize the Layers of epidermis &amp; Dermis</li> <li>• Recognize the appendages</li> <li>• Explore the functions of epidermis and dermis</li> </ul>	<b>IM-S2-Derm-1</b> Anatomy and physiology of the skin	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
2	Recognize primary and secondary cutaneous lesions	<b>IM-S2-Derm-2</b> Primary and secondary skin lesions		
3	To diagnose different types of psoriasis & their management	<b>IM-S2-Derm-3</b> Psoriasis		
4	To diagnose acne vulgaris & its management	<b>IM-S2-Derm-4</b> Acne vulgaris		
5	To diagnose atopic Eczema & study its management	<b>IM-S2-Derm-5</b> Atopic dermatitis		

### Theme 1: Infections of Skin

S #	LEARNING OBJECTIVES	TOPICS	TEACHING STRATEGY	ASSESSMENT
6	To diagnose superficial cutaneous bacterial infections, and their management	<b>IM-S2-Derm-6</b> Bacterial Infection	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
7	To diagnose different types of superficial fungal infections and their management	<b>IM-S2-Derm-7</b> Fungal		
8	To diagnose common cutaneous viral infections and their management	<b>IM-S2-Derm-8</b> Viral Infections		
9	To diagnose the Leishmaniasis and their management	<b>IM-S2-Derm-9</b> Parasitic Infections		
10	To diagnose scabies and its management.	<b>IM-S2-Derm-10</b> Parasitic Infections		



**Theme: Basic**

S #	LEARNING OBJECTIVES	TOPICS	TEACHING STRATEGY	ASSESSMENT
11	<p>The student will be able to:</p> <ul style="list-style-type: none"> <li>Define what is plastic surgery</li> <li>Describe history of plastic surgery</li> <li>Define sub-specialties in plastic surgery</li> <li>Describe factors involved in obtaining fine line scar</li> <li>Describe step ladder in plastic surgical armamentarium</li> </ul>	<b>IM-S2-PSurg-1</b> Introduction to Plastic Surgery	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam

**Theme: Burns and Wound Healing**

S #	LEARNING OBJECTIVES	TOPICS	TEACHING STRATEGY	ASSESSMENT
12	<p>The student will be able to:</p> <ul style="list-style-type: none"> <li>Define and Identify different types and degrees of burns</li> <li>Describe management of acute burns</li> <li>Enumerate complications of Burns</li> <li>Describe measures for prevention of burns and its complications</li> </ul>	<b>IM-S2-PSurg-2</b> Burns		
13	<p>The student will be able to:</p> <ul style="list-style-type: none"> <li>Define stages of wound healing</li> <li>Describe mechanisms involved in wound healing</li> <li>Describe aberrant wound healing</li> <li>Identify factors causing delayed wound healing</li> <li>Describe options for wound management</li> <li>Describe recent advances in wound healing strategies</li> </ul>	<b>IM-S2-PSurg-3</b> Wound healing	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
14	<p>The student will be able to define:</p> <ul style="list-style-type: none"> <li>What is skin graft, Types of skin graft, Mechanism of skin graft take, Uses of skin graft, Complications of skin grafts, The student is able to Define: What is a flap, Different types of flaps, Types of local flaps, Z-plasty, Uses of different flaps, Complications of different flaps</li> </ul>	<b>IM-S2-PSurg-4</b> Graft/ Flaps		

**Theme: Birth Defects**

S #	LEARNING OBJECTIVES	TOPICS	TEACHING STRATEGY	ASSESSMENT
15	The student will be able to describe:	<b>IM-S2-PSurg-5</b> Congenital anomalies	Lecture/ Demonstration,	SBQs & OSVE, OSCE, Clinical



	<ul style="list-style-type: none"> <li>Cleft lip deformity, Cleft palate deformity, Hypospadias, Haemangioma, Vascular malformations, Syndactyly</li> </ul>		SGD, Practical, CBL/ PBL	Exam
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### Theme: Skin lesions/ tumours

S #	LEARNING OBJECTIVES	TOPICS	TEACHING STRATEGY	ASSESSMENT
16	The student will be able to identify: <ul style="list-style-type: none"> <li>Benign skin lesion</li> <li>Cutaneous malignancies</li> <li>Squamous cell carcinoma</li> <li>Basal cell carcinoma</li> <li>Melanoma</li> </ul>	<b>IM-S2-PSurg-6</b> Skin lesion/tumors	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam



# 08 REPRODUCTIVE MODULE

## Introduction

Welcome to the Reproductive module. This exciting module will serve as building block and is very essential to your future work as doctors. This module is designed to make your learning both interesting and productive by including several inter active activities.

Reproductive health is a state of complete physical, mental and social well-being in all matters relating to the reproductive system. Reproductive Health is essential for peoples' overall well-being. Hence Reproductive health and specifically women's reproductive health is given prime importance at a global level.

This module will address inflammatory, neoplastic and non-neoplastic diseases of female genital organs, breast, sexually Transmitted Diseases and infertility. It will also address the inflammatory, non-neoplastic and neoplastic diseases of male reproductive system.

## Rationale

More than half of the population of Pakistan are females. Diseases related to female and male reproductive systems constitute a large segment of medical practice in all countries. These diseases together with pregnancy and its related disorders are the core teaching in this module. Reproductive module is expected to build students basic knowledge about normal structure, development and diseases of reproductive system. This will help the students to gain the knowledge about the etiology and pathogenesis of diseases of both male and female reproductive system and methods of diagnosis these diseases.

This module will enable the students of fourth year to recognize the clinical presentations of common reproductive diseases. The student will develop the understanding of the pathology, clinical presentation, and diagnosis of reproductive disorders, normal pregnancy and its disorders.

## Duration:

03 weeks

## Learning Outcomes

At the end of this module students should be able to:

- Recall the anatomy & physiology of male and female reproductive system.
- Discuss the etiology of early pregnancy disorders.
- Differentiate the non-neoplastic and neoplastic lesions of male and female genital tract.
- Differentiate between primary and secondary amenorrhea and discuss the management of infertility.
- Interpret the semen analysis report.
- Explain the clinical features diagnosis and management testicular tumors.
- Classify breast tumor and differentiate between non proliferative and proliferative breast lesions

## Themes

Theme 1: Lesions of Female Genital Tract



## Topics with specific learning objectives and teaching strategies

### Theme 1: Lesions of Female Genital Tract

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
1	<ul style="list-style-type: none"> <li>Discuss congenital anomalies of female genital tract</li> <li>Define sexually transmitted infections</li> <li>Define Pelvic Inflammatory Disease</li> <li>List the organism causing genital tract infection</li> <li>Discuss complications of PID</li> </ul>	<b>Rep-S2-Path-1 Congenital anomalies &amp; Infections of female genital tract</b>	Interactive Lecture	SBQs & OSVE
2	<ul style="list-style-type: none"> <li>Discuss the morphology, pathogenesis and clinical presentation of non-neoplastic &amp; neoplastic vulvar conditions.</li> <li>Explain the pathogenesis and morphology of vaginal intraepithelial neoplasia and squamous cell carcinoma</li> </ul>	<b>Rep-S2-Path-2 Non-neoplastic and neoplastic conditions of vulva and vagina</b>		
3	<ul style="list-style-type: none"> <li>Explain the infections of cervix including acute &amp; chronic cervicitis and Endocervical Polyps</li> <li>Discuss risk factors, pathogenesis and morphology of cervical intraepithelial lesions and cervical carcinoma</li> </ul>	<b>Rep-S2-Path-3 Non-neoplastic and neoplastic conditions of cervix</b>		
4	<ul style="list-style-type: none"> <li>Discuss the etiology, pathogenesis, morphology and clinical features of Abnormal uterine bleeding and Anovulatory Cycle</li> <li>Explain the etiology, pathogenesis, morphology and clinical features of acute and chronic Endometritis, Endometriosis and Adenomyosis and Endometrial Polyps</li> <li>Define Endometrial hyperplasia and explain its etiology and morphology</li> </ul>	<b>Rep-S2-Path-4 Functional Endometrial Disorders &amp; Endometrial Hyperplasia</b>		
5	<ul style="list-style-type: none"> <li>Explain the procedure of pap smear</li> <li>Differentiate the normal and abnormal pap smear</li> </ul>	<b>Rep-S2-Path-5 Pap smear</b>		



6	<ul style="list-style-type: none"> <li>Discuss the etiology, pathogenesis, morphology and clinical features of Carcinoma of the Endometrium</li> <li>Describe benign and malignant tumors of myometrium</li> </ul>	<b>Rep-S2-Path-6 Tumors of Uterus</b>	Interactive Lecture	SBQs & OSVE
7	<ul style="list-style-type: none"> <li>Describe non neoplastic and functional cyst of ovary</li> <li>Explain etiology, morphology and clinical presentation of polycystic ovarian disease</li> </ul>	<b>Rep-S2-Path-7 Diseases of ovary</b>	Interactive Lecture	SBQs & OSVE
8	<ul style="list-style-type: none"> <li>Classify tumors of ovary</li> <li>Discuss the etiology, pathogenesis, morphology and clinical features of ovarian tumors</li> </ul>	<b>Rep-S2-Path-8 Tumors of ovary</b>		
9	<ul style="list-style-type: none"> <li>Discuss the etiology, pathogenesis and morphology of hydatiform mole including complete mole, partial mole and invasive mole</li> <li>Explain the pathogenesis and morphology of choriocarcinoma and placental site trophoblastic tumor</li> </ul>	<b>Rep-S2-Path-9 Gestational Trophoblastic Diseases</b>		
10	<ul style="list-style-type: none"> <li>Describe the morphology, gross and microscopic features of gestational tumors</li> </ul>	<b>Rep-S2-Path-10 Gestational Tumor</b>	Practical	OSPE & OSVE

## Theme 2: Lesions of Male Genital Tract

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
11	<ul style="list-style-type: none"> <li>Discuss congenital anomalies of male genital tract</li> <li>Describe inflammatory conditions of testis and epididymis</li> </ul>	<b>Rep-S2-Path-11 Congenital anomalies and inflammation of testis and epididymis</b>	Interactive Lecture	SBQs & OSVE
12	<ul style="list-style-type: none"> <li>Classify testicular tumors</li> <li>Discuss the etiology, pathogenesis, morphology and clinical features of various types of testicular tumors</li> </ul>	<b>Rep-S2-Path-12 Testicular Tumors</b>		
13	<ul style="list-style-type: none"> <li>Explain the etiology and morphology of prostatitis</li> <li>Describe gross and microscopic features and complications of BPH</li> </ul>	<b>Rep-S2-Path-13 Prostatitis &amp; benign prostatic hyperplasia</b>		
14	Describe etiology, morphology, type and staging of carcinoma of prostate	<b>Rep-S2-Path-14 Carcinoma of prostate</b>		



15	Explain the sample collection, gross, microscopic and chemical examination of semen	<b>Rep-S2-Path-15 Semen D/R</b>	Practical	OSPE & OSVE
<b>Pharmacology</b>				
16	<ul style="list-style-type: none"> <li>Enlist different estrogen and antiestrogen preparations</li> <li>Describe the pharmacological effects, clinical uses and side effects of these agents</li> </ul>	<b>Rep-S2-Pharm-1 Estrogen And Antiestrogen</b>	Lecture	SBQs & OSVE
17	<ul style="list-style-type: none"> <li>Enlist different types of hormonal contraceptives.</li> <li>Describe the mechanism of action of hormonal, contraceptives, their clinical uses and adverse effects of hormonal contraceptives.</li> </ul>	<b>Rep-S2-Pharm-2 Hormonal Contraceptives</b>		
18	<ul style="list-style-type: none"> <li>Describe the role of endogenous oxytocin in labour</li> <li>Describe the clinical conditions that may require the exogenous oxytocin</li> <li>Discuss the unwanted effects of Oxytocin.</li> </ul>	<b>Rep-S2-Pharm-3 Oxytocin</b>		



# 09 ASSESSMENT

ASSESSMENT PLAN FOR EACH PAPER	END OF YEAR ASSESMENT	INTERNAL EVALUATION	TOTAL %AGE
THEORY (SBQS)	80%	20%	100%
PRACTICAL EXAM (OSVE; OSCE)	80%		

ALLOCATION OF INTERNAL ASSESSMENT MARKS		
COMPONENT	SCORING MATRIX	PERCENTAGE
THEORY	ATTENDANCE (>90%=03; 89-80%=02; 79-70%=01;<70%=00)	3%
	Module tests	3%
	Block tests	4%
		10%
PRACTICAL	ATTENDANCE (>90%=03; 89-80%=02; 79-70%=01;<70%=00)	3%
	Module tests including ethics, conduct, practicals, assignments)	3%
	Block tests	4%
		10%
<b>TOTAL</b>		<b>20%</b>





# 10 LEARNING RESOURCES

## ENT

1. Logan Turner's Diseases of the Nose, Throat, and Ear: Head and Neck Surgery" by Michael J. Gleeso, 12<sup>th</sup> Edition
2. Diseases of Ear, Nose, and Throat" by P. L. Dhingra and Shruti Dhingra, 7<sup>th</sup> Edition
3. Oto-Rhino-Laryngology A Problem Oriented Approach – 2<sup>nd</sup> Edition  
Iqbal Hussain Udaipurwala
4. Current Diagnosis & Treatment Otolaryngology—Head and Neck Surgery, 4<sup>th</sup> Edition

## PLASTIC SURGERY

1. Plastic Surgery: Volume 1: Principles" and "Plastic Surgery: Volume 2: Aesthetic Surgery" by Peter C. Neligan
2. Essentials of Plastic Surgery" by Jeffrey E. Janis

## DERMATOLOGY

1. ABC of Dermatology, Authors: Paul K. Buxton, Rachael Morris-Jones, 7<sup>th</sup> Edition
2. Rook's Textbook of Dermatology, Authors: Christopher Griffiths, Jonathan, 9<sup>th</sup> Edition

## PATHOLOGY

1. Robbins Basic Pathology, Authors: Vinay Kumar, Abul K. Abbas, Jon C. Aster, 10<sup>th</sup> Edition
2. Rapid Review Pathology" Author: Edward F. Goljan MD, 4<sup>th</sup> Edition

## PHARMACOLOGY

1. Lippincott Illustrated Reviews: Pharmacology. Authors: Richard A. Harvey, Pamela C. Champe, 7<sup>th</sup> Edition.
2. Basic and Clinical Pharmacology by Katzung. Authors: Bertram G. Katzung, Anthony J. Trevor. 14<sup>th</sup> Edition.

## OPHTHALMOLOGY

1. Clinical Ophthalmology" by J. J. Kanski, 9<sup>th</sup> Edition
2. Clinical Ophthalmology by Shafi Muhammad Jatoi

## NEPHROLOGY

1. Davidson's principles and practice of Medicine, Ian D Penman, Stuart H. Ralston, MD 24<sup>th</sup> Edition
2. Current Medical diagnosis and Treatment, Maxine A. Papadakis, Stephen J. McPhee, Michael W. Rabow, 5<sup>th</sup> Edition
3. Primer on Kidney Disease, Scott J. Daniel & Weiner, 8<sup>th</sup> Edition

## UROLOGY

1. Bailey & Love's Short Practice of Surgery, 28<sup>th</sup> Edition.
2. Smith and Tanagho's General Urology, by Jack McAninch & Tom Lue, 19<sup>th</sup> Edition 19<sup>th</sup> Edition
3. Oxford Handbook of Urology, John Reynard, Simon F. Brewster, 4<sup>th</sup> Edition

## ORTHOPAEDICS

1. Campbell's Operative Orthopaedics, Frederick M. Azar & S. Terry Canale & James H. Beaty. 14<sup>th</sup> Edition
2. Miller's Review of Orthopaedics, Mark D. Miller, Stephen R. Thompson, 8<sup>th</sup> Edition
3. Orthopedic Physical Assessment by David J Magee, 6<sup>th</sup> Edition

## NEUROSURGERY

1. Neurology and Neurosurgery Illustrated, Kenneth W. Lindsay, Ian Bone, Geraint Fuller, 5<sup>th</sup> Edition
2. Greenberg's Handbook of Neurosurgery by Mark S. Greenberg, 10<sup>th</sup> Edition



## **PSYCHIATRY**

1. Shorter Oxford textbook of Psychiatry – 7<sup>th</sup> Edition
2. Behavioral Sciences by Mowadat H. Rana, 3<sup>rd</sup> Edition

## **NEUROLOGY**

1. Davidson's principles and practice of Medicine
2. Hutchison's Clinical Methods: An Integrated Approach to Clinical Practice
3. Macleod's Clinical Examination – 14<sup>th</sup> Edition

### **Pathology:**

1. Robbins & Cotran, Pathologic Basis of Disease, 9th edition.
2. Rapid Review Pathology, 4th edition by Edward F. Goljan MD

### **Pharmacology:**

1. Lippincot Illustrated Pharmacology
2. Basic and Clinical Pharmacology by Katzung

