

INDEPENDENT MEDICAL COLLEGE, FSD

BLOCK-6

NEUROSCIENCES - I (MODULE - 10)

CURRICULUM 2K23
(Study Guide)

MODULAR INTEGRATED
UNDERGRADUATE CURRICULUM

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LIST OF ABBREVIATION

ABBREVIATION	SUBJECTS
A	Anatomy
Ag	Aging
B	Biochemistry
BhS	Behavioral Sciences
C	Civics
CM	Community Medicine
C-FRC	Clinical-Foundation Rotation Clerkship
CV	Cardiovascular
ENT	Ear Nose Throat
F	Foundation
FM	Forensic Medicine
GO	Gynecology and Obstetrics
HL	Hematopoietic & Lymphatic
M	Medicine
MS	Musculoskeletal
O	Ophthalmology
P	Physiology
PA	Pathology
PE	Pediatrics
PERLs	Pediatrics
Ph	Pharmacology
Psy	Psychiatry
QI	Quran and Islamiyat
R	Radiology
Re	Respiratory
S	Surgery
SGD	Small Group Discussion

CURRICULUM FRAME WORK

The framework of Curriculum 2K23 has 44 modules spanning 05 years. The horizontal integration is evident in the modular configuration where different basic disciplines approach the themes simultaneously. Modules have been structured where all the basic disciplines are represented based on their respective weightage of content. All module objectives are preceded by the recommended themes and clinical relevance. Spiral placement of the modules within the framework ensures a revisit of the basic sciences. Clinical Skills follow a spiral which is entirely skills dominant. This spiral is the core of psychomotor training. Affective training has been formally inculcated in the curricular framework. The model of PERLs has been introduced so that the yield of doctors has a strong, resilient, ethically driven character. PERLs stands for Professionalism, Ethics, Research and Leadership skills.

INTRODUCTION TO THE STUDY GUIDE

The purpose of the study guide is to organize lecture notes and text book material so that students can increase their comprehension and memory of large amount of information. It will provide a teaching aid to assist the students in developing reading skills.

INTRODUCTION TO MODULE

The neurosciences module is crucial as understanding the brain and nervous system is essential for diagnosing and treating a wide range of neurological and psychiatric conditions. This includes conditions such as Alzheimer's disease, Parkinson's disease, epilepsy, migraines, traumatic brain injuries, depression, schizophrenia, and autism. By studying neurosciences, medical students will gain the knowledge and skills necessary to accurately diagnose and effectively treat these conditions.

MODULE COMMITTEE

Prof. Dr. Irfan Ahmad Mughal	Anatomy (Module coordinator)
Prof. Dr. Razia Rizwan	Physiology
Dr. Rizwan Ahmad	Biochemistry
Dr. Awais Shuja	Surgery
Dr. Baddar Bashir	Medicine
Dr. Sirda Mushtaq	Pharmacology
Dr. Shahbaz Ahmad	Community Medicine
Dr. Salma Naz	Pathology
Dr. Aslam Lodhi	Psychiatry
Dr. Taimur-ul-Hassan	Medical Education

INDEPENDENT MEDICAL COLLEGE, FAISALABAD
2ND YEAR MBBS

TIME TABLE
6TH BLOCK – 10TH MODULE (NEUROSCIENCES – I)
07 Weeks

DAY	08:00 - 10:00	10:00 - 12:00	12:00 - 12:15	12:15 - 01:15	01:15 - 02:00	02:00 - 02:30
Mon	Physiology	Anatomy /CFRC	BREAK	Biochemistry	Pathology / Aging / Pharmacology	Self Directed Learning (SDL)
Tue	Physiology	Anatomy		Biochemistry	Physiology	
Wed	Physiology	Anatomy		Biochemistry	Community Medicine / Behavioral Sciences	
Thu	Physiology	Anatomy		Biochemistry	Community Medicine / Medicine / Peads / Surgery	
Fri	Anatomy 8:00 - 09:00	Physiology 09:00 - 12:00				
Sat	Physiology 08:00 - 10:00	Anatomy 10:00 - 12:00	BREAK 12:00 - 12:15	PERL 12:15 - 01:15	Community Medicine / Medicine / Peads / Surgery 01:15 - 02:00	SDL 02:00 - 02:30

DISTRIBUTION OF TEACHING HOURS

Modules weeks	07
Recommended Minimum Hours	205 hr
Anatomy	64 hr
Physiology	50 hr
Biochemistry	50 hr
Pathology	12 hr
Community Medicine	08 hr
Pharmacology	04hr
Behavioral Sciences	08 hr
CFRC	08 hr
PERL	08 hr

MODULE OUTCOMES

- Describe the neuroanatomy, histology and embryology of the central nervous system.
- Discuss the physiology of Autonomic Nervous System (ANS), motor and sensory system.
- Explain the pathophysiology of common diseases pertaining to the nervous system.
- Explain a basic management and prevention plan for common neurological disorders.
- Appreciate the burden of neuroscience disorders and their psychosocial impact.

LEARNING OBJECTS
BLOCK 06– NEUROSCIENCES - I (MODULE – 10)

GROSS ANATOMY – THEORY	COURSE OBJECTIVES	TEACHING STRATEGIES
SPECIFIC LEARNING OUTCOMES		
Describe the basic organization of nervous system		SGD
Identify and describe the components of the Nervous system and their function		SGD
Trace the Origin, exit from vertebral canal, branches & Distribution of typical spinal nerve.		SGD
Identify the Location, Extent, Coverings and Blood supply of spinal cord Discuss & tabulate nuclear organization at different levels of Spinal cord. Describe, draw & label the transverse section of spinal cord at mid cervical level showing ascending & descending tracts Tabulate the sensory nerve endings, and anatomical sites of first, second, third order neurons of ascending tracts Tabulate first, second, third order neurons of descending tracts. Elaborate on the Cross-sectional details of white and gray matter of cervical, thoracic and lumbar segments of Spinal cord for localization of site of lesion.		SGD
Differentiate clearly between upper and lower motor neuron lesions		SGD
Location Relations Blood supply and external features of medulla, pons midbrain. Cross sectional details of white and grey matter of Brain stem (mid brain, pons, medulla) Discuss clinical correlates of brain stem Medial and lateral medullary syndrome Weber syndrome, Benedikt syndrome		SGD
Location, Relations, Functional classification & Blood supply along with major connections of Cerebellum (Cerebellar Peduncles) Define important clinical correlates		SGD
Identify the Lobes, Sulci & Gyri, Cortical areas. Describe Venous drainage and arterial supply of each lobe		SGD
Describe Functional areas of cerebrum. Draw and Label Homunculus. Define important clinical correlates		SGD
Describe internal structure of cerebral hemisphere; 1. white matter 2. Basal ganglia 3. Lateral ventricle		SGD
Describe components & functions of Limbic system & Reticular formation		SGD
Explain the origin, exit from the brain and intracranial course of cranial nerves Describe the Functional Components and specific functions of each cranial nerve.		SGD
Identify the Location and sub division of Diencephalon.		SGD
Discuss the Location, Relations, Blood supply, nuclei and major connections of Thalamus, Hypothalamus, Epithalamus, Subthalamus, Metathalamus Describe and Illustrate the Hypothalamic and pituitary gland Nuclei with their functions, location afferents. Describe the Hypothalamo-Hypophyseal Portal System Describe the functions of Hypothalamus Explain the anatomical basis for the Thalamic Cauterization, Thalamic Pain, Thalamic Hand and Hypothalamic Disorders		SGD
Explain the Gross anatomy of Intracranial fossae with intracranial foramina		SGD
Explain the attachments, blood supply and nerve supply of the meninges of the brain		SGD
Discuss the Origin, tributaries & area of drainage, termination of Dural venous sinuses		SGD
Explain the Formation, circulation and absorption into venous system of CSF (Cerebrospinal fluid)		SGD

Describe ventricular system, Lateral, 3 rd & 4 th ventricles	
Discuss the Origin, course, branches and distribution of internal carotid artery, vertebral artery Formation, Location, branches and area of supply of Circle of Willis	SGD
Explain the Major subdivision of ANS into Sympathetic and parasympathetic nervous system with comparison of anatomical differences.	SGD
Describe the Location, connections and functions of autonomic ganglion	SGD
Explain the origin, termination and branches of the sympathetic chain Localize spinal cord lesions	SGD
EMBRYOLOGY & POST-NATAL DEVELOPMENT SPECIFIC LEARNING OUTCOMES	TEACHING STRATEGIES
Explain the Development of Neural tube and Brain vesicles. Discuss related clinical anomalies	Interactive Lectures
Describe the development of the spinal cord and related clinical anomalies	Interactive Lectures
MICROSCOPIC STRUCTURE (HISTOLOGY & PATHOLOGY) SPECIFIC LEARNING OUTCOMES	TEACHING STRATEGIES
Describe the histological structure of Nervous tissue, Neuron, Nerve fiber, Sensory & motor nerve endings, Neuroglia, Blood brain barrier, ganglia	Interactive Lectures
Describe the histological structure of the spinal cord	Interactive Lectures
Describe the histological structure of Cerebrum, Cerebellum	Interactive Lectures
PRACTICAL HISTOLOGY SPECIFIC LEARNING OBJECTIVES	TEACHING STRATEGIES
Identify draw & label light microscopic structure of Peripheral nerve sensory ganglia, autonomic ganglia	Practical
Identify Draw & label the light microscopic structure of the spinal cord	Practical
Identify Draw & label the light microscopic structure of the Cerebrum	Practical
Identify Draw & label the light m structure of the Cerebellum	Practical

MEDICAL PHYSIOLOGY - THEORY SPECIFIC LEARNING OUTCOMES	COURSE OBJECTIVES	TEACHING STRATEGIES
Describe the general organization of nervous system		Interactive Lectures / SGD
Classify synapses		Interactive Lectures / SGD
Explain physiological anatomy of synapses		Interactive Lectures / SGD
Describe the properties of synaptic transmission		Interactive Lectures / SGD
Classify the substances that act as neurotransmitters		Interactive Lectures / SGD
Classify all sensory receptors in the body		Interactive Lectures / SGD
Enumerate the properties of receptors		Interactive Lectures / SGD
Explain the mechanism of adaptation of receptors		Interactive Lectures / SGD
Enlist the rapid adapting mechanism of receptors		Interactive Lectures / SGD
Explain the properties of receptors		Interactive Lectures / SGD
Explain the general classification of nerve fibers		Interactive Lectures /

	SGD
Explain the numerical classification of nerve fibers	Interactive Lectures / SGD
Explain Gasser classification of nerve fibers	Interactive Lectures / SGD
Explain summation and its types	Interactive Lectures / SGD
Describe the sensory areas of brain	Interactive Lectures / SGD
Enlist Brodmann number of sensory areas	Interactive Lectures / SGD
Describe the effects produced by damage to each sensory area of brain	Interactive Lectures / SGD
Describe the pathophysiology and features of personal neglect syndrome	Interactive Lectures / SGD
Classify and explain somatic sensations	Interactive Lectures / SGD
Enumerate the ascending tracts/Pathways	Interactive Lectures / SGD
Name the sensations carried by Dorsal column medial lemniscus system DCMLS Trace the pathway of DCMLS	Interactive Lectures / SGD
Classify pain	Interactive Lectures / SGD
Differentiate between slow pain and fast pain	Interactive Lectures / SGD
Describe the analgesia system in brain and spinal cord	Interactive Lectures / SGD
Describe the cause and features of Brown Sequard Syndrome	Interactive Lectures / SGD
Describe the Physiological anatomy of spinal cord	Interactive Lectures / SGD
Name the anterior motor neurons and their location	Interactive Lectures / SGD
Explain the Renshaw cells feedback	Interactive Lectures / SGD
Classify the spinal cord reflexes according to number of synapses	Interactive Lectures / SGD
Describe the structure & functions of Muscle spindle	Interactive Lectures / SGD
Trace the reflex arc of stretch reflex	Interactive Lectures / SGD
Discuss the clinical significance of stretch reflex	Interactive Lectures / SGD
Define tone and how it is maintained	Interactive Lectures / SGD
Trace the reflex arc of Golgi Tendon Organ GTO, Golgi tendon reflex Explain the importance of Golgi tendon reflex	Interactive Lectures / SGD
Name the motor areas of brain	Interactive Lectures / SGD
Enlist Brodmann number of motor areas of brain Explain the features produced due to damage to the motor areas	Interactive Lectures / SGD
Enlist the functions of brain stem	Interactive Lectures / SGD
Enumerate the descending tracts	Interactive Lectures /

	SGD
Describe the functions of Pyramidal tract	Interactive Lectures / SGD
Describe the effect of lesions in motor cortex of brain or pyramidal tract	Interactive Lectures / SGD
Discuss the location of upper and lower motor neuron	Interactive Lectures / SGD
Explain the features of upper motor neuron lesion	Interactive Lectures / SGD
Explain the features of lower motor neuron lesions	Interactive Lectures / SGD
Define spinal shock	Interactive Lectures / SGD
Enumerate and explain the stages of spinal shock	Interactive Lectures / SGD
Describe the features of hemi section of spinal cord (at the level, above the level, below the level)	Interactive Lectures / SGD
Name the functional parts of cerebellum	Interactive Lectures / SGD
Explain the functions of spinocerebellum	Interactive Lectures / SGD
Describe the functions of cerebro cerebellum	Interactive Lectures / SGD
Discuss the functions of vestibule cerebellum	Interactive Lectures / SGD
Explain the clinical features of cerebellar disease	Interactive Lectures / SGD
Name the components of Basal ganglia	Interactive Lectures / SGD
EXPLAIN the putamen and caudate circuits	Interactive Lectures / SGD
Enlist the neurotransmitters in basal ganglia and enlist the functions of basal ganglia	Interactive Lectures / SGD
Enumerate and explain the clinical abnormalities of putamen circuit	Interactive Lectures / SGD
Explain the pathophysiology and features of Huntington's disease	Interactive Lectures / SGD
Explain the types of rigidity	Interactive Lectures / SGD
Differentiate spasticity and rigidity	Interactive Lectures / SGD
Define decerebrate rigidity	Interactive Lectures / SGD
Enumerate the components of vestibular Apparatus	Interactive Lectures / SGD
Name the sensory organs of vestibular apparatus	Interactive Lectures / SGD
Describe the role of vestibular Apparatus in maintenance of linear and angular equilibrium	Interactive Lectures / SGD
Enlist the components of limbic system	Interactive Lectures / SGD
Describe the functions of amygdala	Interactive Lectures / SGD
Explain the effects of bilateral ablation of the amygdala—The Klüver-Bucy Syndrome	Interactive Lectures /

	SGD
Explain the functions of hippocampus	Interactive Lectures / SGD
Explain the functions of Hypothalamus	Interactive Lectures / SGD
Explain Functions of Thalamus	Interactive Lectures / SGD
Discuss the Thalamic syndrome define brain stem reticular formation (BRF), name the neurotransmitters of BRF, enlist functions of BRF, differentiate between the functions of Pontine and medullary reticular Formation	Interactive Lectures / SGD
Enumerate and discuss the physiological basis of Electroencephalogram EEG waves	Interactive Lectures / SGD
Explain the types of sleep	Interactive Lectures / SGD
Discuss the stages of slow wave sleep	Interactive Lectures / SGD
Explain the changes in EEG during sleep wake cycle	Interactive Lectures / SGD
Enumerate the areas and hormones/ neurotransmitters involved in sleep	Interactive Lectures / SGD
Describe sleep disorders (narcolepsy, cataplexy, insomnia, somnolence, somnambulism, bruxism, nocturnal enuresis and sleep apnea)	Interactive Lectures / SGD
Enumerate different types of epilepsy	Interactive Lectures / SGD
Explain the features and physiological basis and EEG waves in different types of epilepsy	Interactive Lectures / SGD
Define memory	Interactive Lectures / SGD
Classify memory on the basis of duration and information stored	Interactive Lectures / SGD
Explain the Molecular Mechanism of Intermediate Memory	Interactive Lectures / SGD
Enumerate the structural changes of long-term memory	Interactive Lectures / SGD
Explain the higher intellectual functions of prefrontal association cortex	Interactive Lectures / SGD
Explain the mechanism of consolidation of memory	Interactive Lectures / SGD
Explain retrograde and anterograde amnesia	Interactive Lectures / SGD
Explain the physiological basis and features of Alzheimer's disease	Interactive Lectures / SGD
Enlist the areas of speech	Interactive Lectures / SGD
Explain the functions of motor and sensory areas of speech	Interactive Lectures / SGD
Trace and explain the pathway of written and heard speech	Interactive Lectures / SGD
Enlist the abnormalities of speech	Interactive Lectures / SGD
Explain the features of motor aphasia	Interactive Lectures / SGD
Elaborate the features of sensory aphasia	Interactive Lectures / SGD

Define dyslexia, alexia, agraphia	Interactive Lectures / SGD
Discuss Components of Autonomic nervous system	Interactive Lectures / SGD
Explain the physiological anatomy of sympathetic and parasympathetic nervous system	Interactive Lectures / SGD
Describe the types of adrenergic and cholinergic receptors	Interactive Lectures / SGD
Explain the effects of sympathetic and parasympathetic on various organs/ system of body	Interactive Lectures / SGD
PHYSIOLOGY - PRACTICAL SPECIFIC LEARNING OUTCOMES	COURSE OBJECTIVES TEACHING STRATEGIES
Examine the Sensory System	Practical
Examine the Superficial Reflexes	Practical
Examine the Deep Reflexes	Practical
Demonstrate Cerebellar Function Test	Practical
Demonstrate the testing of Cranial Nerve (CN) VII	Practical
Demonstrate the Testing of Cranial Nerves (XI, XII)	Practical
Examine the Motor system	Practical

BIOCHEMISTRY - THEORY SPECIFIC LEARNING OUTCOMES	COURSE OBJECTIVES	TEACHING STRATEGIES
Explain the digestion and absorption of lipids with enzymes involved in it. Discuss role of bile acids and salts in lipid digestion and absorption		Interactive Lectures / SGD
Explain the concept of lipid transport and storage Discuss the reactions of beta-oxidation, alpha and omega oxidation of unsaturated and saturated fatty acids Calculate energy yield from palmitate in oxidation		Interactive Lectures / SGD
Discuss role of carnitine shuttle		Interactive Lectures / SGD
Discuss the role of citrate shuttle in fatty acid synthesis		Interactive Lectures / SGD
Explain the pathway of fatty acid synthesis and its regulation Explain the steps of the reactions of hepatic ketogenesis and regulation		Interactive Lectures / SGD
Describe utilization of ketone bodies by extrahepatic tissue. Describe the Synthesis and degradation of phospholipids and sphingolipids interpret the disorders related to enzyme deficiencies.		Interactive Lectures / SGD
Discuss the metabolism of glycolipids interpret the disorders related to enzyme deficiencies.		Interactive Lectures / SGD
Explain fast feed cycle with reference to pathways activated and suppressed in each tissue in starved and fed state Discuss integration of metabolism		Interactive Lectures / SGD
Explain fast. Discuss the structure, biochemical function and metabolism, dopamine, serotonin, histamine, GABA Correlate the biochemical functions of these neurotransmitters with their deficiency diseases		Interactive Lectures / SGD
Explain proto-oncogene and oncogene concept.		Interactive Lectures / SGD
Discuss tumor markers and their significance		Interactive Lectures / SGD
Explain the role of genetics in cancers especially breast, ovary, lung and colon.		Interactive Lectures / SGD
Discuss the concept of xenobiotics.		Interactive Lectures /

BIOCHEMISTRY - PRACTICAL	COURSE OBJECTIVES	SGD
SPECIFIC LEARNING OUTCOMES		TEACHING STRATEGIES
Interpret the lysosomal storage diseases on given data Neiman pick disease, Gaucher's disease etc.		Practical
Perform the estimation of triglycerides by kit method		Practical

AGING – THEORY	COURSE OBJECTIVES	TEACHING STRATEGIES
SPECIFIC LEARNING OUTCOMES		
Define dementia		Medicine Lecture
Discuss various causes for dementia		
Discuss various risks for dementia		
Outline management strategies		

PATHOPHYSIOLOGY AND PHARMACOTHERAPEUTICS	THEORY	TEACHING STRATEGIES
COURSE OBJECTIVES		
SPECIFIC LEARNING OUTCOMES		
1. Classify various opioid receptors 2. Describe Mechanism of Action (MOA), pharmacological actions, clinical uses and adverse effects of opioid agonist, mixed agonist - antagonist and antagonist		Pharmacology Lecture
1. Classify various CNS stimulants and depressants 2. Describe MOA, pharmacological actions, clinical uses and adverse effects of CNS stimulant and depressants		
Define cerebral vascular accident (CVA). Discuss the etiology and morphological changes of Cerebrovascular accidents		Pathology Lecture
Define Meningitis Identify types of meningitis		

DISEASE PREVENTION & IMPACT	THEORY	TEACHING STRATEGIES
COURSE OBJECTIVES		
SPECIFIC LEARNING OUTCOMES		
Students should be able to depict the depth of problem in context of mental illnesses		Community Medicine and Public Health Lecture
Able to learn the general approach to prevent mental illnesses at community level		
Explain the theoretical basis of classic conditioning, operant conditioning and observational learning with examples in medical practice Incorporate learning principles to help prepare people for medical interventions		Behavioral Sciences Lecture
Outline the structure of memory and explain the distinction between short- and long-term memory. Describe memory improvement techniques and how the appropriate ones will help patients recall long and complex explanations		
Identify various types of CVA (cerebrovascular accident) Describe various symptoms and signs Outline management strategies		Medicine Lecture
Discuss the role of surgery in stroke		Surgery Lecture
Define Epilepsy Enlist various types of epilepsy Identify various symptoms and signs Outline management strategies		Medicine Lecture
Enlist various types of meningitis Describe symptoms and signs		Medicine/

Outline management strategies	Neurology Lecture
Describe triage in ER Emergency Room	Surgery Lecture
Identify the various types of hematomas	Neurosurgery Lecture
Describe the clinical features of Cerebral Palsy	Pediatrics Lecture

ASSESSMENT
INTERNAL ASSESSMENT
BLOCK - 6
(Total 70 Marks)

THEORY		
S. No	Scoring Parameter	Marks out of 35
1.	Attendance >91% = 2 Marks 85-90% = 1 Mark	02 Marks
2.	Block Exam 71-onwards = 7 Marks 66-70 = 7 Marks 61-65 = 7 Marks 55-60 = 6 Marks	27 Marks
3.	Portfolio, Professional Behavior, Leadership Trait	03 Marks
4.	Continuous Assessment (Formative) – 3 Modules (only Pass)	03 Marks

PRACTICAL AND BEHAVIORAL ASSESSMENT		
S. No	Scoring Parameter	Marks out of 35
1.	Attendance >91% = 2 Marks 85-90% = 1 Mark	02 Marks
2.	Summative Assessment (Block Exam) OSPE / Practical 71-onwards = 7 Marks 66-70 = 7 Marks 61-65 = 6 Marks 55-60 = 6 Marks	26 Marks
3.	Practical books / Clinical Logbooks	07 Marks

ASSESSMENT TOOLS

MCQS

SEQS

OSPE

OSCE

VIVA

MARKS DISTRIBUTION
MBBS 2ND PROFESSIONAL

BLOCK - 6

Theme	Subject	Written Exam			Oral/Practical/Clinical Exam			
		MCQ (1 mark)	SEQ (5 mark each)	Marks	OSPE/OSCE/Viva Stations			Marks
					OSPE (08 marks each) Observed	OSCE (05 marks each) Observed	OSVE (14 marks each) Observed	
Normal Structure	Anatomy & applied/clinical	24	03	39	03	-	01	38
Normal Function	Physiology & applied/clinical	27	04	47	04	-	01	46
	Biochemistry & applied/clinical	12	02	22	01	-	01	22
Disease Burden & Prevention	Community Medicine & Public Health	04	-	04	-	-	-	-
	Behavioral Sciences	03	-	03	-	-	-	-
Pathophysiology and Pharmacotherapeutics	Pathology	12	01	17	02	-	-	16
	Pharmacology	08	-	08	01	-	-	08
CFRC	CF - 2	-	-	-	-	01	-	05
PERLs	PERLs - 2	-	-	-	-	01	-	05
Total		90	10 x 5 = 50	140	11 Stations x 08 = 88	02 Stations x 05 = 10	03 Stations x 14 = 42	140

INDEPENDENT MEDICAL COLLEGE, FSD

BLOCK-6

INFLAMMATION - (MODULE - 11)

CURRICULUM 2K23
(Study Guide)

MODULAR INTEGRATED
UNDERGRADUATE CURRICULUM

INTRODUCTION TO THE MODULE

The objective of teaching inflammation to undergraduate students is to impart knowledge about cellular and molecular mechanisms of cell injury, inflammation, and repair. This understanding serves as the foundation for comprehending most disease processes within the body. It equips students to apply this knowledge in the clinical field when working with real-life patients.

MODULE COMMITTEE

Prof. Dr. Irfan Ahmad Mughal	Anatomy (Coordinator Integrated Curriculum)
Prof. Dr. Razia Rizwan	Physiology (Module Coordinator)
Dr. Rizwan Ahmad	Biochemistry
Dr. Awais Shuja	Surgery
Dr. Baddar Bashir	Medicine
Dr. Sirda Mushtaq	Pharmacology
Dr. Shahbaz Ahmad	Community Medicine
Dr. Salma Naz	Pathology
Dr. Aslam Lodhi	Psychiatry
Dr. Taimur-ul-Hassan	Medical Education

INDEPENDENT MEDICAL COLLEGE, FAISALABAD
2ND YEAR MBBS

TIME TABLE
6TH BLOCK – 11TH MODULE (INFLAMMATION)
01 Week

DAY	08:00 - 10:00	10:00 - 12:00	12:00 - 12:15	12:15 - 01:15	01:15 - 02:00	02:00 - 02:30
Mon	Pathology	Anatomy /CFRC	BREAK	Pharmacology	Community Medicine	Self Directed Learning (SDL)
Tue	Pathology	Anatomy		Pharmacology	Community Medicine	
Wed	Pathology	Anatomy		Pharmacology	Community Medicine	
Thu	Pathology	Anatomy		Pharmacology	Behavioral Sciences	
Fri	08:00 - 09:00 Biochemistry	09:00 - 11:00 Pathology	11:00 - 12:00 Pharmacology			
Sat	08:00 - 12:00 Pathology		BREAK	12:15 - 01:15 PEARL	01:15 - 02:15 Biochemistry (Aging)	SDL

DISTRIBUTION OF TEACHING HOURS

Modules weeks	01
Recommended Minimum Hours	71 hr
Anatomy	05 hr
Physiology	26 hr
Biochemistry	28 hr
Pathology	05 hr
Community Medicine	04 hr
Pharmacology	02 hr
Behavioral Sciences	01 hr
CFRC	03 hr
PERL	03 hr

MODULE OUTCOMES

- Define inflammation and describe its fundamental characteristics.
- Explain the cellular and molecular mechanisms that underlie the inflammatory response.
- Differentiate between acute and chronic inflammation
- Discuss the physiological role of inflammation in tissue repair and host defense.
- Identify how dysregulated inflammation contributes to the pathogenesis of various diseases.
- Describe the key inflammatory mediators, including cytokines, chemokines, and prostaglandins.
- Illustrate the signaling pathways involved in the initiation and resolution of inflammation.
- Recognize the roles of different immune cells (e.g., neutrophils, macrophages, lymphocytes) in the inflammatory response.
- Discuss the pharmacological aspects of steroidal and non-steroidal anti-inflammatory drugs
- Discuss the clinical aspects of inflammation.

LEARNING OBJECTS

BLOCK 6 – (INFLAMMATION -1) MODULE – 11

GROSS ANATOMY – THEORY	COURSE OBJECTIVE	
SPECIFIC LEARNING OUTCOMES		
EMBRYOLOGY & POST-NATAL DEVELOPMENT SPECIFIC LEARNING OUTCOMES		TEACHING STRATEGIES
Identify role of inflammation in implantation Development of cells involved in acute & chronic inflammation Development of integumentary system		Interactive Lectures
MICROSCOPIC ANATOMY (HISTOLOGY & PATHOLOGY) SPECIFIC LEARNING OUTCOMES		TEACHING STRATEGIES
Discuss the microscopic structure of components involved in inflammation (cells, capillaries) Discuss the histology of integumentary system		Interactive Lectures
PRACTICAL	HISTOLOGY	TEACHING STRATEGIES
SPECIFIC LEARNING OBJECTIVES		
Draw and identify microscopic structure of integumentary system		Practical

BIOCHEMISTRY – THEORY	COURSE OBJECTIVES	TEACHING STRATEGIES
SPECIFIC LEARNING OUTCOMES		
Explain the biochemical and therapeutic roles of eicosanoids (prostaglandins, leukotrienes, thromboxane and prostacyclin		Interactive Lectures / SGD

AGING –	THEORY	TEACHING STRATEGIES
COURSE OBJECTIVES SPECIFIC LEARNING OUTCOMES		
Explain inflammatory changes and role of leukotriene and cytokines in old age		Biochemistry Lecture

PATHOPHYSIOLOGY AND PHARMACOTHERAPEUTICS	THEORY	TEACHING STRATEGIES
COURSE OBJECTIVES SPECIFIC LEARNING OUTCOMES		
Enumerate prostaglandin analogues Discuss the clinical use and adverse effect of prostaglandin analogues		Pharmacology & Therapeutics Lecture
Enlist anti-inflammatory drugs Differentiate between steroidal and non-steroidal anti-inflammatory drugs		
Discuss mechanism of action, clinical usage, and adverse effects of steroidal anti-inflammatory drugs		
Discuss mechanism of action, pharmacological effects, clinical usage, and adverse effects of non-steroidal anti-inflammatory drugs		
Differentiate between selective and non-selective cyclooxygenase (COX) inhibitors		

Differentiate between Aspirin and paracetamol Classify antihistamines Discuss the role of histamines and antihistamines in inflammation and allergies, adverse effects and drug interactions	
Define acute inflammation Enlist stimuli for Acute Inflammation Recognize microbes, necrotic cells, and foreign substances causing acute inflammation Identify different components of inflammation Define necrosis and explain its type with example	Pathology Lecture
Discuss the role of vascular and cellular events in acute inflammation Differentiate between transudate and exudate Classify chemical mediators Describe the different pathways of synthesis of chemical mediators and their role in clinical practice Discuss the role of different chemical mediators in acute inflammation Describe the different morphological patterns and outcomes of acute inflammation	
Define chronic inflammation Discuss the role of chronic inflammatory cells and mediators in chronic inflammation Discuss the causes, pathophysiology and morphology of granulomatous inflammation Classify mycobacteria Explain the pathogenesis, clinical manifestations and lab diagnosis of typical mycobacteria Explain the pathogenesis, clinical manifestations and lab diagnosis of atypical mycobacteria	
Discuss the concept of Cell Proliferation, the Cell Cycle and Stem Cells in tissue repair Discuss the role of Growth Factors, receptors, signal transduction and extracellular matrix Involved in Regeneration and Repair Explain the types of healing along with the steps in scar formation Identify the factors that influence the tissue repair Discuss the complication of wound healing -keloid, Hypertrophy, Scarring	

DISEASE PREVENTION & IMPACT	THEORY	TEACHING STRATEGIES
COURSE OBJECTIVES		
SPECIFIC LEARNING OUTCOMES		
Discuss the mode of transmission of communicable diseases Explain the general concept of prevention of communicable diseases Discuss the primary, secondary and tertiary prevention of acute and chronic diseases Discuss the role of immunoprophylaxis and chemoprophylaxis in prevention of communicable diseases		Community Medicine Lecture
Understand the correlation between psychological stress and inflammation		Behavioral Sciences Lecture

ASSESSMENT TOOLS

MCQS

SEQS

OSPE

OSCE

VIVA

RESOURCE BOOKS

Anatomy

- Langman's Medical Embryology
- Snell's Clinical Anatomy
- Snell's Clinical Neuroanatomy. Walter Kluwer
- Laiq H.S. Medical Histology. Paramount Books.
- Laiq H.S. General Anatomy. Paramount Books.

Physiology

- Guyton AC and Hall JE. Textbook of Medical Physiology. W. B. Saunders & Co., Philadelphia.
- Essentials of Medical Physiology by Mushtaq Ahmad

Biochemistry

- Harper's Biochemistry by Robert K. Murray, Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell. McGraw-Hill latest ed.
- Lippincott's Illustrated Reviews Biochemistry Champe, P.C. & Harvey, E.A latest ed. Published by Lippincott Williams and Wilkins.
- ABC of clinical genetics by H. M. Kingston

Pathology

- Vinary Kumar, Abul K. Abbas and Nelson Fausto Robbins and Cotran, Pathologic basis of disease. WB Saunders.
- Richard Mitchall, Vinary Kumar, Abul K. Abbas and Nelson Fausto Robbins and Cotran, Pocket Companion to Pathologic basis of diseases. Saunder Harcourt.
- Walter and Israel. General Pathology. Churchill Livingstone.

Pharmacology

- Basic and Clinical Pharmacology by Katzung, McGraw-Hill.
- Pharmacology by Champe and Harvey, Lippincott Williams & Wilkins

Behavioral Sciences

- Handbook of Behavioural Sciences by Prof. Mowadat H. Rana, 3rd Edition.
- Medical and Psychosocial Aspects of Chronic Illness and Disability SIXTH EDITION Donna R. Falvo, PhD Beverley E. Holland, PhD, RN,

Community medicine

- Parks Textbook of Preventive and Social Medicine. K. Park (Editor).
- Public Health and Community Medicine Ilyas, Ansari (Editors)

Surgery

- Bailey & Love' Short practice of Surgery

Medicine

- Davidson's Principles and Practice of Medicine

Islamiyat

- Standard Islamiyat (compulsory) for B.A, BSc, MA, MSc, MBBS by Prof. M. Sharif Islahi.
- Ilmi Islamiyat (compulsory) for BA, BSc, & equivalent.