

AYUB MEDICAL COLLEGE

ABBOTTABAD

DEPARTMENT OF MEDICAL EDUCATION

NEUROSCIENCES II



4TH YEAR MBBS

BLOCK: J

DURATION: 7 WEEKS

FROM: 2022-2023

STUDENT NAME

DISCLAIMER

- Developing a study guide is a dynamic process and undergoes iteration according to the needs and priorities.
- This study guide is subjected to the change and modification over the whole academic year.
 - However, students are advised to use it as a guide for respective modules.
- It is to declare that the learning objectives (general and specific) and the distribution of assessment tools (both theory and practical) are obtained from Khyber Medical University, Peshawar. These can be obtained from:
<http://kmu.edu.pk/sites/default/files/curriculum/1st%262nd-Year.zip>
- The time tables are for guiding purpose. It is to advise that final timetables are always displayed over the notice boards of each lecture hall.
- Students are encouraged to provide feedback via coordinator (see “For inquiry and troubleshooting”) or use the link given below. <https://forms.gle/ZfugPgAia9VvMeJ29>

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1. Module Committee:

s.n o	Name	Department	Role
1.	Prof. Dr. Umar Farooq	CEO & Dean	
2.	Prof. Dr. Irfan U. Khattak	Director DME	
Module Team			
3.	Prof. Dr. Haq Nawaz	Pharmacology	Block Coordinator
4.	Dr. M. Adeel Alam	Pharmacology	Module Coordinator
5.	Dr. Nisar Ahmed	Pharmacology	Team Member
6.	Dr. Faryal Mustafa	Pharmacology	Team Member
7.	Dr.Umair Jadoon	Forensic medicine	Team Member
8.	Dr.shagufta	Pathology	Team Member
9.	Dr. Awais	Community medicine	Team Member
10.	Dr. Ali Raza	Paediatrics	Team Member
11.	Dr. M. Adeel Mishwani	Orthopedics	Team Member
12.	Dr. Tauqeer Ahmed	Medicine	Team Member
13.	Dr. Baynazir Khan	Neurosurgery	Team Member
14.	Dr. Naveed	Anaesthesia	Team Member
15.	Miss. Zainab Khalid	Psychiatry	Team Member

2. What Is A Study Guide?

It is an aid to Inform students how student learning program of the module has been organized, to help students organize and manage their studies throughout the module and guide students on assessment methods, rules and regulations.

2.1 The study guide:

- Communicates information on organization and management of the module.
- This will help the student to contact the right person in case of any difficulty.
- Defines the objectives which are expected to be achieved at the end of the module.
- Identifies the learning strategies such as lectures, small group teachings.

2.2 Module objectives.

- Provides a list of learning resources such as books, computer-assisted learning programs, weblinks, and journals, for students to consult in order to maximize their learning.
- Highlights information on the contribution of continuous on the student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's performance.

2.3 Achievement of objectives.

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



3. Recommended List Of Icons



Introduction To Case



For Objectives



Critical Questions



Assessment



Resource Material

4. Organization of Module

4.1 INTRODUCTION:

With approximately more than 100 billion neurons in the central nervous system of a human being, Neurosciences have become a fascinating field of study for the medical students. Disorders related to Neuroscience, Psychiatry & Neurology cause significant disease burdens impacting the medical practice. Teaching medical students these subjects remains challenging as many consider the Neurosciences notoriously difficult to learn & Psychiatry to be irrelevant.

4.2 RATIONALE:

Under-graduate medical students often perceive Neurosciences to be complex, esoteric & formidable. Hence introducing various aspects of Neurosciences to the under-graduate medical students poses challenges to learner & teacher alike.

Therefore the overall 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 as we focus primarily on the CNS. We have tried to cover the important clinical aspects, pathological features, therapeutics & medico-legal issues of the CNS disorders. In addition, the behavioral aspects of the nervous system, description of important drugs of abuse, toxins & poisons have also been laid down across the relevant Themes.

4.3 ORGANIZATION:

The module comprises of 09 themes based upon the most common clinical neurological presentations. Each theme has a clear learning objective. Major emphasis will be on imparting the relevant knowledge of each theme through lectures, discussions, patients' examination, laboratory & imaging investigations & their interpretation, case analysis, diagnosis & management plan will be devised under guidance & supervision of the relevant teaching faculty.

4.4 TEACHING STRATEGIES:

The content pertaining to this module will be delivered by a combination of various teaching plans. These include small group discussions (SGDs) & interactive sessions especially during practicals & wards, lectures & demonstrations in lecture halls, history taking, patients' examination (during OPD & ward rotations), laboratory investigations & test reports' interpretation. Entire curriculum will be imparted in this way.



5. Learning Objectives

5.1 General learning outcomes

a. Knowledge

At the end of this module, the year 4 students will be able to:

- 1) Describe anxiety disorders and their pharmacological management
- 2) Explain the concepts of Mood disorders and their pharmacological management
- 3) Explain psychotic disorders and their pharmacological management
- 4) Describe the pathophysiology and management of Dementias
- 5) Elaborate the pathophysiology, clinical features, management, and prevention of cerebrovascular diseases
- 6) Classify epilepsy and describe the pharmacological management of epilepsy in children and adults
- 7) Describe the types and protocols of anaesthesia and explain the drugs used as anaesthetics
- 8) Explain the pathology and clinical features of cerebellar diseases
- 9) Elaborate the clinical features and pharmacological management of Parkinson's disease
- 10) Explain the clinical features and management of Motor neuron disease and Friedrich's ataxia
- 11) Describe the pathology and management of head injury
- 12) Describe the pathogenesis, clinical features, and management of common CNS infections
- 13) Classify brain, spinal cord and peripheral nerves tumors, and describe their clinical features and management
- 14) Explain the pathophysiology, clinical features, investigations and management of Multiple sclerosis, transverse myelitis and Guillain Barre syndrome
- 15) Classify peripheral neuropathies and elaborate their etiologies and clinical presentations

16) Explain the clinical features and forensic approach to a patient with neurotoxic poisons.

17) Explain the forensic aspects of insanity and head injury.

b. **Skills**

Various skills related to the relevant subjects will be learned by the students during practicals, in small group discussions and at the bedside during clinical sessions.

c. **Attitude**

While not necessarily taught explicitly, students are expected to develop the following attitudes throughout the course:

1. Demonstrate teamwork, leadership, punctuality and good manners
2. Demonstrate humbleness and use socially acceptable language during academic and social interactions with colleagues and teachers.
3. Make ethically competent decisions when confronted with an ethical, social or moral problem related to Neuroscience module in professional or personal life

Specific Learning Objectives:

THEME – 1 : DISTURBED SLEEP

S.N O	Subject: Psychiatry	Learning Objectives	MIT	No of Hours
1.	Sleep disorders	Describe the types of sleep disorders	Lecture	01
		Explain the pharmacological and non-pharmacological management of sleep disorders		
		Describe the ways of improving healthy sleep		
2.	Non-organic insomnia	Define non-organic insomnia	Lecture	
		Explain the management of non-organic insomnia		
3.	Sleep wake cycle disorders	Describe the concept of sleep-wake cycle disorder	Lecture	
		Describe the pharmacological and non-pharmacological management of sleep-wake wake cycle disorder		
S.N O	Subject: Pharmacology	Learning Objectives	MIT	
4.	Introduction to the Pharmacology of CNS	Describe basic terms like neurotransmitters, neuromodulator/neurotropic factors, withdrawal symptoms (abstinence syndrome), cross-tolerance, reverse tolerance (sensitization) and cross-dependence	Lecture	01
		Describe the blood-brain barrier and its clinical significance		
		Enlist the principal neurotransmitters and their receptors in the CNS		
		Describe voltage-gated, ligand-gated (ionotropic), ion channels and metabotropic receptors on the neuronal membrane		
		Classify the drugs acting on the CNS		
5.	Sedative-hypnotics (Minor tranquilizers)	Classify broadly the Sedative-Hypnotics	Lecture	02
6.	Benzodiazepines	Classify Benzodiazepines	Lecture	
		Describe the pharmacokinetics of Benzodiazepines		
		Describe the mechanism of action of Benzodiazepines		
		Describe the pharmacological effects of Benzodiazepines		
		Describe the clinical uses of Benzodiazepines		

		Describe the adverse effects of Benzodiazepines		
		Describe the tolerance and dependence on Benzodiazepines		
		Describe the drug interactions of Benzodiazepines		
		Name the antidote (competitive antagonist) to Benzodiazepines		
		Enlist the inverse agonists to Benzodiazepines		
7.	Barbiturates	Classify barbiturates	Lecture	
		Describe the mechanism of action and clinical uses of barbiturates		
		Describe the difference regarding the mechanism of action of Barbiturates in comparison to Benzodiazepines		
8.	Buspirone	Describe the mechanism of action and clinical use of Buspirone	Lecture	
		Describe the merits and demerits of Buspirone in comparison to Benzodiazepines		
9.	Ramelteon	Describe the mechanism of action and clinical use of Ramelteon	Lecture	
10.	CNS stimulants	Classify CNS stimulants	Lecture	01
11.	Psychomotor stimulants (Amphetamine, Methylphenidate)	Describe the mechanism of action, clinical uses, and adverse effects of Psychomotor stimulants	Lecture	
12.	Respiratory analeptics (Doxapram, Nikethamide)	Describe the mechanism of action, clinical uses and adverse effects of Respiratory analeptics	Lecture	
13.	Methyl xanthine/Theophylline, Caffeine, Theobromine)	Describe the mechanism of action, clinical uses and adverse effects of Methyl xanthine	Lecture	
14.	Sibutramine	Describe the mechanism of action and clinical use of Sibutramine	Lecture	
S.N O	Subject: Forensic Medicine	Learning Objectives	MIT	
15.	Classification of neurotoxins	Define and classify neurotoxins	Lecture	01
16.	Cerebral Poisons-Somniferous Poisons Morphine Opium Heroin	Describe and enlist Somniferous poison.	Lecture	

		Describe the mechanism of action for the Somniferous poison.		
		Describe different signs, symptoms and autopsy appearance in a typical of Somniferous poisons.		
		Describe fatal dose, treatment, and diagnosis for the Somniferous poisons.		
		Describe medico-legal importance for the Somniferous poisons.		
17.	Inebriant Poisons Ethyl Alcohol Methyl Alcohol	Describe and enlist Inebriant poison.	Lecture	02
		Describe mechanism of action for the Inebriant poison.		
		Describe different sign, symptoms and autopsy appearance in a typical of Inebriant poisons.		
		Describe fatal dose, treatment, and diagnosis for the Inebriant poisons.		
		Describe medico-legal importance for the Inebriant poisons.		
18.	Sedative & Hypnotics Chloral hydrate Barbiturates	Describe and enlist sedative and hypnotics	Lecture	01
		Describe mechanism of action for the Sedative and hypnotics.		
		Describe different sign, symptoms and autopsy appearance in a typical of Sedative and hypnotics.		
		Describe fatal dose, treatment, and diagnosis for the Sedative and hypnotics.		
		Describe medico-legal importance for the Sedative and hypnotics.		
19.	Fuels, stimulants and hallucinogens Agrochemical poisons Kerosene Hallucinogens- LSD Stimulants- Amphetamines	Describe and enlist fuels, stimulants and hallucinogens.	Lecture	01
		Describe mechanism of action of fuels, stimulants and hallucinogens.		
		Describe different sign, symptoms and autopsy appearance in a typical case of fuels, stimulants and hallucinogens poisoning.		

		Describe fatal dose, treatment, and diagnosis of fuels, stimulants and hallucinogens.		
		Describe medico-legal importance of fuels, stimulants and hallucinogens.		
20.	Drug Dependence	Describe Drug dependence and its psychological effects.	Lecture	01
		Describe drug abuse and outline the procedure to investigate a case due to narcotics.		
SNO	Subject: PRIME/Medical Education	Learning Objectives	MIT	
21.	Emotional intelligence (EI)	Explain the concept of EI	Lecture	01
		Differentiate between EQ and IQ		
		Describe & Display appropriate emotional and social intelligence		
SNO	Subject: PRIME/Research	Learning Objectives	MIT	
22.	Epidemiology	Define epidemiology	Lecture	01
		Explain the basic concepts of epidemiology		
23.	Study design	Classify and elaborate study designs	Lecture	
24.	Screening	Explain the screening in epidemiology	Lecture	01
25.	Measures of mortality and morbidity	Explain the measures of morbidity and mortality	Lecture	

THEME 2: DISTURBED MOOD AND BEHAVIOR

SNO	Subject: Psychiatry (Mood and Anxiety disorders)	Learning Objectives	MIT	No of Hours
26.	Depressive disorders	Classify depressive disorders	Lecture	01
		Describe the etiology, clinical features and management protocols of different depressive disorders		
27.	Atypical depression and seasonal affective disorder	Describe the clinical presentation of atypical depression	Lecture	
		Recognize the symptoms of atypical depression		
		Describe the management of atypical depression and seasonal affective disorders		
28.	Bipolar affective disorders	Describe the clinical features and management protocols of Bipolar	Lecture	01

		affective disorders		
29.	Suicide	Describe the preventive measures of suicide	Lecture	01
30.	Anxiety disorders	Classify anxiety disorders	Lecture	
		Differentiate between medical and psychiatric causes of anxiety		
		Differentiate between anxiety and phobia		
		Describe the pharmacological and non-pharmacological management of different anxiety disorders including relaxation techniques and breathing exercises		
31.	Dissociative disorders	Explain the different behavioral and neurological presentations of dissociative disorders	Lecture	01
		Describe the pharmacological and non-pharmacological management of dissociative disorders		
32.	Stress related disorders	Classify stress related disorders	Lecture	
		Explain the concept of stress in stress related disorders		
		Explain the pharmacological and non-pharmacological management of stress related disorders		
33.	Somatoform disorders	Classify somatoform disorders	Lecture	01
		Describe the concept of medically unexplained symptoms		
		Counsel a patient with medically unexplained symptoms		
34.	Personality disorders	Classify personality disorders	Lecture	01
		Describe the clinical features, diagnostic criteria and management of personality disorder		
35.	Psychotic disorders	Differentiate between organic and non-organic psychosis	Lecture	01
		Explain the concept of psychosis		
		Classify psychotic disorders		
36.	Schizophrenias	Describe the clinical features, diagnostic criteria and management of Schizophrenias		
		Explain the role of psychotherapy and Electroconvulsive therapy in Schizophrenias		
		Describe the rehabilitations strategies with patients of Schizophrenias		

37.	Delusional disorders	Describe the types and management of delusional disorders	Lecture	
		Describe the ways of differentiating delusional disorders from Schizophrenias		
38.	Substance abuse disorders	Describe the concept of drug dependence	Lecture	01
		Classify of drug abuse		
		Describe the principles of management of substance abuse		
		Explain the concept of harm reduction		
S.N O	Subject: General Medicine	Learning Objectives	MIT	
39.	Alzheimer`s disease and Dementias	Explain the pathophysiology, clinical features and management of Alzheimer`s disease	Lecture	01
		Describe the reversible and irreversible causes of Dementia		
S.N O	Subject: Pharmacology	Learning Objectives	MIT	
40.	Depression	Describe the Monoamine hypothesis of depression	Lecture	02
41.	Antidepressants	Classify antidepressants	Lecture	
42.	SSRIs (Selective Serotonin Reuptake Inhibitors)	Enlist SSRIs	Lecture	
		Enlist the most selective SSRIs		
		Describe the pharmacokinetics, mechanism of action, clinical uses, adverse effects and drug interactions of SSRIs		
43.	TCAs (Tricyclic Antidepressants)	Enlist TCAs	Lecture	
		Describe the mechanism of action, clinical uses, adverse effects and drug interactions of TCAs		
44.	MAOIs (Monoamine Oxidase Inhibitors)	Enlist MAOIs	Lecture	
		Describe the pharmacokinetics, mechanism of action, clinical use, adverse effects and drug interactions of MAOIs		
		Describe Serotonin syndrome		
		Describe Hypertensive Cheese reaction		
		Describe St John`s Wort		

		Describe the procedure of switching-over from one category of antidepressants to another one		
		Describe "Augmentation" of antidepressant therapy		
		Describe Electroconvulsive Therapy (ECT) for depression		
45.	Psychoses (Schizophrenia and others)	Describe the Dopamine hypothesis of Schizophrenia	Lecture	02
46.	Antipsychotics (Anti-schizophrenic drugs)	Classify Antipsychotics	Lecture	
		Describe the advantages of Atypical antipsychotics over the Typical (Classical/Traditional/Old) agents		
		Describe the mechanism of action of Antipsychotics		
		Describe the pharmacological effects of Antipsychotics		
		Describe the clinical uses of Antipsychotics		
		Describe the drug interactions of Antipsychotics		
		Describe the adverse effects of Antipsychotics		
		Explain the drug treatment of extrapyramidal syndrome		
47.	Bipolar affective disorder (Manic Depressive illness)	Describe the concept of "mood-stabilization" in Bipolar affective disorder (Manic Depressive illness)	Lecture	
48.	Mood-stabilizing drugs	Enlist Mood-stabilizing drugs	Lecture	01
49.	Lithium carbonate	Describe the pharmacokinetics, mechanism of action, clinical uses, adverse effects and drug interactions of Lithium carbonate	Lecture	
50.	Alcohols	Describe alcoholism	Lecture	01
		Describe the pharmacokinetics of Ethanol		
		Describe the mechanism of action of Ethanol		
		Describe the pharmacological effects of Ethanol		
		Describe the clinical uses of Ethanol		
		Describe the adverse effects of Ethanol		

		Describe Disulfiram-like reaction with example of drugs causing it		
		Describe the management of Ethanol intoxication		
		Describe the management of Ethanol withdrawal symptoms		
		Describe the treatment of alcoholism		
		Describe briefly Methanol poisoning		
		Describe the antidote for Methanol poisoning		
51.	Opioids (Morphine, Diamorphine, Codeine, Pethidine, Methadone, Pentazocine, Buprenorphine, Dextromethorphan)	Differentiate between Opioids and Opiates	Lecture	02
		Describe the term "narcotic"		
		Describe the source of Opium		
		Enlist the "brain's own Morphine" (endogenous Opioids)		
		Classify Opioids		
		Enlist Opioids with mixed agonist-antagonist properties		
		Enlist Opioids with partial agonist activity		
		Describe the pharmacokinetics, mechanism of action, pharmacological effects, clinical uses, adverse effects and drug interactions of Opioids		
		Describe the use of opioids as palliative care in terminal illness		
		Describe opioid rotation		
		Describe the treatment of Opioid over dosage		
		Describe the Opioid antagonists (antidotes)		
		Describe Opioid dependence		
		Describe the management of Opioid dependence		
		Describe the contraindications of Opioids		
		Enlist the drugs used for pain in opioid addicts		
52.	Tramadol	Describe the mechanism of action and clinical use of Tramadol	Lecture	

53.	Drugs of abuse	Describe substance abuse, drug dependence, addiction and habituation	Lecture	01
		Describe the Dopamine hypothesis of addiction		
		Enlist the drugs causing addiction		
		Enlist the non-addictive drugs of abuse		
		Describe "Club drugs"		
		Enlist the drugs having high-risk of addiction (scored 5 on the list of relative-risk of addiction)		
		Enlist the drugs having moderate-risk of addiction (scored 4 on the list of relative-risk of addiction)		
		Describe the drug treatment of Nicotine, Alcohol, Cannabis and Opioid abuse		
		Describe the drug abuse in sports with examples		
S.N O	Subject: Forensic Medicine	Learning Objectives	MIT	
54.	Insanity and relationship to criminal charges	Define insanity.	Lecture	01
		Classify insanity and explain its sub-types		
		Describe relationship of insanity with criminal charges.		
		Describe different pleas and its legal exception based on unsoundness of mind.		
		Describe McNaghten rules, Durham's rule and Impulse along with its application and criticism.		
		Differentiate between true and feigned insanity		
S.N O	Subject: Forensic Psychiatry	Learning Objectives	MIT	
55.	Forensic Psychiatry	Define and describe Forensic Psychiatry.	Lecture	01
		Describe different terms used in Forensic Psychiatry: a) Affect b) Confabulation c) Delirium d) Delusion e) Fugue f) Hallucination		

		g) Illusion h) Intelligent Quotient i) Lucid Interval j) Neurosis k) Psychopath l) Psychosis m) Stupor n) Twilight states		
56.	Mental health act	Define mental disorders based on mental health act	Lecture	02
		Describe procedure of admission and discharge of mentally ill patient based on mental health act		
		Describe procedure of handling a wandering lunatic		
57.	Will	Define testamentary capacity	Lecture	
		Enlist conditions required for a valid Will		
		Describe the role of a doctor in taking a Will from a sick person		
58.	Civil and criminal responsibility of mentally ill patients	Explain the concept of civil and criminal responsibility of mentally ill patients	Lecture	
S.N O	Subject: Community Medicine	Learning Objectives	MIT	
59.	Mental health	Describe classification of mental health illnesses	Lecture	01
		Define mental health		
		Discuss global perspectives and epidemiology of mental health disorders		
		Discuss risk factors leading to mental health problems		
		Discuss prevention and control of mental health disorders		
60.	Drug abuse and Alcoholism	Describe the global distribution and increase addiction to drug abuse and alcoholism	Lecture	01
		Discuss causes of drug abuse and alcoholism		
		Discuss the effects of alcoholism on mental health		
		Describe preventive and control measures of drug abuse and Alcoholism		
S.N O	Subject: PRIME/Medical Education	Learning Objectives	MIT	

61.	Conflict resolution	Explain the prerequisites for conflict resolution as a leader	Lecture	01
		Show the ability to solve problems regarding difficult patients/attendant.		
SNO	Subject: PRIME/Research	Learning Objectives	MIT	
62.	Biostatistics: Introduction	Describe the significance of biostatistics in health and epidemiology	Lecture	01
63.	Data and variable types	Define and classify variables	Lecture	
64.	Sampling	Define sampling	Lecture	01
		Discuss types of sampling		
65.	Biases in epidemiological studies	Define Bias	Lecture	
		Discuss different types of biases		
		Discuss how bias can be prevented		

THEME-3: UNILATERAL WEAKNESS AND INABILITY TO SPEAK

S.N O	Subject: Pathology	Learning Outcomes	MIT	No of Hours
66.	Hypoxia, ischemia and infarction	Define hypoxia, ischemia and infarction, and describe its morphology and consequences in the context of CNS involvement	Lecture	01
67.	Intracranial hemorrhage	Describe the etiology, risk factors and morphology of intracranial hemorrhage	Lecture	
68.	Strokes syndromes	Describe the etiology, risk factors, morphology, and clinical and radiological features of stroke	Lecture	01
69.	Subarachnoid hemorrhage (SAH)	Explain the etiology, risk factors and clinical features of SAH	Lecture	
S.N O	Subject: General Medicine	Learning Objectives	MIT	
70.	Stroke	Describe the risk factors of stroke	Lecture	01
		Explain the types of strokes		
		Describe the clinical features, radiological features, and management of a patient with intracerebral bleed		
		Describe the clinical features, radiological features, and management of a patient with stroke due to an infarction		
S.N O	Subject: Community Medicine	Learning Objectives	MIT	
71.	Non-communicable	Discuss the epidemiological determinants	Lecture	01

	diseases: Strokes	of stroke in community		
		Discuss the prevention and rehabilitation of strokes		
S.N O	Subject: Neurosurgery	Learning Objectives	MIT	
72.	Topic	Describe the neurosurgical management of stroke and Subarachnoid hemorrhage	Lecture	02
S.N O	Subject: PRIME/Research	Learning Objectives	MIT	
73.	Measures of central tendency	Classify measures of central tendency	Lecture	01
		Calculate measures of central tendency		
		Interpret and signify the results		
		Describe the advantages and disadvantages of different measures		
74.	Measures of dispersion	Classify measures of dispersion	Lecture	01
		Calculate measures of dispersion		
		Interpret the results of measures of dispersion		
		Explain the advantages and disadvantages of measures of dispersion		
		Explain the use of different measures in specific circumstances		
75.	Normal distribution	Define normal distribution	Lecture	01
		Describe normal distribution		
		Calculate and graphically represent normal distribution		
		Explain its use & significance in relation to data		
		Describe percentile and interquartile range		
		Calculate and depict percentile and interquartile range		
		Explain use and significance of these in different situations		
76.	Confidence Interval, Confidence level, Standard error	Define confidence level and interval	Lecture	01
		Describe confidence level and interval		
		Calculate confidence level and interval		
		Explain their use and significance in different situations		
77.	P value, critical region, rejection	Define P value, critical region, rejection region, α β errors	Lecture	01

	region, alpha beta errors			
		Describe P value, critical region, rejection region, α β errors		
		Calculate P value, critical region, rejection region, α β errors		
		Describe their use and significance in different situations		

THEME-4: LOSS OF CONSCIOUSNESS AND FITS

S.N O	Subject: General Medicine	Learning Objectives	MIT	No of Hours
78.	TOPIC Seizures	Define seizures	Lecture	02
		Differentiate between a seizure and syncope		
		Classify epilepsy		
		Explain the pathophysiology, clinical features, risk factors, investigations and treatment of Tonic-Clonic epilepsy		
		Explain the pathophysiology, clinical features, investigations and treatment of absence seizures		
		Explain the pathophysiology, clinical features, investigations and treatment of psychomotor epilepsy		
		Explain the management of a patient with status epilepticus		
S.N O	Subject: Pediatrics	Learning Objectives	MIT	
79.	Epilepsy	Explain the pathophysiology, clinical features, risk factors, investigations and treatment of Tonic-Clonic epilepsy in children	Lecture	01
		Explain febrile convulsions and its management		
		Describe Infantile spasm and its management		
S.N O	Subject: Anesthesia	Learning Objectives	MIT	
80.	Introduction to the subject	Define anesthesia	Lecture	03
		Describe different types of anesthesia	Lecture	
81.	General anesthesia	Describe the methods of induction of anesthesia	Lecture	

82.	Neuroaxis block	Describe the following terms: <ul style="list-style-type: none"> • Spinal block • Epidural block • Caudal block • Combined spinal /Epidural 		
83.	Regional anesthesia	Describe the following terms: <ul style="list-style-type: none"> • Nerve block • Single shot • Continuous infusion • Local infiltration 	Lecture	
84.	Pre-operative evaluation and risk assessment	Explain the purpose of preoperative evaluation	Lecture	
		Perform risk assessment of patient undergoing general anesthesia		
		Describe the steps of history taking in preoperative evaluation for anesthesia		
		Describe the plans of general and regional anaesthesia techniques		
		Describe the ASA classification for pre-operative risk assessment		
85.	Monitoring in anesthesia	Describe the non-invasive and invasive techniques of patients` monitoring for the following parameters during general anesthesia <u>Non-invasive:</u> <ol style="list-style-type: none"> Oxygenation Hemodynamics Temperature Electrical activity Neuromuscular activity Circulation <u>Invasive:</u> <ol style="list-style-type: none"> Oxygenation Hemodynamics Temperature Cardiac output Central venous pressure Circulation 	Lecture	
S.N O	Subject: Pharmacology	Learning Objectives	MIT	
86.	Anti-seizure drugs (Anti-epileptics)	Classify anti-seizure drugs		02
		Enlist the “Broad-spectrum” anti-epileptics (Valproate and Lamotrigine)	Lecture	
87.	Carbamazepine	Describe the mechanism of action, clinical uses, adverse effects and drug	Lecture	

		interactions of Carbamazepine		
88.	Phenytoin	Describe the pharmacokinetics of Phenytoin with reference to the phenomenon of zero-order kinetics	Lecture	
		Describe the mechanism of action, clinical uses, adverse effects and drug interactions of Phenytoin		
89.	Valproate	Describe the mechanism of action, clinical uses, adverse effects and drug interactions of Valproate	Lecture	
90.	Ethosuximide	Describe the mechanism of action, clinical uses and adverse effects of Ethosuximide	Lecture	
91.	Phenobarbitone	Describe briefly the historic role of phenobarbitone in the management of epilepsy	Lecture	
92.	Benzodiazepines	Name the benzodiazepines used in the management of epilepsy	Lecture	
93.	Lamotrigine, Topiramate and others	Name the new antiepileptic drugs	Lecture	
		Describe the mechanism of action, clinical uses and adverse effects of Lamotrigine and Topiramate		
		Describe the use of antiepileptics during pregnancy		
		Describe drug interaction of antiepileptics with oral contraceptive pills		
94.	Status epilepticus	Describe the management of status epilepticus	Lecture	
95.	General anesthetics	Describe the stages of general anesthesia	Lecture	02
		Describe balanced anesthesia		
		Classify General anesthetics		
96.	Inhaled anesthetics (N ₂ O, Halothane, Isoflurane, Sevoflurane, Desflurane)	Describe the pharmacokinetics of Inhaled anesthetics	Lecture	
		Discuss the clinical significance of Blood: Gas partition coefficient of Inhaled anesthetics		
		Describe the mechanism of action of Inhaled anesthetics		
		Define MAC50 (minimum Alveolar Concentration- 50%)		
		Describe the significance of MAC50		

		Describe the pharmacological effects of Inhaled anesthetics		
		Describe the adverse effects of Inhaled anesthetics		
		Describe second gas effect		
		Describe diffusion hypoxia		
		Describe Malignant hyperthermia and its management		
		Describe the properties of an ideal inhaled anesthetics		
97.	IV anesthetics (Thiopentone, Propofol, Etomidate, Ketamine, Midazolam, Fentanyl)	Describe the mechanism of action, clinical use and adverse effects of Intravenous anesthetics	Lecture	
		Describe re-distribution of Thiopentone		
		Define neuroleptanalgesia and neuroleptanaesthesia		
		Describe dissociative anesthesia		
		Name the anesthetic agent that causes dissociative anesthesia		
		Describe TIVA (Total Intravenous Anesthesia) technique		
98.	Pre-anesthetic medications	Describe Pre-anesthetic medications	Lecture	
		Describe the drugs used as Pre-anesthetic medications		
99.	Obstetric analgesia	Describe the drugs for obstetric analgesia	Lecture	
S.N O	Subject: Forensic Medicine	Learning Objectives	MIT	
100.	Deliriant Poisons <ul style="list-style-type: none"> • Dhatura • Hyocyamus nigra Cannabis indica 	Describe and enlist Deliriant poisons.	Lecture	02
		Describe mechanism of action of the Deliriant poisons.		
		Describe different sign, symptoms and autopsy appearance in a typical of Deliriant poisons.		
		Describe fatal dose, treatment, and diagnosis of the Deliriant poisons.		
		Describe medico-legal importance of the Deliriant poisons.		
S.N O	Subject: PRIME/Research	Learning Objectives	MIT	
101.	Z test & it's application,	Define & Describe 'z' test	Lecture	02

	Types / shapes of frequency distribution		
		Describe its use in different statistical settings	
		Calculate 'z' test	
		Explain its application in hypothesis testing	
		Interpret and apply to clinical settings	
		Discuss various shapes of frequency distribution	
		Describe the applications of parametric and non-parametric tests	

THEME-5: TREMORS

S.N O	Subject: Pathology	Learning Objectives	MIT	No of Hours
102.	Neurodegenerative disorders: <ul style="list-style-type: none"> Alzheimer's disease Parkinson's disease Huntington's Disease and Spinocerebellar ataxias Motor Neuron disease	<ul style="list-style-type: none"> Describe the etiology, risk factors, morphology and clinical features of Alzheimer's disease Describe the etiology, risk factors, morphology and clinical features of Parkinson's disease Describe the etiology, risk factors, morphology and clinical features of Huntington's disease Describe the clinical features of spinocerebellar ataxias Describe the etiology, risk factors, morphology and clinical features of Motor Neuron Disease	Lecture	04
S.N O	Subject: General Medicine	Learning Objectives	MIT	
103.	Parkinson's disease	Describe the etiology, risk factors, clinical features and management of Parkinson's disease	Lecture	01
		Describe the types, clinical presentation and management of Motor neuron disease		
S.N O	Subject: Pharmacology	Learning Objectives	MIT	
104.	Drugs for Parkinsonism	Classify drugs for Parkinsonism	Lecture	01
105.	Levodopa (with Carbidopa)	Describe the pharmacokinetics, mechanism of action, adverse effects, contraindications and drug interactions of Levodopa	Lecture	
		Discuss the rationale of combining		

		Carbidopa (or Benserazide) with Levodopa		
		Describe the on-off phenomenon		
		Describe the end-of-dose akinesia		
		Describe “drug holidays” for Levodopa		
106.	Bromocriptine	Describe the mechanism of action, clinical uses and adverse effects of Bromocriptine	Lecture	
107.	Selegiline	Describe the mechanism of action and clinical uses of Selegiline	Lecture	
		Describe the differentiating point regarding the use of Selegiline as antiparkinsonian drug and its use as an antidepressant drug		
108.	Apomorphine	Describe the mechanism of action and clinical use of Apomorphine	Lecture	
109.	Drug-induced Parkinsonism	Enlist the drugs causing Parkinsonism-like symptoms	Lecture	
		Enlist the drugs used in the management of drug-induced Parkinsonism		
		Describe the rationale of avoiding Levodopa in drug-induced Parkinsonism		
S.N O	Subject: Pediatrics	Learning Objectives	MIT	
110.	Cerebellar ataxias	Describe the clinical features and management of Friedreich’s Ataxia	Lecture	01
S.N O	Subject: Prime/Research	Learning Objectives	MIT	
111.	“t” test & its application	Define & Describe ‘t’ test	Lecture	01
		Explain its use in different statistical settings		
		Calculate ‘t’ test		
		Describe its application in hypothesis testing		
		Interpret and apply to clinical settings		
		Calculate degree of freedom		
112.	Chi-square test & its application	Describe ‘x ² ’ test	Lecture	01
		Describe its use in different statistical settings		
		Calculate ‘x ² ’ test		
		Explain its application in hypothesis testing		
		Interpret and apply to clinical settings		
113.	Correlation, regression	Describe Correlation & Regression	Lecture	01
		Interpret and apply to clinical settings		
114.	Practical Problems in	Discuss practical problems encountered in	Lecture	01

	biostatistics	the application of biostatistics and SPSS		
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THEME-6: HEADACHE

S.N O	Subject: Pathology	Learning Objective	MIT	No of Hours
115.	Meningitis	Explain the etiology, clinical features, investigations and complications of acute pyogenic meningitis	Lecture	01
		Explain the etiology, clinical features, investigations and complications of Tuberculous meningitis		
116.	Encephalitis	Explain the etiology, clinical features, investigations and complications of viral encephalitis	Lecture	01
117.	Brain abscess	Explain the etiology, clinical features, investigations and complications of brain abscess	Lecture	
118.	Cerebral Toxoplasmosis	Explain the etiology, clinical features, investigations and complications of Cerebral Toxoplasmosis	Lecture	01
119.	Tumors of CNS	Describe the classification of brain tumors on the basis of primary and secondary origin and benign and malignant	Lecture	02
120.	<ul style="list-style-type: none"> ● Gliomas ● Embryonal neoplasms ● Meningioma ● Other neoplasms 	<ul style="list-style-type: none"> ● Describe the classification, gross and microscopic morphology and clinical features of Gliomas ● Describe the classification, gross and microscopic morphology and clinical features of embryonal neoplasms of brain ● Describe the gross and microscopic morphology and clinical features of Meningioma ● Enlist brain neoplasms other than gliomas, meningioma and embryonal cell neoplasms ● Enlist the metastatic brain neoplasms 	Lecture	
S.N O	Subject: Pharmacology	Learning Objectives	MIT	
121.	Migraine and Cluster headaches	Classify drugs used for the treatment of Migraine and Cluster headaches	Lecture	01

		Enlist the drugs used for the prophylaxis of Migraine and Cluster headaches		
122.	Triptans (Sumatriptan and others)	Describe the mechanism of action, clinical use and adverse effects of Sumatriptan	Lecture	
123.	Ergot alkaloids	Enlist Ergot alkaloids	Lecture	
		Describe the pharmacological effects of Ergot alkaloids		
124.	Ergotamine	Describe the mechanism of action, clinical use and adverse effects of Ergotamine	Lecture	
125.	Neuralgias (Neuropathic pain)	Describe the drug treatment of neuralgias (Trigeminal, post-herpetic and others)	Lecture	
S.N O	Subject: Forensic Medicine	Learning Objectives	MIT	
126.	Head Injury	Describe head injury in relation to scalp and skull injuries.	Lecture	03
		Classify different varieties of skull fractures.		
		Explain commonest site of skull fracture.		
		Describe mechanism of cerebral injury including coup and counter coup mechanism.		
		Describe injuries to cranial content and its medicolegal importance.		
		Describe intracranial hemorrhages and its types in detail as per medicolegal point of view.		
		Describe the medicolegal aspects of Punch drunk syndrome		
S.N O	Subject: Prime/ General Medicine	Learning Objectives	MIT	
127.	Meningitis	Explain the etiology, pathogenesis, clinical presentation, investigations and management of Acute pyogenic meningitis	Lecture	01
		Explain the etiology, pathogenesis, clinical presentation, investigations and management of Tuberculous meningitis		
128.	Encephalitis	Explain the etiology, pathogenesis, clinical presentation, investigations and management of viral encephalitis		
S.N O	Subject: Prime/ Community Medicine	Learning Objectives	MIT	
129.	Rabies	Explain the etiology, clinical presentation	Lecture	01

		of a patient with Rabies		
		Describe post-exposure prophylaxis of Rabies		
S.N O	Subject: Family Medicine	Learning Objectives	MIT	
130.	Rabies prophylaxis	Describe the types of wounds inflicted by rabid dog bite	Lecture	01
		Explain the types of active and passive immunisation for Rabies post-exposure prophylaxis		
		Describe the indications of Rabies vaccine and immunoglobulins		
S.N O	Subject: Pediatrics	Learning Objectives	MIT	
131.	Meningitis	Explain the etiology, pathogenesis, clinical presentation, investigations and management of Acute pyogenic meningitis in children and neonates	Lecture	01
132.	TBM	Explain the etiology, pathogenesis, clinical presentation, investigations and management of Acute pyogenic meningitis in children	Lecture	01
S.N O	Subject: Psychiatry	Learning Objectives	MIT	
133.	Chronic daily headache	Differentiate between neurological and psychological headache (chronic tension headache)	Lecture	01
		Identify the red signs in patients with headache		
		Describe the principles of management of acute and chronic headaches		
S.N O	Subject: Prime/ Research	Learning Objectives	MIT	
134.	Data analysis	Use MS Excel for data analysis	Lecture	02
		Use SPSS for data analysis		
		Use Endnote for reference management		
		Compile, analyze and write a dissertation		

Theme 7: PARAPLEGIA

S.N O	Subject: Pathology	Learning Objectives	MIT	No of Hours
135.	Multiple sclerosis and other demyelinating disorders of CNS	Explain the pathogenesis, morphology and clinical features of multiple sclerosis	Lecture	01

		Describe the morphology of the following: <ul style="list-style-type: none"> • Acute demyelinating encephalomyelitis • Acute necrotizing hemorrhagic encephalitis 		
S.N O	Subject: Forensic Medicine	Learning Objectives	MIT	
136.	Neurotoxins: Spinal Poisons	Describe and enlist spinal poison.	Lecture	01
		Describe mechanism of action for the spinal poison.		
		Describe different sign, symptoms and autopsy appearance in a typical case of spinal poisons.		
		Describe fatal dose, treatment, and diagnosis for the spinal poisons.		
		Describe medico-legal importance for the spinal poisons.		
		Describe vertebral and spinal injuries		
137.	Snake bite neurotoxins	Describe different sign, symptoms and autopsy appearance in a typical case of snake bite poisons.	Lecture	
138.	Botulism toxins	Describe different sign, symptoms and autopsy appearance in a typical case of botulism	Lecture	
S.N O	Subject: General Medicine	Learning Objectives	MIT	
139.	Multiple sclerosis	Explain the pathophysiology, clinical features and management of Multiple sclerosis	Lecture	01
140.	Transverse myelitis	Describe the etiology, pathophysiology, clinical features and management of Transverse myelitis	Lecture	
141.	Caries spine	Explain the pathophysiology, clinical features, investigations and management of Caries spine	Lecture	
S.N O	Subject: Orthopedics	Learning Objectives	MIT	
142.		Describe the general management of a patient with traumatic paraplegia	Lecture	01
S.N O	Subject: Neurosurgery	Learning Objectives	MIT	
143.		Describe the general management of a patient with traumatic paraplegia	Lecture	01

		Describe the types, clinical features and surgical management of spinal tumors		
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THEME-8: NUMBNESS AND TINGLING

S.N O	Subject: Pathology	Learning Objectives	MIT	No of Hours
144.	Patterns and types of peripheral nerves injury	Describe the patterns and types of neuronal injury	Lecture	02
145.	Acute and chronic demyelinating neuropathies	Describe the pathophysiology and clinical features of Guillain Barre syndrome	Lecture	
		Explain the pathophysiology of Chronic demyelinating polyneuropathies		
146.	Myasthenia Gravis	<ul style="list-style-type: none"> Describe the pathophysiology and clinical features of Myasthenia Gravis 	Lecture	01
147.	Tumors of Peripheral nerves	Enlist the tumors of peripheral nerves	Lecture	01
		Describe the clinical features, of Neurofibromatosis		
S.N O	Subject: Pharmacology	Learning Objectives	MIT	
148.	Local anesthetics (Lignocaine and others)	Classify Local anesthetics	Lecture	02
		Enlist the Local anaesthetics used for surface anaesthesia		
		Enlist the Local anesthetics used for infiltration anesthesia, nerve block, spinal anesthesia and epidural anesthesia		
		Describe EMLA (Eutectic Mixture of Local Anesthetics) and its clinical use		
		Describe the pharmacokinetics of Local anesthetics		
		Describe the mechanism of action of Local anesthetics		
		Describe the pharmacological effects of Local anesthetics on nerves		
		Describe the differential blockade of peripheral nerves by Local anesthetics		
		Describe the pharmacological effects of Local anaesthetics on other excitable membranes		

		Describe the clinical uses of Local anaesthetics		
		Describe the major advantages of adding Adrenaline to Lignocaine for infiltration anaesthesia		
		Calculate the quantity of Adrenaline/ml in the traditionally used combinations of Adrenaline and Lignocaine (i.e. 1:200,000 & 1: 80,000)		
		Describe the adverse effects of Local anaesthetics		
S.N O	Subject: Forensic Medicine	Learning Objectives	MIT	
149.	Neurotoxins: Peripheral poison	Describe and enumerate peripheral poisons.	Lecture	01
		Describe mechanism of action for the peripheral poisons.		
		Describe different sign, symptoms and autopsy appearance in a typical of peripheral poisons.		
		Describe fatal dose, treatment, and diagnosis for the peripheral poisons.		
		Describe medico-legal importance for the peripheral poisons.		
S.N O	Subject: General Medicine	Learning Objectives	MIT	
150.	Guillain Barre syndrome	Explain the pathophysiology, clinical features and management of Guillain Barre syndrome	Lecture	01
151.	Neuropathies	Describe the causes, types, distribution and clinical features of different neuropathies	Lecture	
152.	Myasthenia Gravis	Explain the pathophysiology, clinical features and management of Myasthenia Gravis	Lecture	
		Describe the clinical features, types and management of Neurofibromatosis		
S.N O	Subject: Pediatrics	Learning Objectives	MIT	
153.	Hereditary neuropathies	Describe the types, clinical features and management of hereditary neuropathies	Lecture	01
S.N O	Subject: Orthopedics	Learning Objectives	MIT	
154.	Peripheral nerve injury	Describe the types and management of peripheral nerve injury	Lecture	01

		Explain entrapment neuropathies		
		Describe the risk factors, clinical features and management of Carpal tunnel syndrome		

Skills

PRACTICAL WORK				
S.N O	Subject: Pathology	LEARNING OBJECTIVES	MIT	No of Hours
155.	CSF	1. Describe the chemical, cytological composition of CSF 2. Estimate the following analysis of CSF: <ul style="list-style-type: none"> • Chemistry • Cytology • Gram stain • Microbiology 	Practical	04
156.	Histopathological specimens of brain tumors	Identify the gross structure and microscopic features of: <ul style="list-style-type: none"> • Meningioma • Glioma/Astrocytoma 	Practical	04
S.N O	Subject: Pharmacology	Learning Objectives	MIT	
157.	Depression	Formulate a prescription for a newly diagnosed case of depression	Practical	02
158.	Epilepsy	Formulate prescriptions for patients with Tonic-Clonic and Petit-mal epilepsy	Practical	03
159.	Migraine headache	Formulate prescription for a patient with migraine headache	Practical	03
S.N O	Subject: Forensic Medicine	Learning Objectives	MIT	
160.	Somniferous poisons	Recognition of Opium and Heroin	Practical	02
161.	Inebriant poisons	Recognition of Ethyl Alcohol and its examination	Practical	02
162.	Fuel	Recognition of Kerosene oil	Practical	1.5
163.	Deliriant	Recognition of Dhatura and Cannabis	Practical	1.5
164.	Spinal poison	Recognition of Nux Vomica seeds	Practical	02

Hours Distribution	
Theory	
Discipline	No. of hours
Pathology	16
Pharmacology	20
Forensic Medicine	17
Community Medicine	05
General Medicine	08
Eye	11
ENT	14
Pediatrics	05
Psychiatry	10
Neurosurgery	03
Anaesthesia	04
Orthopedics	02
PRIME	20
Total	135
Practical/ SGDs	
Pathology	08
Pharmacology	08
Community Medicine	08
Forensic Medicine	08
Total	32

7. Examination and Methods of Assessment

a. Instruction:

This Block consists of Neurosciences-2 module and will be assessed in paper-J

Written paper consists of 120 MCQs

Internal assessment will be added to final marks in KMU.

In OSPE, each station will be allotted 6 marks, and a total of 120 (+10% marks of internal assessment) marks are allocated for each OSPE/OSCE examination

Practical assessment will be in the form of OSPE/OSCE which will also include embedded viva stations. The details of each section are given in the tables below.

4 th Year MBBS Modules Assessment Plan						
Theory paper	Modules	Theory marks	Internal assessment theory(10%)	OSPE/OSPE	Internal assessment OSPE/OSPE (10%)	Total Marks
Paper J	Neurosciences-2	120	13	120	13	266
Paper K	GIT & Hepatobiliary-2	120	13	120	13	266
Paper L	Renal-2, Endocrine & Reproduction-2	120	14	120	13	267
Paper M	ENT and EYE	120	13	120	13	266
Research*				20	15	35
Total Marks		480	53	500	67	1100

*Research viva of 20 marks will be conducted in paper-L. However, the rest of 15 marks will be decided by the concerned department internally for the contribution of the students in research project/thesis.

Paper-J (Neurosciences-2)
Table-1: MCQs

Subject	Total MCQs
Pharmacology	20
Pathology	22
Forensic medicine	18
Community medicine	27
PRIME	02
Medicine	11
Psychiatry	09
Neurosurgery	02
Pediatrics	05
Anaesthesia	03
Family medicine	01
Total	120

Table-2: OSPE/OSCE

Subject	Viva stations	Total OSPE/OSCE stations	Total stations
Pharmacology	2	3	5
Pathology	2	2	4
Forensic medicine	2	2	4
Community medicine	2	3	5
Medicine (neurological examination)	X	1	1
Psychiatry (counselling)	X	1	1
Total	8	12	20

* A minimum of 20 stations will be used in final exams. Total marks will be 120 (6 marks for each station)



8. Learning Opportunities and Resources

Books:

Pharmacology

- 1) Basic & Clinical Pharmacology, 14th edition
- 2) Goodman Gilman's The Pharmacological Basis of Therapeutics, 13th edition
- 3) Lippincott Illustrated Reviews Pharmacology, 7th edition

Pathology

- 1) Robbins & Cotran, Pathologic Basis of Disease (10th Edition)

Paediatrics

- 1) Nelson textbook of Pediatrics, 21st edition
- 2) Textbook of Pediatrics, Pakistan Pediatrics Association
- 3) Basis of Pediatrics, Pervez Akbar Khan, Ninth edition

Psychiatry

- 1) Shorter Oxford Textbook of Psychiatry, 7th Edition, by Paul Harrison, Phillip Cowen, Tom Burns, Mina Fazel
- 2) First Aid for the USMLE Step-1, 2021, By Tao Le, Vikas Bhushan, Mathew Sochat
- 3) Kaplan USMLE Step-2, CK Lecture Notes (2021), Internal Medicine
- 4) Davidson's Principles & Practice of Medicine, 23rd Edition

PRIME/Research

- 1) Essentials of research design and methodology. (Geoffrey Marczyk)
- 2) The essentials of clinical epidemiology (Robert H)

Medicine

- 1) Davidson's Principles and Practice of Medicine
- 2) Kumar and Clark's Clinical Medicine

Community Medicine

- 1) Park K. Park's Textbook for Preventive & Social Medicine. 23rd Edition. Bhanot Publishers: Jabalpur; 2015
- 2) Ansari I. Textbook of Community Medicine

Forensic Medicine

- 1) Principles and practice of Forensic Medicine by Naseeb R awan
- 2) Text book of Forensic Medicine and Toxicology by Nagesh Kumar G Rao.
- 3) Paraikhs textbook of medical jurisprudence and toxicology

Orthopedics

- 1) Campbell's operative orthopedics (14th edition)
- 2) Miller's review of orthopedics (8th Edition)
- 3) Manual of peripheral nerve injury (6th Edition)
- 4) Neurological aspects of spinal cord injury
- 5) Essentials of spinal cord injury

Neurosurgery

- 1) Handbook of Neurosurgery, Edition 20. Author . Greenberg

Anaesthesia

- 1) Morgan and Mikhail's Clinical Anesthesiology (6th Edition)
- 2) Oxford Handbook of Anesthesia (4th Edition)
- 3) Smith and Aitkenhead's Textbook of Anesthesia (6th Edition)

Websites:

Pathology

Lectures by Dr. Najeeb, Pathology Outlines

Psychiatry

www.rcpsych.ac.uk

www.acpsych.org

www.thelancet.com

www.ncbi.nlm.nih.gov/pmc/articles/PMC2395346/

Forensic Medicine

PFSa Guidelines :<https://pfsa.punjab.gov.pk>

Mental Health Act 2017: <http://kpcode.kp.gov.pk>

PRIME

<https://libguides.usc.edu/writingguide/academicwriting>

Orthopedics

BMC Neuroscience Journal

Neurobot / Computational Neuroscience Blog

<https://pubmed.ncbi.nlm.nih.gov/31608497/>

<https://pubmed.ncbi.nlm.nih.gov/28904214/>

<https://pubmed.ncbi.nlm.nih.gov/26854934/>

<https://pubmed.ncbi.nlm.nih.gov/1042886/>

<https://pubmed.ncbi.nlm.nih.gov/32161255/>

<https://pubmed.ncbi.nlm.nih.gov/22384852/>

Anaesthesia

<http://resources.wfsahq.org/anaesthesia-tutor>

<http://www.bjaanaesthesia.org>

<http://www.wildcatanaesthesia.com>

Articles:

PRIME

Koponen J, Pyörälä E, Isotalus P. Communication skills for medical students: Results from three experiential methods. Simulation & Gaming. 2014 Apr;45(2):235-54.

Anaesthesia

Anaesthesia tutorial of the Week

Anaesthesiology News

American Society of Anaesthesiology

Psychiatry

The Nature of Clinical Depression: Symptoms, Syndromes & Behaviour Analysis by Jonathan W Kanter, Andrew M Busch, Crystal E Weeks & Sara J Landes

9. Timetables

AYUB MEDICAL COLLEGE ABBOTTABAD

TIMETABLE OF 4th YEAR MBBS CLASS FOR THE SESSION 2022-2023

Module Name Neuroscience II, Week No. 1: Theme 01 (Disturbed Sleep)

21.02.2022 – 25.02.2022

Days	8:00-9:00 AM	9:00-10:00 AM	10:00-11:00 AM	11:00-12:00 PM	12:00-12:45 PM	12:45-1:15 PM	1:15-2:00 PM	2:00-3:00 PM
Mon	Practical		HOSPITAL DUTY	Psychiatry Sleep Disorders Dr. Tahir Hussain Shah	PRAYER BREAK	Pharmacology Introduction to CNS Pharmacology Dr. Mahwish	Forensic Medicine Neurotoxins Dr. Sadia	
	A:Pharma B:Forensics C:Patho D: Community							
Tue	A:Community B:Pharma C:Foresic D: Patho		HOSPITAL DUTY	Pharmacology Anxiolytics & Hypnotics Dr. Afsheen Siddiqi		Pharmacology Anxiolytics & Hypnotics Dr. Afsheen	Forensic Medicine Sedatives Hypnotics	
Wed	Pharmacology CNS stimulants Dr. Mehwish Gul	Forensic Medicine Fuels, Stimulants, hallocinogens Dr. Inaam	HOSPITAL DUTY	Forensic medicine Drug dependence Dr. Inaam		Practical		
						A: Patho B: Community medicine C: Pharmacology D: Forensic Medicine		
Thurs	Forensic medicine Inebriant poisons Dr. Umair	PRIME Emotional Intelligence (DME) Dr. Junaid Khan	HOSPITAL DUTY	PRIME/Research (Community medicine) Epidemiology Prof.Dr. Saleem Wazir		A: Forensics B: Patho C: Community D: Pharma		
Fri	Forensic Medicine Inebriant poisons Dr. Umair	PRIME/Research (Community medicine) Screening, measures of mortality and morbidity Prof. Dr. Saleem Wazir	HOSPITAL DUTY	Psychiatry Depressive disorders Dr. Tahir Shah	Half Day			

Pharma: Prescription for depression Community: Identification and interpretation of charts
Patho: Composition of CSF Forensics: Recognition of Opium and Heroine

Module Coordinator

AYUB MEDICAL COLLEGE ABBOTTABAD

TIMETABLE OF 4th YEAR MBBS CLASS FOR THE SESSION 2022-2023

Module: Neuroscience II, Week No. 2: Theme 02 (Disturbed Mood and Behavior)

28.02.2022 – 04.03.2022

Days	8:00-9:00 AM	9:00-10:00 AM	10:00-11:00 AM	11:00-12:00 PM	12:00-12:45 PM	12:45-1:15 PM	1:15-2:00 PM	2:00-3:00 PM			
Mon	Practical		HOSPITAL DUTY	Psychiatry Bipolar affective Disorders Dr. Tahir Hussain Shah	PRAYER BREAK		Pharmacology Antidepressants Dr. Saad Mufti	Forensic Medicine Forensic Psychiatry Dr. Umair			
	A:Pharma B:Forensics C:Patho 1 D: Community										
Tue	A:Community B:Pharma C:Foresic D: Patho						HOSPITAL DUTY	Psychiatry Suicide & Anxiety Dr. Tahir	Forensic Medicine Insanity Dr. Umair	Pharmacology Antidepressants Dr. Saad Mufti	
Wed	Pharmacology Mood stabilizers Dr. Maha Aziz	Psychiatry Dissociative Disorders Dr. Tahir Hussain Shah					HOSPITAL DUTY	Forensic medicine Mental Health Act Dr. Nighat Seema	Practical		
									A: Patho B: Community medicine C: Pharmacology D: Forensic Medicine		
Thurs	Forensic medicine Mental Health Act Dr.Nighat Seema	Pharmacology Antipsychotics Dr. Saima Bukahri	HOSPITAL DUTY	Psychiatry Somatoform disorders Dr. Tahir Hussain Shah	A: Forensics B: Patho C: Community D: Pharma						
Fri	Psychiatry Psychotic Disorders Dr. Tahir Hussain Shah	Pharmacology Antipsychotics Dr. Saima	HOSPITAL DUTY	General Medicine Alzheimer disease and dementias Dr. Jawad	Half Day						

Pharma: Prescription for epileps
Patho: Microbiology; Gram stain

Community: Application of statistical test on a scenario
Forensics: Recognition of ethyl alcohol and its examination

Module Coordinator

AYUB MEDICAL COLLEGE ABBOTTABAD

TIMETABLE OF 4th YEAR MBBS CLASS FOR THE SESSION 2022-2023

Module Name Neuroscience II, Week No. 3: Theme 03 (Right sided weakness and inability to Speak)

07.03.2022 – 11.03.2022

Days	8:00-9:00 AM	9:00-10:00 AM	10:00-11:00 AM	11:00-12:00 PM	12:00-12:45 PM	12:45-1:15 PM	1:15-2:00 PM	2:00-3:00 PM
Mon	Practical		HOSPITAL DUTY	Psychiatry Personality disorders Dr. Tahir Hussain Shah	PRAYER BREAK	PRIME Research Biostatistics (Community Medicine) Prof. Dr. Saleem Wazir	Community Medicine Mental Health Dr. Muneeba	
	A:Pharma B:Forensics C:Patho D: Community							
Tue	A:Community B:Pharma C:Foresic D: Patho		HOSPITAL DUTY	Community Medicine Drug Abuse and alcoholism Dr. Muneeba		Psychiatry Substance abuse disorders Dr. Tahir Hussain Shah	Pharmacology Alcohol Dr. Maha	
Wed	Pharmacology Opioids Dr. Wajid Ali	PRIME Research Simple Sampling Prof. Dr. Saleem Wazir	HOSPITAL DUTY	Pharmacology Opioids Dr. Wajid Ali		Practical		
		A: Patho B: Community medicine C: Pharmacology D: Forensic Medicine						
Thurs	Pharmacology Drug of abuse Dr. Azfar	Pathology Hypoxia, Ischemia, Intracranial hemorrhage Dr. Shugufta	HOSPITAL DUTY	PRIME/Research (Community medicine) Measures of central Tendency Prof.Dr. Saleem Wazir	A: Forensics B: Patho C: Community D: Pharma			
Fri	Pathology Stroke syndrome (SAH) Dr. Shugufta	General Medicine Stroke Dr. Nighat Jamal	HOSPITAL DUTY	Community medicine Non communicable disease Strokes Dr. Zainab	Half Day			

Pharma: Prescription for migraine
Patho: Histopathological specimen of meningioma

Community: Interpretation of data
Forensics: Recognition of kerosene oil

Module Coordinator

TIMETABLE OF 4th YEAR MBBS CLASS FOR THE SESSION 2022-2023

Module Name Neuroscience II, Week No. 4: Theme 04 (Loss of consciousness and fits)

14.03.2022 – 18.03.2022

Days	8:00-9:00 AM	9:00-10:00 AM	10:00-11:00 AM	11:00-12:00 PM	12:00-12:45 PM	12:45-1:15 PM	1:15-2:00 PM	2:00-3:00 PM
Mon	Practical		HOSPITAL DUTY		Prime research Measures of dispersion Prof. Dr. Saleem Wazir	PRAYER BREAK	Neurosurgery Stroke Dr. Ahsan Aurangzeb	PRIME/DME Conflict resolution Dr. Aisha Rafique
	A:Pharma B:Forensics C:Patho D: Community							
Tue	A:Community B:Pharma C:Foresic D: Patho		HOSPITAL DUTY		Neurosurgery SAH Dr. Abdul Aziz		General Medicine Seizures I Dr. Jawad	Prime/Research Normal distribution Community Medicine Prof. Dr. Saleem Wazir
Wed	General Medicine Seizures II Dr. Jawad	Pharmacology Antiepileptic drugs Dr. Nisar	HOSPITAL DUTY		Pharmacology Antiepileptic drugs Dr. Nisar		Practical	
							A: Patho B: Community medicine C: Pharmacology D: Forensic Medicine	
Thurs	Pediatrics Epilepsy Dr. Saima Gillani	Anesthesia Introduction/ Types Dr. Tariq	HOSPITAL DUTY		Pharmacology General Anesthetics Dr. Faheem		A: Forensics B: Patho C: Community D: Pharma	
Fri	Anesthesia Anesthetic drugs Dr. Riffat latif	Pharmacology General Anesthetics Dr. Faheem	HOSPITAL DUTY		Prime/ Research Confidence interval Prof. Dr. Saleem Wazir	Half Day		

Pharma: Prescription for epilepsy

Community: Identification of data

Patho: Histopathological specimen of Gliomas

Forensics: Recognition of Dhatura, Cannabis, Nux vomica seeds

Module Coordinator

TIMETABLE OF 4th YEAR MBBS CLASS FOR THE SESSION 2022-2023

Module Name Neuroscience II, Week No. 5: Theme 05 (Tremors)

21.03.2022 – 25.03.2022

Days	8:00-9:00 AM	9:00-10:00 AM	10:00-11:00 AM	11:00-12:00 PM	12:00-12:45 PM	12:45-1:15 PM	1:15-2:00 PM	2:00-3:00 PM
Mon	Forensic Medicine Delirium Poisons Dr. Sadia	Anesthesia Anesthetic drugs Dr. Riffat Latif	HOSPITAL DUTY		Prime/Research P value, rejection errors Community Medicine Prof. Dr. Saleem Wazir	<u>PRAYER BREAK</u>	ENT Anatomy and physiology of oral cavity Dr. Sohail Malik	SDL
Tue	Pharmacology Local anesthetics Dr. Adeel Alam	Anesthesia Local anesthetics Dr. Naeed	HOSPITAL DUTY		Prime/Research Z-test and its applications Prof. Dr. Saleem Wazir		Eye Standards of vision and blindness Prof. Dr. Zulfiqar	Forensic medicine Delirium poisons Dr. Sadia
Wed			HOLIDAY PAKISTAN DAY					
Thr	Eye Pupil reflexes and drugs used in common eye conditions Prof. Dr. Zulfuqar	Pathology Neurodegenerative disorders Dr. Shugufta	HOSPITAL DUTY		PRIME/research Z score Community medicine Prof. Dr. Saleem Wazir		ENT Anatomy and physiology of pharynx Dr. Tahir Haroon	Pathology Neurodegenerative disorders Dr. Shugufta
Fri	Pathology Neurodegenerative disorders Dr. Shugufta	General Medicine Parkinsonism and MND Dr. Nighat Jamal	HOSPITAL DUTY		Prime/ Research T-test and applications Prof. Dr. Saleem Wazir	Half Day		

Module Coordinator

TIMETABLE OF 4th YEAR MBBS CLASS FOR THE SESSION 2022-2023

Module Name Neuroscience II, Week No. 6: Theme 06 (Headache)

28.03.2022 – 01.04.2022

Days	8:00-9:00 AM	9:00-10:00 AM	10:00-11:00 AM	11:00-12:00 PM	12:00-12:45 PM	12:45-1:15 PM	1:15-2:00 PM	2:00-3:00 PM
Mon	Pathology Neurodegenerative disorders Dr. Shugufta	Pharmacology Anti Parkinsonian Dr. Faryal	HOSPITAL DUTY		Prime/Research t-test Community Medicine Prof. Dr. Saleem Wazir	<u>PRAYER BREAK</u>	ENT Acute pharyngitis Dr. Tahira	SDI
Tue	Pediatrics Cerebellar ataxia Dr. Shahzad	Pathology Meningitis Dr. NASreen Gul	HOSPITAL DUTY		Prime/Research Chi square test Community medicine Prof. Dr. Saleem Wazir		General Medicine Meningitis/encephalitis Dr. Nighat Jamal	Forensic medicine Head Injury Dr. Salma Shazia
Wed	ENT Chronic Pharyngitis Dr. Asif Kareem	Pathology Encephalitis, brain abscess Dr. Nasreen Gul	HOSPITAL DUTY		Pediatrics Meningitis Dr. Saima Gillani		Prime/Research Correlation, regression Prof. Dr. Saleem Wazir	Forensic medicine Head Injury Dr. Salma Shazia
Thr	Pathology Cerebral toxoplasmosis Dr. Nasreen Gul	Pediatrics TBM Dr. Saima Gillani	HOSPITAL DUTY		PRIME/research Practical Problems in Biostatistics Prof. Dr. Saleem Wazir		ENT Acute tonsillitis/ quinsy Prof. Dr. Fareeda Khan	SDL
Fri	Psychiatry Chronic headache Dr. Tahir Shah	Pharmacology Ant migraine Dr. Jamila Sahir	HOSPITAL DUTY		ENT Chronic tonsillitis Dr. Sohail Malik	Half Day		

Module Coordinator

TIMETABLE OF 4th YEAR MBBS CLASS FOR THE SESSION 2022-2023

Module Name Neuroscience II, Week No. 7: Theme 07 (Paraplegia)

04.04.2022 – 08.04.2022

Days	8:00-9:00 AM	9:00-10:00 AM	10:00-11:00 AM	11:00-12:00 PM	12:00-12:45 PM	12:45-1:15 PM	1:15-2:00 PM	2:00-3:00 PM
Mon	Pathology Tumors of CNS Dr. Shabana	Forensic Medicine Head injury Dr. Salma	HOSPITAL DUTY		Prime/Research Data analysis Community Medicine Prof. Dr. Saleem Wazir	<u>PRAYER BREAK</u>	Eye Optic coherence, tomography and visual fields Dr. Amir	SDL
Tue	Community medicine Rabies Dr. Adnan	Pathology Tumors of CNS Dr. Shabana	HOSPITAL DUTY		Prime/Research Data analysis Community medicine Prof. Dr. Saleem Wazir		ENT Oral ulceration Dr. Tahir Haroon	Forensic medicine Spinal poisons Dr. Inayatullah
Wed	Pathology MS/demyelinating disease Dr. Shugufta	Community medicine Rabies prophylaxis Dr. Adnan	HOSPITAL DUTY		Eye Fundus fluorescein angiography and ultrasonography Dr. Amir		Neurosurgery Paraplegia Dr. Benazir	SDL
Thr	General Medicine MS, transverse myelitis, cauda equina Dr. Jawad	Orthopedics Traumatic paraplegia Dr. Adeel	HOSPITAL DUTY		ENT Trauma to the palate and oropharynx Dr. Tahira Sajjid		Pathology Peripheral nerve injuries Dr. Shugufta	SDL
Fri	Pathology Peripheral nerve injuries/neuropathy Dr. Shugufta	Forensic medicine Peripheral poisons Dr. Inayatullah	HOSPITAL DUTY		Eye Optics and eye Dr. Danish	Half Day		

Module Coordinator

TIMETABLE OF 4th YEAR MBBS CLASS FOR THE SESSION 2022-2023

Module Name Neuroscience II, Week No. 8: Theme 08 (Numbness and tingling)

11.04.2022 – 15.04.2022

Days	8:00-9:00 AM	9:00-10:00 AM	10:00-11:00 AM	11:00-12:00 PM	12:00-12:45 PM	12:45-1:15 PM	1:15-2:00 PM	2:00-3:00 PM
Mon	Pathology Myasthenia gravis Dr. Shabana	General Medicine Neuropathies , Myasthenia gravis Dr.Jawad	HOSPITAL DUTY		Orthopedics Peripheral nerve injuries Dr. Shoaib Zardad	<u>PRAYER</u> <u>BREAK</u>	Eye Refractive errors Dr. Danish	SDL
Tue	Pathology Tumors of peripheral nerves Dr. Shabana Naz	Pediatrics Hereditary neuropathies Dr. Shahzad	HOSPITAL DUTY		Eye Correction of refractive errors Dr. Danish		ENT Carcinoma of oral cavity Dr. Muhammad Asif	SDL
Wed	ENT Approach to a patient with sore throat Dr. Farida Khan	Eye Visual pathway and visual field effects Dr. Zulfikar	HOSPITAL DUTY		EYE Differential diagnosis of lid bumps Dr. Danish		ENT Anatomy and physiology of salivary glands Dr. Sohail Malik	SDL
Thr	Eye Chalazion, styne Dr. Danish	ENT Non neoplastic disorders of salivary glands Dr. Tahir haroon	HOSPITAL DUTY		ENT Sialolithiasis Dr. Tahira		Eye Tumors of eye lids Dr. Danish	SDL
Fri	BLOCK EXAM				ENT Neoplasm of salivary glands Dr. Asif	Half Day		

Module Coordinator _____

10. For inquiry and troubleshooting



Please contact:

- 1) **Dr. Haq Nawaz**
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11. Course Feedback Form

Course Title: _____

Semester/Module _____

Dates: _____

Please fill the short questionnaire to make the course better.

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

THE DESIGN OF THE MODULE

- | | | | |
|--|----------------------------|----------------------------|--------------------------|
| A. Were objectives of the course clear to you? | Y <input type="checkbox"/> | N <input type="checkbox"/> | |
| B. The course contents met with your expectations | | | <input type="checkbox"/> |
| 1. Strongly disagree | 5. Strongly agree | | |
| C. The lecture sequence was well-planned | | | <input type="checkbox"/> |
| 1. Strongly disagree | 5. Strongly agree | | |
| D. The contents were illustrated with | | | <input type="checkbox"/> |
| 1. Too few examples | 5. Adequate examples | | |
| E. The level of the course was | | | <input type="checkbox"/> |
| 1. Too low | 5. Too high | | |
| F. The course contents compared with your expectations | | | <input type="checkbox"/> |
| 1. Too theoretical | 5. Too empirical | | |
| G. The course exposed you to new knowledge and practices | | | <input type="checkbox"/> |
| 1. Strongly disagree | 5. Strongly agree | | |
| H. Will you recommend this course to your colleagues? | | | <input type="checkbox"/> |
| 1. Not at all | 5. Very strongly | | |

THE CONDUCT OF THE MODULE

- | | | | |
|--|-------------------|--------------------------|--------------------------|
| A. The lectures were clear and easy to understand | | | |
| 1. Strongly disagree | 5. Strongly agree | | <input type="checkbox"/> |
| B. The teaching aids were effectively used | | | <input type="checkbox"/> |
| 1. Strongly disagree | 5. Strongly agree | | |
| C. The course material handed out was adequate | | | <input type="checkbox"/> |
| 1. Strongly disagree | 5. Strongly agree | | |
| D. The instructors encouraged interaction and were helpful | | | <input type="checkbox"/> |
| 1. Strongly disagree | 5. Strongly agree | | |
| E. Were objectives of the course realized? Y | N | <input type="checkbox"/> | <input type="checkbox"/> |

F. Please give overall rating of the course

90% - 100% ()

80% - 90% ()

70% - 80% ()

60% - 70% ()

50% - 60% ()

below 50% ()

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

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

Please give suggestions for the improvement of the course.

Optional - Your name and contact address:

Thank you!!
