بسم الله الرحمن الرحيم

CURRICULUM / STATUTES/ REGULATIONS

FOR 5 YEARS MD Neurology

Faisalabad Medical University

Faisalabad

Contents

Section A

VISION STATEMENT:

Faisalabad Medical University has been established since 05-05-2017 for purpose of imparting better medical education and encouraging and arranging extensive research and publication in the field of medical science. The vision of university is:

"Striving to achieve national and international stature in undergraduate and postgraduate medical education with strong emphasis on professionalism, leadership, community health services, research and bioethics"

MISSION STATEMENT:

The mission of the University is:

"Educate Healthcare professionals to prevent, diagnose and treat human illnesses to practice evidence-based medicine with focus on lifelong healthcare in order to meet the challenges of community needs and competitive medical profession at the same time"

STATUTES

Nomenclature

The name of degree programmer shall be MD Neurology

Course Title:

MD

Training Centers

Department of Affiliated hospitals of Faisalabad Medical University, Faisalabad.

Duration of Course

The duration of course shall be five (4/5) years with structured training in a recognized department under the guidance of an approved supervisor.

Course structure:

1. **Core knowledge:** Competency based learning for trainees. (2 exams to be conducted by university at mid and end of Programme. Structural internal exam to be included throughout the Programme which is conducted by the department. At the end of 1st year and 3rd year, structural internal assessment to be conducted by department which will carry weightage in final assessment. This assessment will be conducted at the end of 4th year also)
2. **Clinical Training** in respective specialty
3. **Research and Thesis writing.**

In Research Component and thesis writing, the synopsis is to be submitted in 1-year period and must be completed before the end of 3 years Without thesis defense, the candidate will not be allowed to sit in final assessment.

4. **Mandatory Workshops** throughout the course of programme will be conducted. The basic workshops will be attended by all trainees from all specialties and will be evenly distributed throughout the course:

    1. **Communication skills**
    2. **Research synopsis and thesis writing skills**
    3. **Basic Biostatistics and Research Methodology**
    4. **Information Technology Skills**
    5. **Initial Cardiac Response**

At the end of each workshop, assessment will be done regarding the workshop and certificates will be issued to passing trainees only. The workshops will be conducted by the University and will be paid as in all post-graduate programmes and supervised by the department of Medical Education, FMU, Faisalabad. The trained certified coaches/teachers will be invited and they will get incentive from the university. All the interested trainers will contact the department for inclusion in trainers list.

Feedback of the facilitators will be recorded for the continuation of the process. Medical education department will issue yearly planner for these workshops in the light of curriculum document. University will certify it.

The course is structured in three parts:

Part I: Candidate will start his/her training in Neurology department from 1st day till 6 months. Candidate will gain basic knowledge of the selected specialty i.e., anatomy, physiology and orientation to the subject, basic principles, history taking and case presentation, inpatient and out-patient care. During this time the candidate will select a topic for synopsis, complete his/her synopsis and will attend the mandatory workshops.

Part II: From 6 months till 2 years, he/she will do a rotational training in General medicine under a supervisor allocated in medical department. The candidate shall undertake clinical training in fundamental concepts of general medicine from 6 months till 2 years. During this period, the candidate must submit the synopsis for approval. At the end of 2nd year, the Intermediate examination shall be held in fundamental concepts of General Medicine The clinical training in MD Neurology shall be rejoined from 3rd year onwards in Neurology department.

Part III is structured for 3rd, 4th and 5th calendar years in MD Neurology. The candidate shall undergo training to achieve educational objectives of in MD Neurology. along with rotation in relevant fields.

Section B:

Admission Criteria

Central induction Policy as per Government rules

Registration and Enrollment

The number of PG Trainees/ Students and Beds to trainee ratio at the approved teaching site will be as per policy of Pakistan Medical & Dental Council

The University will approve supervisors for MD courses.

Candidates selected for the courses after their selection and enrollment shall be registered with FMU as per prescribed Registration Regulation.

Accreditation Related Issues Of The Institution

A. Faculty

Properly qualified teaching staff in accordance with the requirements of Pakistan Medical and Dental Council (PMDC). Supervisors will be decided by the university according to the set standards and rules.

B. Adequate resources

The university will provide adequate resources Including class-rooms (with audiovisual aids), demonstration rooms, computer lab, clinical pathology lab, theaters, instruments and other equipment etc. for proper Training of the residents as per their course outcomes and objectives.

C. Library

Departmental library should have latest editions of recommended books, reference books and latest journals (National and International).

Freezing of Program

Freezing of training, maternity leave, ex Pakistan leave and extraordinary leave etc. would be allocated through the office of dean of postgraduate sciences FMU to the competent authority.

Section C:

AIMS AND OBJECTIVES OF THE COURSE

AIM

The aim of five years MD programme in Neurology Department is to train residents to acquire the competency of a specialist in the relevant field so that they can become good clinicians, teachers, researchers and community health provider in their specialty after completion of their training according to the global standards.

LEARNING OBJECTIVES:

Knowledge:

At the end of the programme, the Trainee should be able to:

1. Understand and explain core **Medical/Surgical concepts**.

2. Discuss Etiology, clinical manifestation, disease course and prognosis, investigation and management of common diseases.

3. Analyze **Scientific basis and recent advances** in pathophysiology, diagnosis and management of diseases.

4. Describe **Spectrum of clinical manifestations** and interaction of multiple diseases in the same patient.

5. Explain **Psychological and social aspects** of medical/surgical illnesses.

6. Demonstrate the **Effective use and interpretation** of investigation and special diagnostic procedures.

7. Critically analyze the **efficacy, cost-effectiveness and cost-utility of treatmentmodalities** including various advanced treatment modalities.

8. Explain and Evaluate **Medical audit and quality assurance**

9. Practice **Ethical principles** and solve **medico legal issues** related to medical/surgical illnesses.

10. Updated knowledge on **evidenced-based medicine** and its implications for diagnosis and treatment of medical/surgical patients.

11. Evaluate and Differentiate different **care approaches and types of health care facilities** towards the patients care with medical illnesses, including convalescence, rehabilitation, palliation, long term care, and medical ethics.

12. Practice taking care of **patient safety** and clinical risk management.

13. Understand the concepts of **administration and management** and overall forward planning for respective units.

Skills:

At the end of the programme, the Trainee should be able to:

1. Take a **detailed history**, gathers relevant data from patients, and assimilates the information to develop diagnostic and management plan.

2. **Record** an initial history and **physical examination** and follow-up notes as well as deliver comprehensive oral presentations to their team members based on these written documents.

3. Elicit **abnormal physical signs** and interpreting their significance.

4. correlate **clinical abnormalities** with **pathophysiologic states** and diagnosis of diseases.

5. select appropriate **investigation and diagnostic procedures** for confirmation of diagnosis and patient management.

6. Interpret basic as well as advanced **laboratory data** as related to the disorder/disease.

7. interpret **routine laboratory and ancillary tests** including complete blood count, chemistry panels, ECG, chest x-rays, pulmonary function tests, and body fluid cell counts. In addition, students will properly understand the necessity of incorporating sensitivity, specificity, pre-test probability and Bayes laws/theorem in the ordering of individual tests in the context of evaluating patients' signs and symptoms.

8. form **differential diagnosis** with up-to-date scientific evidence and clinical judgment using history and physical examination data and the development of a prioritized problem list to select tests and make effective therapeutic decisions.

9. Asses the risks, benefits, and costs of varying, **effective treatment options**; involving the patient in via open discussion; selecting drugs from within classes; and the design of basic treatment programs and using critical pathways when appropriate. Ability to recognize and appreciate the importance of cost-effectiveness of treatment modalities

10. perform competently noninvasive and invasive procedures essential for the **practice of general internal medicine**. This includes technical proficiency in taking informed consent, performing by using appropriate indications, contraindications,

interpretations of findings and evaluating the results and handing the complications of the related procedures mentioned in the syllabus.

11.Perform important bedside diagnostic and therapeutic procedures and understanding of their indications.

12. present clinical problems and literature review in grand rounds and seminars.

13. Practice good **communication skills and interpersonal relationship** with patients, families, colleagues, nursing and allied health professionals.

14. Mobilize **appropriate resources** for management of patients at different stages of illnesses, including critical care, consultation of specialties and other disciplines, ambulatory and rehabilitative services, and community resources.

15. Diagnose and manage **Medical/Surgical emergency** problems.

16. Diagnosis and management of acute and chronic **medical/surgical problems** as secondary care in a regional/district hospital.

17. **Practice Diagnostic skills** to effectively manage complex cases with unusual presentations.

18.Iimplement strategies for **preventive care and early detection of diseases** in collaboration with primary and community care doctors.

19. **Interpret medical statistics and critically appraise** published work and clinical research on disease presentations and treatment outcomes. Experience in basic and/or clinical research within the training programme should lead to publications and/or presentation in seminars or conferences.

20.**Practice evidence-based learning** with reference to research and scientific knowledge pertaining to their discipline through comprehensive training in Research Methodology

21. **utilize the medical literature** to expand one's knowledge base and to search for answer to medical problems. They will keep abreast of the current literature and be able to integrate it to clinical practice.

Attitude:

At the end of the programme, the Trainee should be able to:

Understand that **well-being and restoration of health** of patients must be of paramount consideration.

2. show **Empathy** and good rapport with patient and relatives are essential attributes.

3. Be an aspiration to be the **team-leader** in total patient care involving nursing and allied health professionals should be developed.

4. Evaluate The **cost-effectiveness** of various investigations and treatments in patient care should be recognized.

5. Ensure the **privacy and confidentiality** of patients and the sanctity of life must be respected.

6.understand the importance of **informed consent**, advanced directives and the physician-patient relationship.

7. appreciate the importance of the effect of disease on the **psychological and socio-economic aspects** of individual patients and to understand patients' psycho-

social needs and rights, as well as the medical ethics involved in patient management.

8. show Willingness to keep up with **advances in respective Specialties.**

9.show Willingness to refer patients to the appropriate specialty in a timely manner.

10.Promote of health via adult immunizations, periodic health screening, and risk factor assessment and modification.

11. Recognize that **teaching and research** are important activities for the advancement of the profession.

Content list:

Syllabus Stage I

(Months 01-06)

Module No.	Module Name & Duration	Module Code	Outcome/Learning Objectives		Competency Level
Module 01	**Introduction to Neurology** **(5.5 Months)**	ITN	At the end of the module, student shall be able to: • Recognize the disorders dealt by neurology. • Understand the basic anatomy and organization of nervous system. • Learn the symptoms and signs of neurological disorders. • Learn how to perform neurological examination, localize the lesion • Learn basic physiology, pharmacology and pathology relevant to neurology		2
	Mandatory Workshops		W1. Basic Biostatistics and Research Methodology = 5days	W2. Research synopsis and thesis writing skills = 3days	

	(0.5 Months)		W3. Communication Skills = 3days	W4. Information Technology Skills = 3days	
			W5. BLS = 1 day		

Stage II MD Neurology training

Internal Medicine (Months 07-24)

- Candidate will be required to do 18 months training in general medicine ward
- Candidate will be required to acquire competency in following areas
    - Medical Ethics
    - History taking
    - Physical Examination
    - Making an appropriate differential diagnosis
    - Addressing patient's concerns
    - Candidate will be required to attend medical outpatient department
    - Candidate will be required to do duties in medical emergency and manage patients with different medical emergencies under supervision.

Stage II MD Neurology

Internal Medicine (Months 07-24)

As per MD Internal Medicine Curriculum stage 2 of FMU.

Syllabus Stage III

Year	Semester (6 months each)	Modules	Competency Level		
			3rdyr	4thyr	5thyr
03	05 (Month 25-30)	**M14:**Headache and other Pain Syndromes **M15:**Epilepsy **M16:**Cerebrovascular Diseases **M17:**Coma and disorders of Consciousness	2	3	4
	06 (Month 31-36)	**M18:**Disorders of Special Senses **M19:**Acquired Demyelinating disorders of nervous system **M20:**CNS Neoplasms **M21:**Neuroradiology	2	3	4
04	07	**M22:**Psychiatry	2	3	4

	(Month 37-42)	**M23:** Degenerative disorders of Nervous system including Dementia **M24:**Movement Disorders **M25:**Disorders of CSF circulation			
	08 (Month 43-48)	**M26:**Hereditary & Acquired Ataxias **M27:** Autonomic Disorders **M28:**Myelopathies **M29:**Neurosurgery	2	3	4
05	**09** (Month 49-54)	**M30:**Neurelectrophysiology **M31:**Nerve, Muscles & Neuromuscular junction Disorders **M32:**Neurologic complications of Connective tissue disorders and Malignancies **M33:**Disorders of nervous system disorders due to alcohol, nutritional deficiencies , drugs & Chemicals	2	3	4

	10 (Month 55-60)	**M34:**Neurologic infectious diseases and Sarcoidosis **M35:**Sleep Disorders **M36:**Hereditary and Acquired Metabolic Disorders of Nervous system **M37:**Pediatric Neurology	2	3	4

Syllabus Stage III MD Neurology training

Neurology training Year 3-5 (Months 25-60)

Module No.	Module Name & Duration	Module code	Outcome/Learning Objectives	Competency Level
Module 14	**Headache and Other Pain syndromes** **02 Months**	**HED**	At the End of Module student will be able to learn 1. Approach to a patient with headache and plan appropriate investigations. 2. Effectively diagnose and treat common headache syndromes, both primary and secondary 3. Be aware of the red flag signs which warrant special investigations including neuroimaging and lumber puncture.	2
Module 15	**Epilepsy**	**EPI**	At the end of module postgraduate resident twill be able to	2

	02 Months		1. Take a good history and do relevant examination of a patient presenting with fits 2. Make a working differential diagnosis and investigate the cases 3. Make the final diagnosis of one of the epilepsy syndromes, or mimickers of epilepsy or psychogenic non-epileptic seizures as the case may be. 4. Make a treatment plan and choose appropriate antiepileptic drug for various types of epilepsies	
Module 16	**Cerebrovascular Diseases** **1.5 Months**	**CVA**	At the end of module postgraduate resident will be able to 1. Learn approach to a patient presenting with stroke 2.	2

			Investigate the case to determine the cause of cerebrovascular accident. 3. Acute management of stroke syndromes an plan their secondary prophylaxis	
Module 17	**Coma & Disorders of Consciousness** **0.5 Month**	**COM**	At the end of module postgraduate resident will be able to 1. Learn approach to a patient presenting with coma 2. Investigate the case to determine the cause of coma 3. Manage comatose patients and assessment for brain death	2
Module 18	**Disorders of Special Senses**	**DSS**	At The End of Module student will be able to 1. Examine for the function of various special senses	2

	01 Month		2. Be familiar with common disorders of the special senses and their diagnostic approaches 3. To effectively manage disorders of special senses including those of visual pathways	
Module 19	**Acquired Demyelinating Disorders** **01 Month**	**DEM**	At the End Of Module Student will be able to 1. Suspect the cases of acquired demyelinating diseases bases on their clinical presentation 2. Make a working differential diagnosis and accordingly investigate the case. 3. Treat common acquired demyelinating diseases e.g. Multiple sclerosis, NMO, ADEM etc.	2

				2
Module 20	**CNS Neoplasms** **01 Month**	**NEO**	At the end of module student will be able to 1. Suspect the cases of brain neoplasms bases on their clinical presentation 2. Make a working differential diagnosis and accordingly investigate the case. 3. Involve neurosurgical department and plan patient management with their consultation.	2
Module 21	**Neuroradiology** **03 Month**	**RAD**	At the end of module student will be able to 1. Be introduced various modalities of neuroimaging 2.	2

			Make a decision regarding which modality is required in a specific patient 3. Interpret findings seen on neuroimaging and develop the capability to effectively use them for better patient care	
Module 22	**Psychiatry** **3 Months**	**PSY**	At the end of module student will be able to 1. Defining mental health and mental illness 2. Approach to a patient with Psychiatric illness and make a working Differential diagnosis 3. Investigate the case and make a psychiatric diagnosis and draw a management plan. 4. Appreciate psychiatric manifestation in common	3

			neurologic illnesses and learn their management.	
Module 23	**Degenerative Disorders of Nervous System including Dementia** **01 Month**	**DEG**	At the end of module student will be able to 1. Learn how to approach patients presenting with memory impairment & Cognitive decline 2. Make a working Differential diagnosis and look for treatable causes of dementia especially 3. Manage diseases associated with CNS Degeneration 4. Diagnose and manage cases of motor neuron disease	3
Module 24	**Movement Disorders** **1.5 Months**	**MOV**	At the End Of Module Student will be able to 1. Identify various types of movement disorders 2.	3

			Approach to a patient with hypokinetic or hyperkinetic movement disorders &make a working Differential diagnosis 3. Investigate the case and reach the final diagnosis and draw a management plan	
Module 25	**Disorders of CSF Circulation** **0.5 Month**	**CSF**	At the End Of Module Student will be able to 1. suspect intracranial hyper or hypotension based on clinical presentation 2. Approach to a patient with hydrocephalus &make a working Differential diagnosis 3. Manage the patients with Intracranial hyper or hypotension due to CSF Disorders	3
Module 26	**Hereditary & Acquired Ataxia**	**ATX**	At the End Of Module Student will be able to 1.	3

	01 Month		Learn clinical approach towards a patient presenting with ataxia 2. Make a working Differential diagnosis and investigate the patient accordingly 3. Be able to manage common disorders of hereditary and acquired cerebellar ataxia	
Module 27	**Autonomic Disorders** **01 Month**	**AUT**	At the End Of Module Student will be able to 1. Learn clinical approach towards a patient presenting with autonomic symptoms and signs 2. Make a working Differential diagnosis and investigate the patient accordingly 3. Be able to manage common disorders of autonomic system including postural	3

			hypotension, orthostatic tachycardia, arrhythmias and Sudomotor disorders.	
Module 28	**Myelopathies** **01 Month**	**MYE**	At the End Of Module Student will be able to 1. Be familiar with various spinal cord syndromes 2. Approach to a patient with acute or chronic myelopathy & make a working Differential diagnosis 3. Investigate the case, reach the final diagnosis and draw a management plan. 4. Consider surgical referral where appropriate.	3
Module 29	**Neurosurgery** **03 Months**	**NES**	At the End Of Module Student will be able to 1. Learn the clinical approach to a patient with Neurotrauma and	3

			principles of neurosurgical ICU Management 2. Approach to a patient with Intracranial or Spinal Space occupying Lesions make a working Differential diagnosis 3. Learn how to Investigate the case and draw a management plan. 4. Surgical management of hydrocephalus, spondylitic spine disease and radiculopathies.	
Module 30 **03 Months**	**Neuroelectrophysiology**	**NEP**	At the End Of Module Student will be able to 1. Be introduced to Machines of NCS & EMG, EEG 2. Learn the art of performing NCS & EMG, EEG. Overcome technical difficulties and identify artefact problems	4

			3. Interpret and learn how to report neuroelectrophysiologic findings 4. Be introduced with Evoked potentials, Intraoperative Neuro-monitoring, Polysomnography etc.	
Module 31	**Nerves, Muscles & Neuromuscular Junction Disorders** **1.5 Months**	**NMJ**	At the End Of Module Student will be able to 1. Approach cases with neuromuscular weakness of acute or chronic onset 2. make a working Differential diagnosis and investigate the case accordingly 3. Reach the final diagnosis and draw a management plan. 4.	4

			Involve in genetic counselling of hereditary disorders where required.	
Module 32	**Neurologic complications of Connective tissue disorders and Malignancies** **0.5 Months**	**CTM**	At the End Of Module Student will be able to 1. Approach cases with Paraneoplastic or connective tissues disorders 2. Make a working Differential diagnosis and investigate the case accordingly 3. Manage the patient in collaboration with other	4
Module 33	Disorders of nervous system disorders due to alcohol, nutritional deficiencies , drugs & Chemicals **1Month**	ALC	At the End Of Module Student will be able to 1. Appreciate the presentation of nervous system disorders due to alcohol, nutritional deficiencies , drugs, & Chemicals 2. Approach to a patient with such suspected disease & develop a working Differential diagnosis	4

			3. Investigate the case, reach the final diagnosis and draw a management plan	
Module 34	**Neurologic infectious diseases and Sarcoidosis** **02 Months**	**NIN**	At the End Of Module Student will be able to 1. Be aware of common neurologic infections and their modes of presentation. 2. Approach to a patient with a suspected infective pathology & make a working Differential diagnosis 3. Investigate the case, reach the final diagnosis and draw a management plan. 4. Effectively treat the pathologies and involve neurosurgical and infectious diseases department where needed	4

Module 35	**Sleep Disorders** **01 month**	**SLP**	At the End Of Module Student will be able to 1. Appreciate various stages of sleep cycle and know how to test for sleep related disorders 2. Learn to diagnose insomnia, Parasomnias, narcolepsy, Obstructive sleep apnea syndrome etc. 3. Investigate the case the suspected sleep disturbance and confirm the diagnosis. Draw a management plan. 4. Involve the pulmonology and surgical department where needed.	4
Module 36	**Hereditary and Acquired Metabolic Disorders of Nervous system**	**MET**	At the End Of Module Student will be able to 1. Have a systematic approach to identification and diagnosis of	

	02 Months		inherited metabolic neurologic diseases 2. Be introduced with common acquired metabolic nervous system diseases 3. Investigate the acquired encephalopathies and make a the causative diagnosis 4. Treat the metabolic encephalopathies	
Module 37	**Pediatric Neurology** **1 Month**	**PED**	At the End Of Module Student will be able to 1. Know congenital and hereditary neurologic disorders presenting in pediatric population. 2. To be familiar with acquired childhood pediatric neurologic disorders 3.	4

			Learn the approach, differential diagnosis and possible outcomes with respect to treatment	

Procedure competencies achieved during course of Neurology

Procedure	**Stage**			
	Months 13-18		**Months 19-24**	
	Cases	**Level**	**Cases**	**Level**
NCS/EMG	5	3	5	4
EEG	5	3	5	4
VEP	5	3	5	4
BAEP	5	3	5	4
Nasogastric tube	5	3	5	4
Lumbar puncture	5	3	5	4

Section D:

PROGRAMME FORMAT

Applications

Entry Examination

Admissions

Stage 1 (06 Months)

In Neurology Department

Brief anatomy, basic principles of Neurology, history taking and case presentation, in-patient and Out-patient.

Mandatory Workshops

Synopsis Writing

Stage 02 (18 Months)

General Medicine Ward, Medical Outpatient department and Emergencies as per MD Medicine curriculum stage 2 FMU

Stage 3

(Research and Thesis writing in last 3 years)

3rd Year:

09 months rotation in Neurology ward,

03 months rotation in Neuro-radiology

4th Year:

03 months rotation in Psychiatry Ward,

06 months rotation in Neurology ward,

03 months rotation in Neurosurgery ward

5thYear:

03 months rotation in Neurophysiology,

09 Months rotation in Neurology ward

Final Examination

Award of Degree

Rotations:

Rotations Detail

There will be a total of 5 mandatory rotations. Details of these rotations are as under:

Internal Medicine (18 months)

- Candidate will be required to do 18 months training in general medicine ward
- Candidate will be required to acquire competency in following areas
    - Medical Ethics
    - History taking
    - Physical Examination
    - Making an appropriate differential diagnosis
    - Addressing patient's concerns
    - Candidate will be required to attend medical outpatient department
    - Candidate will be required to do duties in medical emergency and manage patients with different medical emergencies under supervision.

General Medicine (Mandatory for 18 months)			
	Outcomes (Competency Level)	Cases	Setting
Cardiopumlonary Resuscitation	4	30	Indoor/Emergency
Endotracheal Intubation	3	30	Indoor/Emergency
ECG Recording and reporting	4	30	Indoor/Emergency
Insertion of CVP	2	10	Indoor/Emergency
Arterial Puncture	3	30	Indoor/Emergency
Defibrillator	4	30	Indoor/Emergency
Nasogastric intubation	4	30	Indoor/Emergency
Peritoneal Aspiration	4	30	Indoor/Emergency
Urethral Catheterization	4	30	Indoor/Emergency

Hemodialysis	3	30	Indoor/Emergency
Lumbar Puncture	4	30	Indoor/Emergency
CT Head Chest Abdmoin	2	15	Indoor/Emergency
MRI Brain And Spine	2	15	Indoor/Emergency
Joint Aspiration	3	5	Indoor/Emergency

Neuroradiology (3 months)			
	Outcomes (Competency Level)	Cases	Setting
MRI Brain plain and contrast	3	30	Indoor
MRI spine plain and contrast	3	30	*Indoor*
CT brain plain and contrast	3	30	Indoor
CT spine plain and contrast	3	10	Indoor

Neurosurgery (2 months)			
Content Covered	Outcomes (Competency Level)	Cases	Setting
Hemicraniectomy	1	5	Indoor/OPD
Pituitaradenecomy	1	5	Indoor/OPD
Laminectomy	1	5	Indoor/OPD
discectomy	1	5	Indoor/OPD
cauda quina	2	4	Indoor/OPD
Subdural hematoma	1	5	Indoor/OPD

Neurophysiology (3 months)			
	Outcomes (Competency Level)	Cases	Setting
EEG	3	10	Indoor
CIDP	3	5	Indoor
AIDP	3	5	Indoor
Polyradicuopathy	3	5	Indoor
CTS	3	5	Indoor
MND	3	5	Indoor
Myaesthenia Gravis	3`	5	Indoor

Psychiatry (2 months)			
	Outcomes (Competency Level)	Case	Setting
Generalized Anxiety disorder	2	5	OPD
Major depression	2	4	Indoor/OPD
Psychomatic Disorders	2	2	Indoor/OPD
conversion disorder	2	5	Indoor/OPD
schizophrenia	2	5	Indoor/OPD
Bipolar Affective Disorder	2	5	Indoor/OPD
Drug addiction	2	5	Indoor/OPD

Section E:

Assessment Plan:

Program duration	Course contents	Assessment method
At the end of 2nd year of program	1. Revision of core MBBS component including basic and clinical components. 2. Basic knowledge and Acquiring skill related to the specialty according to the objectives made. 1. First 2 mandatory Workshops as described in course outline. 3. Submission of synopsis	**Intermediate Examination:** to be taken by university. It will include: a) Written=300 b) TOACS/ OSCE /LONG CASE/ SHORT CASE=300 **Total Marks =600**
At the end of 4th/5 year	1. Training to act as an individual while managing patient or performing any task as defined by	**Final Examination** to be conducted by university.

	the objectives. 2. Training to act as a teacher, researcher, leader and a player in a team. 3. Overall development of a health care professional with all the set competencies of the Program. 4. All the mandatory and specialty-oriented workshops to be completed as mentioned in the curriculum 5. Rotations as described in the curriculum completed 6. Thesis completion and submission	It will include: a) Written=300 b) TOACS/OSCE/LONG CASE/SHORT CASE=300 c)Continuous internal assessment=100 Thesis evaluation =300 **Total marks=600+100+300=** **1000**

Components of Mid-term Examination

- Written: Total Marks =300
- Clinical, TOACS/OSCE = 300

Total = 600

Components of Final Examination:

- Written: 300 Marks
- Clinical, TOACS/OSCE = 300 Marks
- Continuous internal assessment =100
- Thesis Evaluation = 300 Marks

Total = 1000 Marks

Intermediate Examinations:

Intermediate examination would be conducted for the candidate getting training, at the end of 2nd calendar year of the program.

Eligibility Criteria:

1. Candidate remained on institution roll during the period approved for appearing in examination.
2. Certificate of completion of mandatory workshops.
3. Completion of Log book signed by supervisor/concerned Head of Department.
4. Certificate of submission of Ethical Review Committee approved synopsis to the university if required as per rules of synopsis submission.
5. Evidence of payment of examination fee as prescribed by the University from time to time.
6. Certificates submitted through Principal/Dean/Head of academic institution shall be accepted as valid towards the candidature of an applicant.
7. submission of application for the examination and the conduct of examination.

Intermediate Examination Schedule and Fee:

a) Intermediate Examination at completion of two years training, will be held twice a year.

b) There will be a minimum period of 30 days between submission of application for the examination and the conduction of examination.

c) Examination fee will be determined periodically by the University.

d) The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.

e) The Controller of Examinations will issue Roll Number Slips on receipt of prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee.

Written Examination:

The written examination will consist of 100 single best answer type Multiple Choice Questions. Each correct answer in the multiple-choice question paper will carry 02 marks. The short essay question will be clinical scenario or practice based, and each question will carry 10 marks.

The marks of written exam will be divided as follows:

- MCQs (single best type) = 200 Marks
- SEQ (10 marks) =100

Declaration of Results

The candidates scoring 60% marks in the written examination will be considered pass and will then be eligible to appear in the clinical and oral examination.

Clinical, TOACS/OSCE:

The clinical and TOAC/OSCE & Oral examination will evaluate patient care competencies in detail,

The examination will be of 300 total marks consisting of the following components

Clinical, TOACS/OSCE = Total Marks 300

a) 2 short Cases (50 each) = 100 marks

b) 1 Long Case = 100 marks

c) TOACS/OSCE & ORAL =100 marks (10 stations with 10 marks each)

- Each short case will be of 10 minutes duration, 05 minutes will be for examining the patient and 05 minutes for discussion.

- The long case and oral examination will each be of 30 minutes duration.

Declaration of Results

- A student scoring 60% in long case, 60% in short cases ad 60% in TOACS/OSCE will be considered pass in the examination.
- A maximum total of four consecutive attempts (availed or un availed) will be allowed in the Intermediate Examination during which the candidate will be allowed to continue his training program. If the candidate fails to pass his Intermediate Examination within the above-mentioned limit of four attempts, candidate shall have to take entire Intermediate examination including written examination again

Final Examination

(at the end of 5th Calendar year of the program)

Eligibility Criteria:

To appear in the Final Examination the candidate shall be required:

1. Result card showing that the candidate has passed intermediate Examination.
2. Certificate of completion of 4/5 Years training duly signed by Supervisor, Head of parent Department and that of the Head of Department where rotations were done (if prescribed in the curriculum).
3. Evidence of thesis submission to Department of Examination of the University.
4. Evidence of payment of examination fee as prescribed by the university from time to time.
5. The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
6. Candidate remained on institution roll during the period required for appearing in examination.
7. Only those certificates, submitted through Principal/Dean/Head of academic institution shall be accepted.

Final Examination Schedule and Fee:

a) Final examination will be held twice a year i.e. at least six months apart.
b) Examination fee will be determined and varied at periodic intervals by the University.
c) The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
d) The Controller of Examinations will issue an Admittance Card with a photograph of the candidate on receipt of prescribed application form, documents satisfying

eligibility criteria and evidence of payment of examination fee. This card will also show the Roll Number, date / time and venue of examination.

Written Part of Final Examination

a) The written examination will consist of 100 single best answer type Multiple Choice Questions (MCQs) and 10 Short Essay Questions (SEQs). Each correct answer in the Multiple-Choice Question paper will carry 02 marks. Each Short Essay Question will carry 10 marks.

b) The Total Marks of the Written Examination will be 300 and to be divided as follows:

- Multiple Choice Question paper Total Marks = 200
- Short Essay Question paper Total Marks = 100

Total=300

Paper 1

- MCQs 100 (2marks each)

Paper 2

- SEQs 10 (10 marks each)

a. Paper 1 shall comprise of hundred (100) "single best answer" type Multiple Choice Questions. Each Question shall carry 02 marks.

b. Paper 2 shall comprise of ten (10) Short Essay Questions, each carrying 10 marks.

Declaration of Results

c. The candidates scoring 60% marks in aggregate of Paper 1 and Paper 2 of the written examination will be declared pass and will become eligible to appear in the Clinical Examination.

Clinical, TOACS/OSCE:

a) The Clinical Examination will consist of 04 short cases, 01 long case and TOACs/OSCE with 01 station for a pair of Internal and External Examiner. Each short case will be of 07 minutes duration, 05 minutes will be for examining the patient and 02 minutes for discussion.

b) The Total Marks of Clinical and TOACs/OSCE & Oral will be 300 and to be divided as follows:

- 4 Short Cases (25 each) Total Marks = 100
- 1 Long Case Total Marks = 100
- TOACS/OSCE & ORAL Total Marks = 100

Total= 300

Declaration of Results

- A student scoring 60% in long case, 60% in short cases ad 60% in TOACS/OSCE will be considered pass in the examination.

- Candidate, who passes written examination, shall be allowed a maximum of Three availed attempts within two years to pass Clinical/Oral examination. However, in case of failure to pass Clinical examination within stipulated attempts the credit of passing the written examination

shall stand withdrawn and candidate shall have to take entire examination including written examination, afresh.

- Candidate who has completed his/her training along with all the requirements mentioned in the curriculum, shall have to appear in the written of final examination at least once within a period of 8years (from the time of induction in the training). Failure to comply with this, the matter will be referred to the competent authority through proper channel for final decision.

Synopsis and Thesis Writing:

Thesis writing must be completed and thesis be submitted at least 6 months before the end of final year of the program.

Thesis evaluation & defense will be carried out at the end of $4^{th}/5^{th}$ calendar year of MS/MD.

Submission / Evaluation of Synopsis

a) The candidates shall prepare their synopsis as per guidelines provided by the Advanced Studies & Research Board, available on the university website.

b) The research topic in clinical subject should have 30% component related to basic sciences and 70% component related to applied clinical sciences. The research topic must consist of a reasonable sample size and sufficient numbers of variables to give training to the candidate to conduct research, to collect & analyze the data.

c) Synopsis of research project shall be got approved by the end of the 1st year of MS/MD program. The synopsis after review by an Institutional Review Committee, shall

be submitted to the University for consideration by the Advanced Studies & Research Board, through the Principal / Dean /Head of the institution.

Submission and evaluation of Thesis Evaluation (300 Marks)

1. The Thesis shall be submitted to the Controller of Examination through Head of Institute, duly signed by the Supervisor, Co-Supervisor(s) and Head of the Department.
2. Submission of Thesis is a prerequisite for taking Final Theory Examination.
3. Examiners shall be appointed by the Vice chancellor on recommendation of Controller of Examination from a panel approved by Advance Studies & Research Board for evaluation of thesis.
4. All MD/MS/MDS thesis shall be evaluated by two examiners, one internal and one external (The supervisor must not be the evaluator)
5. Thesis defense shall be held after approval of evaluation reports by Advanced Studies & Research Board.
6. Thesis defense shall be conducted by the examiners who evaluated Thesis of the candidate.
7. The candidate scoring 60% marks in Thesis defense examination will be declared as pass in the examination.

Continuous Internal assessment

It will consist of professional growth oriented student-centered integrated assessment with an additional component of formative assessment and measurement-based summative assessment

Attendance

- Students joining postgraduate training program shall work as full-time residents during the duration of training and maximum 2 leaves are

allowed in one month, and should take full responsibility and participation in all facets of the educational process. The period of training for obtaining degrees shall be four completed years

Presentations

- In addition to the conventional teaching methodologies interactive strategies will also be introduced to improve both clinical and communication skills in the upcoming consultants. Presentations must be conducted regularly as scheduled and attended by all available faculty and residents. As a policy, active participation of the postgraduate resident will be encouraged. Proper written feedback will be given for these presentations and that will be a part of Resident's Portfolio as well. Reflection of the events to be written by the residents as well and must be included in their portfolios.

Task evaluation

- This competency will be learned from journal clubs, review of literature, policies and guidelines, audit projects, medical error investigations, root cause analysis and awareness of healthcare facilities. Active participation and ability to fulfill given tasks will be encouraged. Written feedback must be given and documented to be included in portfolio

Continuous Internal Assessment format (100 Marks)

1. The award of continuous internal assessment shall be submitted confidentially in a sealed envelope.
2. The supervisor shall submit cumulative score of internal assessment of all training years to be added together to provide a final cumulative score of

Continuous Internal Assessments of all the trainees to the Head of the Department/ Dean of Post Graduate studies.

3. The Head of Department/ Dean shall submit the continuous internal assessment score through the Principal/ Registrar office to the Examination Department of the University. Score of continuous internal assessment once submitted shall be final and cannot be changed subsequently under any circumstances.
4. The weightage of internal assessment in the final examination will be 10%.
5. Continuous Internal Workplace Based Assessments will be done by the supervisors, that may be based on but not limited to:
    a. Generic and Specialty Specific Competency Assessments
    b. Multisource Feedback Evaluations
    c. Assessment of Candidates' Training Portfolio

TOOLS OF ASSESSMENT FOR THE COURSE:

TOOL USED:	DOMAIN TESTED:
MCQs	Knowledge
SEQs	Knowledge
TOACS/OSCE	Knowledge. Skill Attitude

PRESENTATIONS (wards, seminars, conferences, journal clubs)	Knowledge. Skill Attitude
Portfolios and log books.	Skill Attitude
Short cases.	Knowledge Skill Attitude
Long cases	Knowledge Skill Attitude
Continuous internal assessment	Skill

	Attitude
Feedback from department where rotation is being conducted.	Knowledge Skill Attitude

Section F:

Award of MD Neurology Degree

A candidate having declared successful in all the components of examination i.e. ***Theory, Clinical and Thesis*** shall be declared pass and shall be conferred degree in the name of programm

Section G:

Log Book

As per format approved by the university available on University website

Section H

Portfolio:

As per format approved by the university available on the university

Section I

Table of Specification:

For Intermediate examination:

Intermediate examination will be conducted by medicine department and 70% of MCQs and SEQs will be from MD medicine intermediate examination and 30% will be from MD Neurology intermediate examination.

MCQs = 200marks

SEQs = 100 marks

Sr No.	Topics	MCQs	SEQs
1.	Headache and other facial pain syndromes	10	1
2.	CVA Diseases		
3.	Acquired demyelinating disorders of nervous system		
4.	Degenerative disorders of CNS	10	1
5.	Movement Disorders		

6.	Neurologic infectious diseases and Sarcoidosis		
7.	Myelopathies	10	1
8.	Neuropathies		
9.	Myopathies & NMJ disorders		
	Total	30	3

Short case = 100 marks

Long case = 100 marks

TOACS = 100 marks

Final examination:

MCQs = 200marks

SEQs = 100 marks

Sr No.	Topics	MCQs	SEQs
1.	Headache and other facial pain syndromes	7	1

2.	CVA Diseases	7	2
3.	Coma and Disorders of consciousness	3	
4.	Disorders of special senses	3	1
5.	Acquired demyelinating disorders of nervous system	7	
6.	CNS Neurplasms	2	
7.	Neuroradiology	3	1
8.	Psychiatry	3	
9.	Degenrative disorders of CNS	3	
10.	Movement Disorders	7	1
11.	Disorders of CSF circulation	2	
12.	Hereditary and Acquired Ataxias	3	1
13.	Autonomic Disorders	2	
14.	Myelopathies	7	

15.	Neuropathies	8	2
16.	Myopathies	8	
17.	NMJ disorders	7	
18.	Neurologic complications of connective tissue disorders	3	1
19.	Disorders of nervous system disorders due to alcohol, nutritional deficiencies , drugs & Chemicals	2	
20.	Neurologic infectious diseases and Sarcoidosis	4	
21.	Sleep Disorders	3	
22.	Hereditary and Acquired Metabolic Disorders of Nervous system	3	
23.	Pediatric Neurology	3	
24.	Total	100	10

Long case = 100 marks

Short cases = 100 marks

TOACS = 100 marks

Section J

RECOMMENDED BOOKS

- Han MH. Adams and Victor's principles of neurology.
- Jankovic J, Mazziotta JC, Pomeroy SL. Bradley's Neurology in Clinical Practice E-Book. Elsevier Health Sciences; 2021 Mar 23.
- Samuels's Manual of Neurologic Therapeutics 9th Edition.by Martin Samuels (Author), Allan H. Ropper MD (Author)
- Neurological Examination Made Easy Paperback – 1 May 2019. by Geraint Fuller MD FRCP (Author)
- DeJong's The Neurologic Examination. William W. Campbell , Richard J. Barohn

Recommended Websites

- Uptodate.com
- Medscape.com
- Eyewiki.com
- AAN Neurology

RECOMMENDED JOURNALS

- Lancet Neurology,
- JAMA Neurology
- Annals of Neurology
- Pakistan Journal of Neurological Sciences (PJNS)

Section K:

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