PROGRAM
DM Neurology
(Revised with effect from 2019-2020 onwards)

SYLLABUS

BRANCH-I-D.M. NEUROLOGY

- Neuroanatomy: It includes anatomy of central and peripheral nervous system and muscles including microscopic appearance, relevant embryology and its application to the related developmental disorders.
- Neurophysiology – Physiology of central and peripheral nervous system and muscles.
- Neuro Biochemistry: The normal biochemistry of the nervous system and muscles; and its application in different neurological disorders.
- Neuropathology: Pathology of different diseases affecting the nervous system and muscles, including macroscopic and microscopic appearances.
- Neuro – bacterio – virology – with special reference to the various neurological Disorders.
- Nerurogenetics: Normal as well as the abnormalities in different genetically inherited neurological disorders.
- Biostatistics and clinical epidemiology : Fundamentals of biostatistics, ability to conduct a clinical trial independently and interpret the final reports.
- Neuro immunology: Normal and various abnormalities, seen in neuro Immunological disorders.
- Neuropsychiatry: Related neuropsychiatric disorders such as nonepileptic seizure etc.
- Neuro Psychology.
- Pediatric Neurology.
- Neuro radiology including plain X-ray, CT scan, Angiogram, Magnetic Resonance Imaging, Myelogram etc.
- Electrophysiology : Electrophysiology, nerve conduction studies, EEG including sleep EEG and Video EEG, evoked potentials etc.

- Other Neurology oriented investigatory procedures in relation to neurology/Neuro ophthalmology etc.
- Neurosurgery
- Clinical Neurology
- Neuro pharmacology of various neurological disorders.

1st Year

During the first year, the student will be working fully in the Department of Neurology. In the morning time, he/she will be familiarized with clinical neurology, neurological examination, localization and differential diagnosis, relevant laboratory and radiological investigations and pharmacotherapeutics. He/she will attend all the outpatient services and get himself/herself aware of the common neurological problems. In addition, he/she will work in the electrophysiology laboratories and get himself/herself fully familiar with EMG, evoked potential and electroencephalography (EEG). He/she should be competent to handle the equipments and report independently. In the afternoon, he/she will concentrate on the basic sciences and will undertake the research study within 3 months after admission.

2nd year

The candidate may be sent to the best centre for training and learning the following subjects; This comes under 'visit to other centres'. The total period is for three months or four months depending on the centre.

Following will be the subject and duration of training: -

Subject	Duration of Training
Neuropathology	15 days
Neuro-radiology (including interventional radiology	15 days
Intensive Care in Neurology	30 days
Psychiatry	15 days
Neurosurgery	30 days
Electrophysiology	60 days
Neurorehabilitation	15 days
Total	**6 months**

3rd YEAR

During the period, the candidate will work in the Neurology department concentrating on clinical and theoretical neurology, clinical psychiatric relevant investigations and medical as well as paramedical management of the patients. Besides, he shall handle and report the EEG and EMG by himself.

Examination will be conducted at the end of third year.

Courses

Course I Basic Sciences (Code U15DMNU01)

CO1: Knowledge of Neuro anatomy, including anatomy of central and peripheral nervous system and muscles including microscopic appearance, relevant embryology and its application to the related developmental disorders.
CO2: Knowledge of Neuro physiology, including physiology of central and peripheral nervous system and muscles.
CO3: Knowledge of Neurochemistry, including the normal biochemistry of the nervous system and muscles; and its application in different neurological disorders.
CO4: Knowledge of Neuropathology, including pathology of different diseases affecting the nervous system and muscles, including macroscopic and microscopic appearances.
CO5: Knowledge of Microbiology & Parasitology with special reference to with special reference to the various neurological Disorders. Knowledge of Neuro immunology: Normal and various abnormalities, seen in neuro Immunological disorders.
CO6: Knowledge of Biostatistics and clinical epidemiology : Fundamentals of biostatistics, ability to conduct a clinical trial independently and interpret the final reports.
CO7: Knowledge of Genetics as applicable in the practice of neurology with special reference to the normal as well as the abnormalities in different genetically inherited neurological disorders.

Neuroanatomy: It includes anatomy of central and peripheral nervous system and muscles including microscopic appearance, relevant embryology and its application to the related developmental disorders.

Neurophysiology – **Physiology of central and peripheral nervoussystem and muscles.**
Neuro Biochemistry: The normal biochemistry of the nervous system and muscles; and its application in different neurological disorders.
Neuropathology: Pathology of different diseases affecting the nervous system and muscles, including macroscopic and microscopic appearances.
Neuro – bacterio – virology – with special reference to the various neurological Disorders.
Neurogenetics: Normal as well as the abnormalities in different genetically inherited neurological disorders.
Biostatistics and clinical epidemiology : Fundamentals of biostatistics, ability to conduct a clinical trial independently and interpret the final reports.

Course II Neuroradiology, Electrophysiology, Neuroautology, Neuroopthalmology and other investigative Procedures. (U15DMNU02)

CO1: Knowledge of neuro Radiology, as applicable in the practice of neurology.
CO2: Knowledge of electro Physiology, as applicable in the practice of neurology.
CO3: Expertise in neuro Otology as applicable in the practice of neurology.
CO4: Knowledge of neuro Ophthalmology as applicable in the practice of neurology.
CO5: Expertise in investigatory procedures as applicable in the practice of neruology. Such as Neuro radiology including plain X-ray, CT scan, Angiogram, Magnetic Resonance Imaging, Myelogram etc.
Electrophysiology : Electrophysiology, nerve conduction studies, EEG including sleep EEG and Video EEG, evoked potentials etc. & Neurology oriented investigatory procedures in relation to neurology/Neuro ophthalmology etc.

Neuro radiology including plain X-ray, CT scan, Angiogram, Magnetic Resonance Imaging, Myelogram etc.
Phakomatosis
Electrophysiology : Electrophysiology, nerve conduction studies, EEG including sleep EEG and Video EEG, evoked potentials etc.
Electromyography and its applications

Other Neurology oriented investigatory procedures in relation to neurology/Neuro ophthalmology etc.
Indications of Brain biopsy

Course III Neurology, Neuropsychiatry, Neuropsychology, Paediatric Neurology (U15DMNU03)

CO1: Knowledge of Neuro Psychiatry (related neuropsychiatric disorders such as nonepileptic seizure etc) as applicable in the practice of neurology.
CO2: Knowledge of neuro psychology as applicable in the practice of neurology.
CO3: Knowledge of pediatric neurlogy as applicable in the practice of neurology.
CO4: Knowledge of neurosurgery as applicable in the practice of neurology.
CO5: Expertise in clinical neurology and neuro pharmacology of various neurological disorders.

Neuropsychiatry: Related neuropsychiatric disorders
Differentiation of autoimmune encephalopathy from psychiatric diseases
Neuro Psychology application
Management of pediatric case in neurology
Low Glasgow Coma Scale in Pediatric age group
Neurosurgery and its application
Clinical Neurology
Neurologic manifestations of various systemic diseases
Neuro pharmacology of various neurological disorders.

Course IV Recent advances in Neurology (U15DMNU04)

CO1: Updated knowledge of technologies and instrumentations used in Neurlogy
CO2: Updated knowledge on the drugs used in the practice of neurology
CO3: Knowledge about the recent published research papers in neurology.

Knowledge about latest instruments , treatment modalities in the international setting as well as knowledge of recent /prestigious research papers

Soft Skills (U19DMNU05) – Elective Course

CO1: Competency to conduct a clinical research.

CO2: Acquisition of pedagogical skills for students (MBBS, Specialities)
CO3: Ability to work as a member of a healthcare team.
CO4: Communication skills with patients, caregivers and colleagues including non medical staff and an understanding of economics in cardiovascular management.
CO5: Attitude to be a lifelong learner.

Research Study : -

All candidates during the first year within three months of admission into the D.M. Post Graduate Higher specialty degree course shall be assigned a topic for dissertation by the Head of Neurology Department in consultation with the concerned Unit Chief. The title of the topics assigned to the candidates should be intimated to the Controller of Examinations of the University by the Head of the Department through the Head of the Institution before the end of first year. Four copies of dissertation shall be submitted five months prior to the commencement of examination, as in the prescribed date to the controller of Examinations of the University.

Branch-I - D.M Neurology

Theory- 4 papers	**100 Marks each Duration:**	**Three Hours each**
Paper I	Basic Science – consisting of Neuro anatomy, Neuro physiology, Neurochemistry, Neuropathology, Neuro Microbiology, Parasitology, Immunology, Epidemiology and Genetics.	100
Paper II	Neuro Radiology, Electro Physiology, Neuro Otology, Neuro Ophthalmology and other investigatory procedures	100
Paper III	Neurology, Neuro Psychiatry, Neuro Psychology, Paediatric Neurology.	100
Paper IV	Recent advances in Neurology	100

DISTRIBUTION OF MARKS

One Essay	20 Marks
Two Essays 15 Marks each (15x2)	30 Marks
Five Short notes 10 Marks each (10x5)	50 Marks

TOTAL **100 Marks**

PRACTICAL /CLINICAL AND ORAL EXAMINATION

	NO OF CASES	DURATION	MARKS
LONG CASE	One	One Hour	150
SHORT CASE	Two	One Hour (30 mts. Each)	75 x 2
		Total	300
Oral / Viva Examination			100
		TOTAL	**400**

The Viva includes Pathology slides, specimens, EEG, EMG and other diagnostic records, x-ray, CT scan, MRI, Angiogram and others.

Note: Not more than three candidates will be examined in Practical examinations per day.

DISSERTATION: Approved/Not approved (No Marks)

MARKS QUALIFYING FOR A PASS:

	Maximum Marks	Marks Qualifying for a pass (50%)
Theory	400	200
Practical/Clinical	200	100
Oral	100	50
Aggregate	**700**	**350**

The Viva and Clinical Examination may be conducted on the same day, because all the candidates need not have to be present till the last day of examination.