



Dr. D. Y. PATIL VIDYAPEETH, PUNE
(Deemed to be University)

Syllabus for Super Speciality

2014 - 15
(Amended / Revised upto July 2019)



Dr. D.Y. PATIL VIDYAPEETH, PUNE
(Deemed to be University)

(Re-accredited by NAAC with a CGPA of 3.62 on a four point scale at 'A' Grade)
(An ISO 9001 : 2015 Certified University)

Dr. A. N. Suryakar
Registrar

Ref. No. : DPU/875-Vii/2019

Date : 11/09/2019


NOTIFICATION

Whereas in pursuance of the following decisions taken by the Board of Management, it is hereby notified to all concerned that the "Syllabus for Super Speciality – 2014-15" is revised upto July 2019 and hereby published.

- Changes in Practical examination pattern of M. Ch. Urology vide Resolution No. BM-35(viii)-18, dated 12th October, 2018.
- Approval of Syllabus for D.M. (Cardiology), D.M. (Neurology) and M. Ch. (Cardio Vascular Thoracic Surgery) vide Resolution No. BM-38(xiv)-17, dated 27th December, 2017.
- Interdisciplinary subjects of M.B.B.S, M.D./M.S. and Super-specialty (D.M./M.Ch.) Programs under the Faculty of Medicine vide Resolution No. BM-10(viii) dated 12th April, 2019.
- Interdisciplinary subjects of M.B.B.S, M.D./M.S. and Super-specialty (D.M./M.Ch.) Programs under the Faculty of Medicine vide Resolution No. BM-27(xi) dated 30th July, 2019.

The Syllabus of Super Speciality – 2014-15 Revised upto July 2019 will be useful to all the concerned. This will come into force with immediate effect.




(Dr. A. N. Suryakar)
Registrar

Copy to:

1. PS to Chancellor for kind information of Hon'ble Chancellor, Dr. D. Y. Patil Vidyapeeth, Pune.
2. PS to Vice Chancellor for kind information of Hon'ble Vice Chancellor, Dr. D. Y. Patil Vidyapeeth, Pune.
3. The Dean, Dr. D. Y. Patil Medical College Hospital & Research Centre, Pimpri, Pune
4. The Controller of Examinations, Dr. D. Y. Patil Vidyapeeth, Pune.
5. Director (IQAC), Dr. D. Y. Patil Vidyapeeth, Pune.
6. Web Master for uploading on Website.

**MAPPING OF PROGRAMME OUTCOMES [POs] AND COURSE
OUTCOMES [COs] OF SUPER SPECIALITY PROGRAMMES**

PROGRAMME OUTCOMES

No.	By the end of the programme, the Postgraduate will have /be:
PO 1	Knowledge and Skills
PO 2	Planning and problem solving abilities
PO 3	Communication
PO 4	Research Aptitude
PO 5	Professionalism and Ethics
PO 6	Leadership
PO 7	Societal Responsibilities
PO 8	Environment and Sustainability
PO 9	Lifelong Learner

M.Ch. NEUROSURGERY PROGRAMME

Course Code	Course Title
SS-01	M.Ch. Neurosurgery

Course 1 (Subject Code)

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
SS-01.1	Recognize the key importance of medical problems in the context of the health priority of the country	PO1,PO2,PO3, PO4,PO5, PO6, PO7, PO8, PO9
SS-01.2	Practice the specialty of Neurosurgery in keeping with the principles of professional ethics	PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO9
SS-01.3	Identify social, economic, environmental, biological and emotional determinants of adult Neurosurgery and know the therapeutic, rehabilitative, preventive and promotion measures to provide holistic care to all patients	PO1,PO2,PO3, PO4, PO5, PO6, PO7, PO8, PO9
SS-01.4	Demonstrate communication skills of a high order in explaining management and prognosis, providing counseling and giving health education messages to patients, families and communities regarding Neurosurgery	PO1,PO2,PO3, PO4, PO5, PO6, PO7, PO9
SS-01.5	Develop as a self-directed learner, recognize continuing educational needs; use appropriate learning resources, and critically analyze relevant published literature in order to practice evidence-based Neurosurgery	PO1,PO2, PO3, PO4, PO5, PO6, PO7, PO9
SS-01.6	Demonstrate skills in documentation of case details, and of morbidity and mortality data relevant to the assigned situation	PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO9
SS-01.7	Demonstrate competence in basic concepts of research methodology and epidemiology and be able to critically analyze relevant published research	PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO9

CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
	literature.	
SS-01.8	Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.	PO1, PO3, PO4, PO5, PO6, PO7, PO8, PO9
SS-01.9	Function as an effective leader of a health team engaged in health care, research or training.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9
SS-01.10	Keep abreast with the contemporary advances and developments in Neurosurgery	PO1, PO2, PO3, PO4, PO5, PO8, PO9

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M.Ch. Neuro Surgery

M.Ch. NEURO SURGERY SYLLABUS

The theory syllabus should include the history, epidemiology, etiology, genetics, pathogenesis, clinical manifestations, complications, differential diagnosis, investigations, treatment with special stress on surgical procedures), prevention and prognosis of all neurological diseases in adults.

- **Landmarks in the history of neurosurgery**, micro neurosurgery, neuroradiology
- **Clinical evaluation of the nervous system** – history taking and clinical examination of cognitive functions, cranial nerve examination, neuroophthalmological, examination of motor and sensory systems and reflexes.
- **Applications of principles of cellular and molecular biology in neurosurgical disorders**
- **Diagnostic tests** – examination of CSF and related procedures, electrodiagnostic tests (NCV ,EMG ,EEG ,Evoked potentials , Trans Cranial Doppler , Pet scan , Spect , Angiography , Brain Biopsy)
- **General and peri operative care** - Initial evaluation and treatment of the comatose patient, Seizure disorders and their medical management, Evaluation of the patient with dementia and treatment of normal pressure hydrocephalus, Blood-Brain barrier; cerebral edema, increased intracranial pressure, Brain Herniation, and their control, Pseudotumor cerebri, Neurology, Preoperative evaluation of a neurosurgical patient, Blood coagulation, Neuroanesthesia, Intensive care, Spasticity, Advance in molecular genetics in relation to neurogenetic diseases
- **Neurosurgical and related techniques**-Principles of neurosurgical operative technique, Principles of Neurosurgical operative technique, Endoscopic neurosurgery, Prophylactic antibiotics, Patient positioning, Intraoperative neurophysiologic Monitoring, High speed drills, Intraoperative use of topical hemostatic agents in neurosurgery, Use of fibrin glue in neurosurgery, Calcium phosphate ceramics as bone substitute, Endovascular therapy of vascular lesions of the central nervous system
- **Neuro - Oncology** - Oncogenes and Nervous system tumor, genetic factors in brain tumors, neurofibromatosis and other phakomatoses, Tumor markers, Primary brain tumor: Aspects of imaging and functional localization.

- **Gliomas** - Gliomas: Pathology, Supratentorial gliomas: Clinical features and surgical therapy
- **Metastatic brain tumor-** Surgery for a single brain metastatic, Meningeal carcinomatosis
- **Meningiomas-** Meningiomas: Pathology, Imaging, Supratentorial meningiomas:clinical features and surgical management, Infratentorial and foramen magnum meningiomas
- **Epidermoid and dermoid tumor-** Epidermoid and dermoid tumors: Pathology, Imaging, Clinical features and surgical management.
- **Tumors in the region of the pineal gland-** Classification and pathology, Clinical features and surgical management , Surgical approaches to pineal tumors.
- **Cerebellopontine angle tumor-** Tumor of the cerebellopontine angle: Pathology, Tumor of the cerebellopontine angle: Neuro-otologic aspects of diagnosis, tumor of the cerebellopontine angle: clinical features and surgical management via a retrosigmoid approach.
- **Posterior fossa tumors-**Imaging of posterior fossa tumors, Microsurgical Anatomy of the fourth ventricle, Cerebellar Astrocytomas, Medulloblastomas, pediatric brain stem gliomas, Ependymoma, Subependymomas
- **Sellar and Parasellar tumors-** Microsurgical anatomy of sellar region, Imaging of Sellar and Parasellar Lesions, Classification and Pathology of Pituitary tumors, Prolactinomas, Cushing's Disease and Nelson's Syndrome, Pituitary Apoplexy, Trans-sphenoidal Approach to the Pituitary Gland, Transcranial approaches to the Pituitary Gland and Sellar region, Craniopharyngiomas, Optic Gliomas, Suprasellar germinomas, Lateral and Third Ventricle Tumours, Tumours of the Orbit

- **Neuro-Oncology**-Tumours of the skull, Chordomas and Chondrosarcomas of the Cranial Base, trigeminal Neurinomas, Other cranial Nerve Schwannomas, Transfacial- Transmaxillary Approach to the Anterior Skull Base, Transoral Approaches to the clivus and upper cervical spine, Anterolateral cervical approach to the craniovertebral junction, Surgical anatomy of the cavernous sinus, Surgical treatment of tumors involving the cavernous sinus, Approaches to petroclival tumors., primitive neuroectodermal tumors, primary central nervous system lymphomas.
- **Spinal Tumors**-Spinal Intradural tumors, Paragangliomas of the cauda equine , Spinal epidural tumors , Primary Neoplasms of the spine.
- **Adjunctive therapy of central nervous system tumors** - Principles of radiotherapy of central nervous system tumors , Radiosurgery for tumors , Radiation injury of the brain and the spinal cord
- **Vascular Diseases of The Nervous System** General information, Measurement of cerebral blood flow, Occlusive cerebrovascular disease, Pathology of ischemic cerebrovascular disease, Thrombolytic therapy for occlusive cerebrovascular disease, surgery for acute brain infarction with mass effect, Extracranial to Intracranial bypass grafting, Aneurysms and Subarachnoid haemorrhage Microsurgical anatomy of saccular aneurysms, Pre- and postoperative management of a patient with ruptured aneurysm, Ophthalmic segment aneurysm, other aneurysms of internal carotid artery, Middle cerebral artery aneurysms, Anterior communicating artery aneurysms, Distal anterior cerebral artery aneurysms, posterior circulation aneurysms, management of intracranial aneurysms and arteriovenous malformations during pregnancy .
 - Vascular malformations and fistulas Intracranial arteriovenous malformations, Vein of Galen malformation, Stereotactic radiosurgery of intracranial arteriovenous malformations, Spinal vascular malformations.
 - Other vascular disorders Spontaneous intraspinal hemorrhage, Spontaneous intraparenchymal brain hemorrhage.

- **Cranial And Spinal Trauma** **Cranial trauma**-Pathophysiology of traumatic brain injury, pathology of closed head injury, Neurological evaluation of a patient with head trauma , Radiological evaluation of head trauma , Pediatric head injury, Minor head injury management and outcome , Skull fractures, Growing skull fractures of childhood, Traumatic intracranial hematomas, Delayed and recurrent intracranial hematomas, and [post traumatic coagulopathies, Penetrating wounds of the head, Sequelae of head injury, Pathophysiology and pathology of spinal cord injury, Management of acute spinal cord injury, Cervical spine injuries: Diagnosis and management.
- **Disorders of peripheral and cranial nerves and the autonomic nervous system**.-Thoracic outlet syndromes, Entrapment Neuropathies
- **Nerve Injuries**-Peripheral nerve injuries: Types, Causes, and Grading, Brachial plexus injuries, Techniques of nerve repair.
- **Infections**- Antimicrobials for use in neurosurgical patients, Diagnosis and management of brain abscess, Acute bacterial meningitis, Spinal epidural and subdural abscesses, Fungal infection.
- Developmental anomalies and neurosurgical disorders of childhood Neuroembryology, Spinal dysraphism, Tethered cord syndrome, Diastematomyia, Chiari malformations, Hydromyelia, Syringomyelia, Hydrocephalus: Pathophysiology and clinical features, Hydrocephalus: Treatment, Shunt system, Shunt complications,
- **Dandy-walker malformation**
- **Intervertebral disc disease and selected spinal disorders**-Cervical disc disease and cervical spondylosis, Cervical ossification of the posterior longitudinal ligament, lumbar disc disease, Postoperative intervertebral disc space infections. Lumbar spondylolisthesis, Posterolateral lumbar spinal fusion, The failed back surgery syndrome.
- **Pain**-Anatomy and physiology of pain, Craniofacial pain syndromes: An overview Trigeminal neuralgia:- Introduction, Trigeminal neuralgia: Problems as to cause and consequent, Trigeminal neuralgia: treatment by glycerol Rhizotomy, Trigeminal neuralgia: Treatment by microvascular decompression, Deep brain stimulation for pain relief

Stereotactic and Functional Neurosurgery- stereotactic surgery; principles and techniques, image guided stereotactic surgery, radiofrequency lesion-making in the nervous system, surgical therapy of movement disorders, surgical treatment of epile