

DAYANANDA SAGAR UNIVERSITY

Shavige Malleshwara Hills, Kumaraswamy Layout,

Bengaluru - 560078, Karnataka.

SCHOOL OF HEALTH

SCIENCES COLLEGE OF

PHYSIOTHERAPY



**SCHEME &
SYLLABUS FOR
BACHELOR OF PHYSIOTHERAPY (BPT) –
2017 (ANNUAL SCHEME)
(1st to 4th Year) (With Effect from 2017-18)**

YEAR – IV (BPT)

S L	COURS E CODE	COURSE TITLE	M / S	NO. OF TEACHIN G HOURS			SCHEME OF EVALUATION							TOTAL
				D	CL	P	THEORY				PRACTICAL			
							W	VV	CA	IA	P	C A	IA	
1	17PT401	NEUROLOGY & NEUROSURGERY	M	02	--	--	80	--	10	10	--	--	--	100
2	17PT402	COMMUNITY MEDICINE	M	02	--	--	80	--	10	10	--	--	--	100
3	17PT403	NEURO – PHYSIOTHERAPY	M	02	01	--	100	30	10	10	--	--	--	150
4	17PT404	COMMUNITY BASED REHABILITATION	M	02	01	--	100	30	10	10	--	--	--	150
5	17PT405	RESEARCH METHODOLOGY & BIOSTATISTICS	M	02	--	--	80	--	10	10	--	--	--	100
6	17PT471	NEURO PHYSIOTHERAPY	M	--	--	02	--	--	--	--	40	05	05	50
7	17PT472	COMMUNITY BASED PHYSIOTHERAPY	M	--	--	02	--	--	--	--	40	05	05	50
8	17PT473	SUPERVISED CLINICAL TRAINING	M	--	18	--	--	--	--	--	--	--	--	--
9	17PT491	PROJECT	S	01	--	--	--	--	--	--	--	--	--	--
GRAND TOTAL				11	20	04	440	60	50	50	80	10	10	700
TOTAL NUMBER OF HOURS/WEEK				35	--	--	--	--	--	--	--	--	--	--

Note: M- Main Course, S – Subsidiary Course , D – Didactic, CL – Clinical, P – Practical, W – Written,

VV – Viva Voce, CA – Continuous Assessment, IA – Internal Assessment

YEAR : IV YEAR
COURSE CODE : 17PT401
TITLE OF THE COURSE : NEUROLOGY & NEUROSURGERY

COURSE OBJECTIVES

1. The objective of this course is that after 60 hours of lectures and demonstration the student will be able to demonstrate an understanding of Neurological conditions causing disability and their management. Particular effort is made in this course to avoid burdening the student with any detail pertaining to diagnosis which will not contribute to their understanding of the limitations imposed by neuropathology on the functioning of the individual.

2. The objective of this course is that after 60 hrs of lectures and discussion the student will be able to list the etiology, pathology, clinical features and treatment methods for various neurological conditions.

1. Disorders of function in the context of Pathophysiology, Anatomy in Neurology and Cortical Mapping. [1 hour]
2. Classification of neurological involvement depending on level of lesion. [1 hour]
3. Neurological assessment: Principles of clinical diagnosis, higher mental function, assessment of brain & spinal cord function, evaluation of cranial nerves and evaluation of autonomic nervous system. [3 hours]
4. Investigations: principles, methods, views, normal/abnormal values/features, types of following investigative procedures- skull x-ray, CT, MRI, evoked potentials, lumbar puncture, CSF examination, EMG, NCV. [3 hours]
5. Neuro-ophthalmology: Assessment of visual function – acuity, field, colour vision, Pupillary reflex, accommodation reflex, abnormalities of optic disc, disorders of optic nerve, tract, radiation, occipital pole, disorders of higher visual processing, disorders of pupil, disorders of eye movements, central disorders of eye movement. [1 hour]
6. Deafness, vertigo, and imbalance: Physiology of hearing, disorders of hearing, examination & investigations of hearing, tests of vestibular function, vertigo, peripheral vestibular disorders, central vestibular vertigo. [2 hours]
7. Lower cranial nerve paralysis – Etiology, clinical features, investigations, and management of following disorders - lesions in trigeminal nerve, trigeminal neuralgia, trigeminal sensory neuropathy, lesions in facial nerve, facial palsy, bell's

palsy, hemi facial spasm, Glossopharyngeal neuralgia, lesions of Vagus nerve, lesions of spinal accessory nerve, lesions of hypoglossal nerve. Dysphagia – swallowing mechanisms, causes of dysphagia, symptoms, examination, and management of dysphagia. [3 hours]

8. Cerebro-vascular diseases: Define stroke, TIA, RIA, stroke in evolution, multi infarct dementia and Lacunar infarct. Classification of stroke – Ischemic, hemorrhagic, venous infarcts. Risk factors, cause of ischemic stroke, causes of hemorrhagic stroke. Classification of hemorrhagic stroke, classification of stroke based on symptoms, stroke syndrome, investigations, differential diagnosis, medical and surgical management. [4 hours]
9. Head injury: Etiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications. [3 hours]
10. Higher cortical, neuro psychological and neurobehavioral disorders: Causes of blackouts, physiological nature of Epilepsy, classification, clinical features, investigations, medical & surgical management of following disorders – Non-epileptic attacks of childhood, Epilepsy in childhood, Seizures, and Epilepsy syndromes in adult. Classification and clinical features of Dyssomnias, Parasomnias, Dementia, Obsessive-compulsive disorders. Neural basis of consciousness, causes & investigations of Coma, criteria for diagnosis of Brain death. Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, management of Perceptual disorders and Speech disorders. [3 hours]
11. Movement disorders: Definition, etiology, risk factors, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Parkinson's disease, Dystonia, Chorea, Ballism, Athetosis, Tics, Myoclonus and Wilson's disease. [3 hours]
12. Cerebellar and coordination disorders: Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, management of Congenital ataxia, Friedreich's ataxia, Ataxia telangiectasia, Metabolic ataxia, Hereditary cerebellar ataxia, Tabes dorsalis and Syphilis. [3 hours]

13. Spinal cord disorders: Functions of tracts, definition, etiology, risk factors, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Spinal cord injury, Compression by IVD prolapse, Spinal epidural abscess, Transverse myelitis, Viral myelitis, Syringomyelia, Spina bifida, Sub acute combined degeneration of the cord, Hereditary spastic paraplegia, Radiation myelopathy, Progressive encephalomyelitis, Conus medullaris syndrome, Bladder & bowel dysfunction, and Sarcodosis. [3 hours]
14. Brain tumors and spinal tumors: Classification, clinical features, investigations, medical and surgical management. [3hours]
15. Infections of brain and spinal cord: Etiology, pathophysiology, classification, clinical signs & Symptoms, investigations, differential diagnosis, medical management, surgical management And complications of following disorders – Meningitis, Encephalitis, Poliomyelitis and Post-Polio syndrome. Complications of systemic infections on nervous system – Septic Encephalopathy, AIDS, Rheumatic fever, Brucellosis, Tetanus, and Pertussis. [2 hours]
16. Motor neuron diseases: - Etiology, pathophysiology, classification, clinical signs & symptoms, Investigations, differential diagnosis, medical management, and complications of following Disorders - Amyotrophic lateral sclerosis, Spinal muscular atrophy, hereditary bulbar palsy, Neuromyotonia and Post-irradiation lumbosacral polyradiculopathy. [2 hours]
17. Multiple sclerosis - Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, and complications. [2 hours]
18. Disorders of neuromuscular junction – Etiology, classification, signs & symptoms, investigations, management, of following disorders Myasthenia gravis, Eaton-Lambert syndrome, and Botulism. [2 hours]
19. Muscle diseases: Classification, investigations, imaging methods, Muscle biopsy, management of muscle diseases, genetic counselling. Classification, etiology, signs & symptoms of following disorders – Muscular dystrophy, Myotonic dystrophy, myopathy, Non-dystrophic myotonia. [3 hours]

20. Polyneuropathy – Classification of Polyneuropathies, Hereditary motor sensory neuropathy, Hereditary sensory and Autonomic neuropathies, Amyloid neuropathy, Acute idiopathic Polyneuropathies. Guillain-Barre syndrome – Causes, clinical features, management of GBS, Chronic Idiopathic Polyneuropathies, diagnosis of polyneuropathy, nerve biopsy. [2 hours]
21. Focal peripheral neuropathy: Clinical diagnosis of focal neuropathy, neurotmesis, Axonotmesis, Neuropraxia. Etiology, risk factors, classification, neurological signs & symptoms, investigations, management, of following disorders – RSD, Nerve tumors, Brachial plexus palsy, Thoracic outlet syndrome, Lumbosacral plexus lesions, Phrenic & Intercostals nerve lesions, Median nerve palsy, Ulnar nerve palsy, Radial nerve palsy, Musculocutaneous nerve palsy, Anterior & Posterior interosseous nerve palsy, Axillary nerve palsy, Long thoracic nerve palsy, Suprascapular nerve palsy, Sciatic nerve palsy, Tibial nerve palsy, Common peroneal nerve palsy, Femoral nerve palsy, Obturator nerve palsy, Pudental nerve palsy. [3 hours]
22. Paediatric neurology: Neural development, Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders - Cerebral palsy, Hydrocephalus, Arnold-chiari malformation, Basilar impression, Klippel-Feil syndrome, Achondroplasia, Cerebral malformations, Autism, Dandy walker syndrome and Down's syndrome. [3 hours]
23. Toxic, metabolic and environmental disorders: Etiology, risk factors, classification, neurological signs & symptoms, investigations, management, of following disorders – Encephalopathy, Alcohol toxicity, Recreational drug abuse, Toxic gases & Asphyxia, Therapeutic & diagnostic agent toxicity, Metal toxicity, Pesticide poisoning, Environmental & physical insults, Plant & Fungal poisoning, Animal poisons, & Complications of organ transplantation. [3 hours]
24. Introduction, Indications and Complications of following Neuro surgeries: Craniotomy, Cranioplasty, Stereotactic surgery, Deep brain stimulation, Burr-hole, Shunting, Laminectomy, Hemilaminectomy, Rhizotomy, Microvascular decompression surgery, Endarterectomy, Embolization, Pituitary surgery, Ablative surgery -

Thalamotomy and Pallidotomy, Coiling of aneurysm, Clipping of aneurysm, and Neural implantation. [2 hours]

Recommended books:

1. Davidson's Principles and Practice of Medicine
2. Textbook of Neurology- Victor Adams
3. Brains Clinical Neurology.
4. Illustrated Neurology & Neurosurgery
5. Brains Diseases of Nervous System

YEAR : IV YEAR
COURSE CODE : 17PT402
TITLE OF THE COURSE : COMMUNITY MEDICINE

This subject follows the basic science subjects to provide the knowledge about conditions the therapist would encounter in their practice in the community. The objective of this course is that after 60 hrs of lectures and discussion the student will be able to demonstrate an understanding of various aspects of health and disease list the methods of health administration, health education and disease preventive measures.

1. Health and Disease: Definitions, Concepts, Dimensions and Indicators of Health, Concept of well-being, Spectrum and Determinants of Health, Concept and natural history of Disease, Concepts of disease control and prevention, Modes of Intervention, Population Medicine, The role of socio-economic and cultural environment in health and disease. [5 hours]
2. Epidemiology, definition and scope. Principles of Epidemiology and Epidemiological methods: Components and Aims, Basic measurements, Methods, Uses of Epidemiology, Infectious disease epidemiology, Dynamics and modes of disease transmission, Host defenses and Immunizing agents, Hazards of Immunization, Disease prevention and control, Disinfection. Screening for Disease: Concept of screening, Aims and Objectives, Uses and types of screening. [7 hours]
3. Epidemiology of communicable disease: Respiratory infections, Intestinal infections, Arthropod- borne infections, Zoonoses, Surface infections, Hospital acquired infections Epidemiology of chronic non-communicable diseases and conditions: Cardio vascular diseases: Coronary heart disease, Hypertension, Stroke, Rheumatic heart disease, Cancer, Diabetes, Obesity, Blindness, Accidents and Injuries. [7 hours]
4. Public health administration- an overview of the health administration set up at Central and state levels. The national health programme-highlighting the role of social, economic and cultural factors in the implementation of the national programmes. Health problems of vulnerable groups- pregnant and lactating women, infants and pre-school children, occupational groups [4 hours]
5. Health programmes in India: Vector borne disease control programme, National leprosy eradication programme, National tuberculosis programme, National AIDS control programme, National programme for control of blindness, Iodine deficiency disorders (IDD) programme, Universal Immunisation programme, Reproductive and child health programme, National cancer control programme, National mental health programme. National diabetes control programme, National family welfare programme, National sanitation and water supply programme, Minimum needs programme [4 hours]

6. Demography and Family Planning: Demographic cycle, Fertility, Family planning-objectives of national family planning programme and family planning methods, A general idea of advantage and disadvantages of the methods. [3 hours]
7. Preventive Medicine in Obstetrics, Paediatrics and Geriatrics: MCH problems, Antenatal, Intranatal and post natal care, Care of children, Child health problems, Rights of child and National policy for children, MCH services and indicators of MCH care, Social welfare programmes for women and children, Preventive medicine and geriatrics. [6 hours]
8. Nutrition and Health: Classification of foods, Nutritional profiles of principal foods, Nutritional problems in public health, Community nutrition programmes [4 hours]
9. Environment and Health: Components of environment, Water and air pollution and public health: Pollution control, Disposal of waste, Medical entomology. [3 hours]
10. Hospital waste management: Sources of hospital waste, Health hazards, Waste management [3 hours]
11. Disaster Management: Natural and man-made disasters, Disaster impact and response, Relief phase, Epidemiologic surveillance and disease control, Nutrition, Rehabilitation, Disaster preparedness [4 hours]
12. Occupational Health: Occupational environment, Occupational hazards, Occupational diseases, Prevention of occupational diseases. Social security and other measures for the protection from occupational hazard accidents and diseases. Details of compensation acts. [4 hours]
13. Mental Health: Characteristics of a mentally healthy person, Types of mental illness, Causes of mental ill health, Prevention, Mental health services, Alcohol and drug dependence. Emphasis on community aspects of mental health. Role of Physiotherapist in mental health problems such as mental retardation. [3 hours]
14. Health Education: Concepts, aims and objectives, Approaches to health education, Models of health education, Contents of health education, Principles of health education, Practice of health education [3 hours]

Recommended books:

1. Textbook of Preventive & Social Medicine, Dr. J E Park

YEAR : IV YEAR
COURSE CODE : 17PT403
TITLE OF THE COURSE : NEURO-PHYSIOTHERAPY

Course Objectives:

At the end of the course, the candidate will –

1) The objective of the course is that after the specified hours of lectures and demonstrations the student will be able to identify disabilities due to neurological dysfunction, plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore neurological function.

2) Acquire the knowledge of normal neurodevelopment, with specific reference to locomotion, be able to assess, identify & analyze neuro-motor & psychosomatic dysfunction in terms of alteration in the muscle tone, power, coordination, involuntary movements sensations/perception etc, E.M.G. / N.C. Studies & arrive at functional diagnosis with clinical reasoning.

3) Acquire the skill of application of P.N.F. technique on patients., Be able to plan, prescribe & execute short term & long term treatment, with special reference to relief of Neuropathic & psycho-somatic pain, mat exercises, functional re-education, gait training, postural & functional training for A.D.L., ergonomic advise, & parents education in neuro- pediatric care, Be able to prescribe appropriate Orthosis / splints & will be able to fabricate temporary protective & functional splints.

1. Neurological Assessment: Required materials for examination, Chief complaints, History taking – Present, Past, medical, familial, personal histories, Observation, Palpation, Higher mental function – Consciousness, Orientation, Wakefulness, memory, Speech, Reading, Language, Writing, Calculations, Perception, Left right confusion, Reasoning, and Judgment, Motor Examination – Muscle power, Muscle tone, Spasticity, Flaccidity, Reflexes –Developmental reflexes, deep tendon reflexes, Superficial reflexes, Sensory examination –Superficial, Deep and Cortical sensations, Special tests – Romberg's, Kernig's sign, Brudzki sign, Tinels's sign, Slum test, Lehermitte's sign, Bells Phenomenon, Gower's sign, Sun set sign, Battle's sign, Glabellar tap sign, etc, Balance examination, coordination examination, Gait analysis – Kinetics & Kinematics (Quantitative & Qualitative analysis), Functional Analysis, Assessment tools & Scales – Modified Ashworth scale, Berg balance scale, FIM, Barthel index, Glasgow coma scale, Mini mental state examination, Rancho Los Amigos Scale for Head injury, APGAR score, ASIA scale, Reflex Grading. Differential diagnosis. [10 hours]
2. Neuro physiological Techniques – Concepts, Principles, Techniques, Effects of following Neurophysiological techniques: NDT, PNF, Vojta therapy, Rood's Sensory motor Approach, Sensory Integration Approach, Brunnstorm movement therapy,

Motor relearning program, Contemporary task oriented approach, Muscle re-education approach and Constraint induced Movement therapy. [14 hours]

3. Paediatric Neurology: Paediatric Examination, Developmental milestones, developmental reflexes, Neuro developmental screening tests. Evaluation & Management - History, Observation, Palpation, Milestone Examination, developmental reflex Examination, Higher mental function, Cranial nerve examination, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, short & Long Term goals, Management of systemic complications, Management of Mechanical Complications, Use of various Neurophysiological approaches & Modalities in Risk babies, Minimum brain damage, Developmental disorders, Cerebral palsy, Autism, Down's syndrome, Hydrocephalus, Chorea, Spina bifida and syringomyelia. [14 hours]
4. Evaluation and Management of Brain and Spinal Cord Disorders : History, Observation, Palpation, Higher mental function, Cranial nerve examination, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, short & Long Term goals, Management of systemic complications, Management of Mechanical Complications, Use of Various Neurophysiological approaches & Modalities in Cerebro vascular Accident, Meningitis, Encephalitis, Head Injury, Brain Tumors, Perceptual disorders, Amyotrophic Lateral sclerosis, and Multiple sclerosis. [10 hours]
5. Evaluation and Management of Cerebellar, Spinal Cord and Muscle Disorders: History, Observation, Palpation, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, short & Long Term goals, Management of systemic complications, Management of Mechanical Complications, Use of various Neurophysiological approaches & Modalities in Ataxia, Sensory Ataxia, Parkinson's disease, Muscular dystrophy (DMD), Myasthenia Gravis, Eaton-Lambert Syndrome, Spinal tumors, Spinal cord injury, Transverse Myelitis, Bladder & Bowel Dysfunction, Spinal muscular atrophies, Poliomyelitis, Post Polio Syndrome [10 hours]
6. Evaluation and Management of Peripheral Nerve Injuries and Disorders : History, Observation, Palpation, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, short & Long Term goals, Management of systemic complications, Management of Mechanical Complications, Use of various Neurophysiological approaches & Modalities in Hereditary motor sensory neuropathy, Guillain-Barre syndrome, Brachial plexus palsy, Thoracic outlet syndrome, Lumbosacral plexus lesions, Phrenic & intercostals nerve lesions, Median nerve palsy, Ulnar nerve palsy, Radial nerve palsy, Musculocutaneous nerve palsy, Anterior & Posterior interosseous nerve palsy, Axillary nerve palsy, Long thoracic

nerve palsy, Suprascapular nerve palsy, sciatic nerve palsy, Tibial nerve palsy, Common peroneal nerve palsy, Femoral nerve palsy, Obturator nerve palsy, and Pudental nerve palsy. [10 hours]

7. Assessment and management of Neurological gaits: Quantitative and Qualitative (Kinetic & Kinematics) analysis, List of Problems, short & Long Term goals, Management of following Neurological Gaits - Hemiplegic gait, Parkinson gait, High step gait, Hyperkinetic gait, Hypokinetic gait, Waddling gait, Scissoring gait, Spastic gait, Choreaform Gait, Diplegic Gait, and Myopathic Gait [10 hours]
8. Pre and Post surgical assessment and treatment following conditions - Spinal disc herniation, Spinal stenosis, Spinal cord trauma, Head trauma, Brain tumors, Tumors of the spine, Spinal cord and peripheral nerves, Cerebral aneurysms, Subarachnoid hemorrhages, epilepsy, Parkinson's disease, Chorea, Hemiballism, Psychiatric disorders, Malformations of the nervous system, Carotid artery stenosis, Arteriovenous malformations, and Spina bifida [9 hours]
9. Electro physiological testing and applications to physiotherapy
10. Applied Yoga in Neurological condition

Recommended books:

- 1) Cash's Text book for physio Therapist in Neurological disorders-Jaypee bros.
- 2) Proprioceptive Neuro muscular Facilitation – by Herman Kabat
- 3) Practical Physical Therapy – Margaret Hollis
- 4) Therapeutic exercise – by O'Sullivan
- 5) "Right in the middle" – by Patricia Davis
- 6) Stroke rehabilitation – by Margaret Johnson
- 7) Neurological Rehabilitation by DUmphred
- 8) Physical Rehabilitation Assessment and Treatment – O'Sullivan Schmitz
- 9) Elements of Pediatric Physiotherapy-Eckersley

YEAR : IV YEAR
COURSE CODE : 17PT404
TITLE OF THE COURSE : COMMUNITY BASED REHABILITATION

Course objective:

The candidate will:

1. Should be able to describe:

The general concepts about health, disease and physical fitness.

Physiology of aging process and its influence on physical fitness.

National policies for the rehabilitation of disabled – role of PT.

The strategies to access prevalence and incidence of various conditions responsible for increasing morbidity in the specific community – role of PT in improving morbidity, expected clinical and functional recovery, reasons for non-compliance in specific community environment solution for the same.

The evaluation of disability and planning for prevention and rehabilitation.

Community Based Rehabilitation in urban and rural set up.

2. Be able to identify with clinical reasoning the prevailing contextual (e.g. environmental and psycho-social cultural factors, causing high risk responsible for various dysfunctions and morbidity related to sedentary life style and specific community like women, children, aged as well as industrial workers and describe planning strategies of interventional policies to combat such problems.

3. Be able to conduct as small project {cross sectional study /survey} to access to the prevalence of specific physical health problem and /or morbidity in specific community – which may be based at the institutional level or in field.

1. Rehabilitation: Definition, types [1 hour]

2. Community: [5 hours]

- Definition of community
- Multiplicity of communities
- The community based approach
- Community entry strategies
- CBR and community Development
- Community initiated versus community oriented programme
- Community participation and mobilization

3. Introduction to Community Based Rehabilitation: [6 hours]

- Definition
- Historical review
- Concept of CBR

- Need for CBR
 - Difference between Institution based and Community based Rehabilitation
 - Objectives of CBR
 - Scope of CBR
 - Members of the CBR team
 - Models of CBR
4. Principles of Community based Rehabilitation: [10 hours]
- W.H.O.'s policies – about rural health care, concept of primary/tertiary health centers – district hospitals etc.
 - Role of P.T. – Principles of a team work of Medical person/P.T./O.T. audiologist/speech therapist/P. & O./ Vocational guide in C.B.R. of physically challenge person
 - Agencies involved in rehabilitation of physical handicapped – Legislation for physically handicapped
 - Concept of multipurpose health worker
 - Role of family members in the rehabilitation of a physically handicapped
5. Planning and management of CBR Programmes: [6 hours]
- CBR Programmed planning and management
 - Ownership and Governance
 - Decentralization and CBR
 - Management of CBR
 - Programmed sustainability
 - Communication and Coordination
 - Community participation
 - Mobilization and awareness
 - CBR programme influence on promoting and developing public policies
6. Disability: [6 hours]
- Definition of Impairment, Handicap and Disability
 - Difference between impairment, handicap and disability
 - Causes of disability
 - Types of disability
 - Prevention of disability
 - Disability in developed countries
 - Disability in developing countries
 - Disability Surveys: Demography
 - Screening : Early detection of disabilities and developmental disorders
 - Prevention of disabilities – types and levels
7. Disability Evaluation: [5 hours]
- Introduction
 - What, Why and How to evaluate
 - Quantitative versus Qualitative data

- Uses of evaluation findings
8. Role of Government in CBR: [5 hours]
 - Laws
 - Policies
 - Programmes
 - Human Rights Policy
 - Present rehabilitation services
 - Legal aspects of rehabilitation
 9. Role of Social work in CBR: [4 hours]
 - Definition of social work
 - Methods of social work
 - History of social work
 - Role of social worker in rehabilitation
 10. Role of Voluntary Organizations in CBR: [4 hours]
 - Charitable Organizations
 - Voluntary health agencies – National level and International NGO's, Multilateral and Bilateral agencies
 - International Health Organizations: WHO, UNICEF, UNDP, UNFPA, FAO, ILO, World Bank, USAID, SIDA, DANIDA, Rockefeller, Ford foundation, CARE, RED CROSS
 11. National district level Rehabilitation: [5 hours]
 - Primary Rehabilitation Unit
 - Regional training center
 - District rehabilitation center
 - Primary health center
 - Village rehabilitation worker
 - Anganwadi worker
 12. Role of Physiotherapy in CBR: [5 hours]
 - Screening for disabilities
 - Prescribing exercise programme
 - Prescribing and devising low cost locally available assistive aids
 - Modifications physical and architectural barriers for disabled
 - Disability prevention
 - Strategies to improve ADL
 - Rehabilitation programmes for various neuromusculoskeletal and cardiothoracic disabilities
 13. Screening and rehabilitation of pediatrics disorders in the community: [5 hours]
 - Early detection of high risk babies
 - Maternal nutrition and education
 - Rehabilitation of Cerebral Palsy, Polio, Downs Syndrome, Muscular Dystrophies etc

- Prevention and rehabilitation of mental retardation and Behavioral disorders
 - Immunization programmes
 - Early intervention in high risk babies
 - Genetic counselling
14. Extension services and mobile units: [2 hours]
- Introduction
 - Need
 - Camp approach
15. Vocational training in rehabilitation: [2 hours]
- Introduction
 - Need
 - Vocational evaluation
 - Vocational rehabilitation services
16. Geriatrics: [9 hours]
- Physiology of aging/degenerative changes – Musculoskeletal/Neuromotor/Cardio – respiratory/Metabolic, Endocrine, Cognitive, Immune Systems
 - Role of Physio therapy in Hospital Based Care, Half-way homes, Residential homes, Meals on wheelsetc.
 - Home for the aged, Institution based Geriatric Rehabilitation
 - Few conditions: Alzheimer’s disease, Dementia, Parkinson’s disease, Incontinence, Iatogenic drug reactions, etc.
 - Ethics of Geriatric Rehabilitation
17. Industrial Health & Ergonomics: [10 hours]
- Occupational Hazards in the industrial area – Accidents due to
 - 1) Physical agents: Ex. Heat/cold, light, noise, vibration, U.V. radiation, Ionizing radiation
 - 2) Chemical agents: Inhalation, local action, ingestion
 - 3) Mechanical hazards: overuse/fatigue injuries due to ergonomic alteration and ergonomic evaluation of work place – mechanical stresses per hierarchy –
 - i Sedentary table work – executives, clerk
 - ii Inappropriate seating arrangement – vehicle drivers
 - iii Constant standing – watchman, defense forces, surgeons
 - iv Over – exertion in laborers, common accidents
 - Role of P.T. in Stress management
 - 4) Psychological hazards: Ex. Executives, monotonicity & dissatisfaction in job, anxiety of work completion with quality, Role of P.T. in Industrial setup & Stress management – relaxation modes.
 - 5) Biological hazards

18. Lifestyle disorders:

- Physiotherapy role in planning
- Execution of lifestyle diseases like hypertension, obesity and diabetes mellitus
- Role in developing awareness programs

Practical: 60 Hours

This will consist of Field visits to urban and rural PHC's., Visits to regional rehabilitation training center, Regular mobile camps, Disability surveys in villages, Disability screening, Demonstration of Evaluation and Physiotherapy prescription techniques for musculoskeletal, neuromuscular, cardiorespiratory, pediatric, gynecological and geriatric problems in community, Demonstration of evaluation and prescription techniques for ambulatory and assistive devices, Fabrication of low cost assistive devices with locally available materials.

Recommended books:

1. Rehabilitation Medicine by Howard A Rusk.
2. Rehabilitation Medicine by Joel A Delisa

YEAR : IV YEAR
COURSE CODE : 17PT405
TITLE OF THE COURSE : RESEARCH METHODOLOGY AND BIostatISTICS

Research Methodology:[30 hours]

Course Objective:

The student will gain knowledge on the basic research methodology and various designs and sampling methods used in research methodology.

Course Outcome:

At the end of the course the candidate will be able to describe about the designs, sampling methods and interpretation of data in professional practice.

1. Introduction to Research Methodology: [4 hours]
 - Meaning of research
 - Objectives of research
 - Motivation in research
 - Types of research and research approaches
 - Research methods vs Methodology
 - Criteria for good research
 - Problems encountered by researchers in India.
2. Research problem: [2 hours]
 - Statement of research problem
 - Statement of purpose and objectives of research problem
 - Necessity of defining the problem.
3. Research design: [4 hours]
 - Meaning of research design
 - Need for research design
 - Features for good design
 - Different research designs
 - Basic principles of research design
4. Sampling design: [4 hours]
 - Criteria for selecting sampling procedure
 - Implications for sample design
 - Steps in sampling design
 - Characteristics of good sample design
 - Different types of sample design
5. Measurement and scaling techniques: [4 hours]

- Measurement in research – measurement scales
 - Sources of error in measurement
 - Technique of developing measurement tools
 - Meaning of scaling, its classification
 - Important scaling techniques
6. Methods of data collection: [4 hours]
- Collection of primary data
 - Collection of data through questionnaires and schedules
 - Difference between questionnaires and schedules
7. Sampling fundamentals: [2 hours]
- Need for sampling and some fundamental definitions
 - Important sampling distributions
8. Processing and analysis of data: [2 hours]
- Processing operations
 - Problems in processing
 - Types of analysis
 - Statistics in research
 - Measures of central tendency
 - Dispersion
 - Asymmetry
 -
9. Testing of Hypothesis: [3 hours]
- What is hypothesis?
 - Basic concepts concerning testing of hypothesis
 - Procedure of hypothesis testing
 - Measuring the power of hypothesis testing
 - Tests of hypothesis
 - Limitations of the tests of hypothesis
10. Computer technology: [1 hour]
- Introduction to computers
 - Computer application in research
 - Computers and researchers

Recommended Textbooks:

1. Research Principles and Methods: L Denise F. Poli & Hungler
2. Fundamentals of Research, 4th Edn.: David J. fox

Biostatistics:[30 hours]

Course Objective:

The student will gain knowledge on the basic concepts of biostatistics. Statistical concepts, methods of statistical analysis and interpretation of data.

Course Outcome:

At the end of the course the candidate will be able to describe the use of statistics and its need in professional practice and research.

1. Introduction: [6 hours]
 - Meaning, definition, characteristics of statistics
 - Importance of the study of statistics
 - Branches of statistics
 - Statistics and health science including physiotherapy
 - Parameters and Estimates
 - Descriptive and inferential statistics
 - Variables and their types
 - Measurement scales
2. Tabulation of data: [4 hours]
 - Basic principles of graphical representation
 - Types of diagrams – histograms, frequency polygons, smooth frequency polygon, cumulative frequency curve
 - Normal probability curve
3. Measure of Central Tendency: [4 hours]
 - Need for measures of central tendency
 - Definition and calculation of mean – ungrouped and grouped
 - Meaning, Interpretation and calculation of median ungrouped and grouped
 - Meaning and calculation of mode
 - Comparison of mean, median and mode
 - Guidelines for the use of various measures of central tendency
4. Probability and Standard Distributions: [4 hours]
 - Meaning of probability of standard distribution
 - The binominal distribution
 - The normal distribution
 - Divergence from normality – skewness, kurtosis
5. Sampling techniques: [3 hours]
 - Need for sampling – Criteria for good samples

- Application of sampling in community
 - Procedures of sampling and sampling designs errors
 - Sampling variation and tests of significance
6. Statistical significance: [5 hours]
- Parametric tests: t – test
 - Non parametric tests: chi square test, Mannwhitney U test, Z test, Wilcoxon's matched pair test
 - Correlations
7. Analysis of variance and covariance: [4 hours]
- Analysis of variance (ANOVA)
 - What is ANOVA?
 - Basic/principle of ANOVA
 - ANOVA technique
 - Analysis of Co variance (ANACOVA)

Recommended Textbooks:

- 1) Methods in Biostatistics – B. K. Mahajan
- 2) Manual of Biostatistics – Kulkarni, Bairde, Muzumdar
- 3) Elements of Health Statistics: Rao. N. S. N
- 4) An introduction of Biostatistics: Sunder Rao. P. S. S
- 5) Methods in Bio-Statistics 6th Edition, 1997: B. K. Mahajan
- 6) Biostatistics: a manual of Statistics Methods: K. Visweswara Rao
- 7) Elementary Statistics 1stEdn, 1990 in Medical Workers: Inderbir Singh
- 8) An Introduction to Gupta C. B. Statistical Methods, 1972: Ram Prasad & Sons
- 9) Basic Statistics, 3rdEdn: Simpsory G. Kaftha. P