CHARUTAR VIDYA MANDAL UNIVERSITY

FACULTY OF PHYSIOTHERAPY

RITA A. PATEL INSTITUTE OF PHYSIOTHERAPY

BPT - Semester VI

Course Code: BPT-134

Course Title: Medicine-2

Course Credit Hours:

Hrs. / Wk			Credits			Marks		Total Marks
L	P	T	L	P	T	Theory	Practical	
4	-	-	4	-	-	100	-	100

Course Outline: This course provides students with an understanding of neurophysiological principles and their clinical relevance in neurological, pediatric, and psychiatric conditions. It enables students to integrate theoretical knowledge with clinical application, thereby establishing a strong foundation for physiotherapy assessment and the formulation of appropriate evidence-based rehabilitation strategies.

Sr No	Title of the Unit	Minimum number of Hours
1.	Introduction	8
2.	Neurology Conditions	16
3.	Tumors, Movement, and Demyelination Disorder	10
4.	Neuromuscular Junction & Muscle Disorders	8
5.	Neuropathies and Head injury	12
6.	Neuro-infections and Environmental Disorders	6
7.	Pediatric medicine	10
8.	Psychiatric Disorders & Child Psychiatry	6

Total hours (Theory):76Hrs.

Total hours (Practical): 00 Hrs.

Total hours: 76Hrs.

Unit Sr No	Course Content	Hours of Teaching
1	**Introduction**	**8 Hours**
1.1	Basic Neurophysiology: Motor (Pyramidal, extra pyramidal system, spinal cord, upper and lower motor neurons, cranial nerves, Brachial plexuses, Lumbosacral plexus.	
1.2	The neurophysiologic basis of tone and Disorders of tone and Posture, Bladder control	
1.3	Neurophysiology of Movement and Pain, Management of Pain	
1.4	Trauma - Broad localization, first aid	
2	**Neurology Conditions**	**16 Hours**
2.1	Deafness, vertigo, and imbalance: • Physiology • Tests of vestibular function • Vertigo • Peripheral vestibular disorders • Central vestibular vertigo	
2.2	Cerebro-vascular diseases: • Stroke, TIA, stroke in evolution, multi-infarct Dementia and Lacunar infarct. • Classification of stroke – Ischemic, hemorrhagic, venous Infarcts.	

	• Risk factors, causes, investigations, differential diagnosis, medical and surgical management.	
2.3	Spinal cord disorders: Functions of tracts, definition, etiology, risk factors, pathophysiology, classification, clinical signs & symptoms, investigations,differential diagnosis, medical management, surgical management and complications. 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 Sarcoidosis	
2.4	Motor neuron diseases: - Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, and complications of - Amyotrophic lateral sclerosis, Spinal muscular Atrophy	
3	**Tumors, Movement, and Demyelination Disorder**	**10 Hours**
3.1	Brain tumours and spinal tumours: Classification, clinical features, investigations, medical management.	
3.2	Movement disorders: Definition, etiology, risk factors, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, Surgical management and complications of – Parkinson's disease. Dystonia, Chorea, Ballism, Athetosis, Tics, Myoclonus and Wilson's disease.	
3.3	Multiple sclerosis - Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, and complications	
3.4	Cerebellar and coordination disorders: Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, management of Congenital ataxia, Friedreich's ataxia, cerebellar Ataxia, Tabes dorsalis and Syphilis.	
4	**Neuromuscular Junction & Muscle Disorders**	**8 Hours**
4.1	Disorders of neuromuscular junction – Etiology, classification, signs & symptoms, Investigations, management of: Myasthenia gravis, Eaton-Lambert Syndrome, and Botulism.	
4.2	Muscle diseases: Classification, investigations, imaging methods, Muscle biopsy, Management of muscle diseases, genetic Counseling. Classification, etiology, signs &symptoms of– Muscular dystrophy, Myotonic dystrophy, myopathy, non-dystrophic myotonia.	
4.3	Chromosomal Disorders: Muscular Dystrophies, Down Syndrome, Spinal Muscular Atrophy (SMA), Cystic Fibrosis, Connective Tissue Disorders etc.	
5	**Neuropathies and Head injury**	**12 Hours**

5.1	Polyneuropathy – Classification of Polyneuropathies, Hereditary motor sensory neuropathy, hereditary sensory and Autonomic neuropathies, Amyloid neuropathy, Acute idiopathic Polyneuropathies. Guillain-Barre syndrome – Causes, clinical features, diagnosis, Management. Chronic Idiopathic Polyneuropathies.	
5.2	Peripheral nerve injury: Clinical diagnosis, neurotmesis, Axonotmesis, Neuropraxia. Etiology, risk factors, classification, signs &symptoms, investigations, management of– RSD Nerve tumors Brachial plexus palsy Thoracic outlet syndrome Lumbosacral plexus lesions Phrenic & Intercostal nerve lesions Nerve palsy - 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, Pudendal nerve palsy.	
	Head injury: - Etiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical and surgical management, complications.	
6	**Neuro-infections and Environmental Disorders**	**6 Hours**
6.1	Meningitis, Encephalitis, Poliomyelitis, Transverse myelitis, Neurosyphilis, Slow Viral Diseases	
6.2	Toxic, metabolic and environmental disorders: Etiology, risk factors, classification, neurological signs & symptoms, investigations, management, of – Encephalopathy, Alcohol toxicity, Recreational drug abuse, Toxic gases & Asphyxia, Therapeutic & diagnostic agent toxicity, Metal toxicity, Pesticide poisoning, Environmental & physical insults, Pant & Fungal poisoning, Animal poisons.	
7	**Pediatric medicine**	**10 Hours**
7.1	Growth and Development of a child up to 12 years, including physical, social, adaptive development.	
7.2	Maternal and neonatal factors contributing to high-risk pregnancy, the neonate, inherited diseases, maternal infections – viral and bacterial, maternal diseases incidental to pregnancy induced hypertension, chronic maternal Diseases such as heart diseases, renal failure, TB, Diabetes, epilepsy, bleeding in the mother at any trimester and Prevention, management of high-risk pregnancy, prevention of neonatal and postnatal infections, Metabolic problems.	
7.3	Describe common congenital abnormalities with reference to their etiology and management. Discuss the causes, types, complications, clinical manifestations, and medical	

	management of conditions such as *Cerebral Palsy*, spinal malformations, *Autism Spectrum Disorder*, and *Hydrocephalus*.	
7.4	Acute CNS Infections: classification (bacterial and viral), the acute illness, CNS sequalae leading to Mental retardation blindness, hearing and speech impairment, motor paralysis, bladder and bowel problems, seizures and Specific problems like subdural effusion, hydrocephalus, pressure sores, and feeding difficulties.	
7.5	Normal diet of new born and child: calorie, fat, protein, mineral and vitamin requirement, malnutrition, Vitamin-D deficiency- Rickets and resistant Rickets.	
7.6	Lung Infections: clinical findings, complications and medical treatment of Bronchiectasis, Lung Abscess and Bronchial Asthma.	
8	**Psychiatric Disorders & Child Psychiatry**	**6 Hours**
8.1	Classifications, Causes, Clinical manifestations and treatment Methods used in Psychiatry.	
8.2	Modalities of psychiatric treatment Psychiatric illness and physiotherapy Etio-pathogenesis, manifestations, and management of psychiatric illnesses – Anxiety neurosis Depression Obsessive compulsive neurosis Psychosis Maniac-depressive psychosis post-traumatic stress disorder	
8.3	Psychosomatic Reactions: Stress and Health, theories of Stress – Illness.	
8.4	Drug dependence and alcoholism, Somatoform and Dissociate Disorders – conversion, reactions, Somatization, Dissociate Amnesia, and Dissociate Fugue, Personality disorders Manifestations and management of childhood disorders -Intellectual Disability attention deficit syndrome and behavioral disorders. Acquired Torticollis**,** Scoliosis**,** Kyphosis**,** Lordosis**,** Genu varum**,** Genu valgum**,** Genu recurvatum**,** Coxa vara**,** Pes cavus**,** Hallux rigidus**,** Hallux valgus**,** Hammer toe**,** Metatarsalgia	

Course Outcomes (COs):

At the end of the course, the students will be able to

CO1	Explain the fundamentals of neurophysiology related to motor control, muscle tone, posture, movement, bladder regulation, and pain perception.
CO2	Describe the etiology, classification, pathophysiology, clinical features, diagnosis, and management of spinal cord, vestibular, cerebrovascular, and motor neuron disorders.
CO3	Explain the classification, pathophysiology, clinical features, and management of brain and spinal tumors, movement disorders, demyelinating diseases, and cerebellar disorders.
CO4	Describe the etiology, classification, clinical features, investigations, and management of neuromuscular junction disorders, muscle diseases, muscular dystrophies, chromosomal disorders, and polyneuropathies.
CO5	Explain the clinical features, diagnostic investigations, complications, and management of head injuries, neuroinfections, and neurological disorders associated with toxic, metabolic, and environmental factors.
CO6	Describe child growth and development, maternal and neonatal risk factors, congenital abnormalities, nutritional deficiencies, pediatric neurological and respiratory disorders, and psychiatric conditions.

Recommended Text Books:

1. Davidson's principles and practice of Medicine
2. Neurological Examination of clinical practice – Bickerstaff
3. Short Text book of Psychiatry – Ahuja Niraj – Jaypee Brothers
4. Essential Pediatrics – O.P. Ghai, Mehta publications

Recommended Reference Books:

1. Brain's Diseases of the Nervous System - Nalton – ELBS
2. Harrison's Principles of Internal Medicine
3. API Textbook of Medicine

CO-PO-PSO Matrix:-

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3	PS O4	PS O5
CO1	3	2	1	1	1	2	1	1	1	1	1	2	3	2	1		1
CO2	3	3	2	1	1	3	2	1	1	1	1	1	3	2	2	1	2
CO3	3	3	2	1	1	2	2	1	1	1	1	2	3	2	2	1	2
CO4	3	3	2	1	1	2	2	1	1	1	1	1	3	2	2	1	2
CO5	3	3	2	1	1	3	2	1	1	1	1	1	3	2	2	1	2
CO6	3	3	2	1	1	3	2	1	1	1	1	1	3	2	2	1	2

CHARUTAR VIDYA MANDAL UNIVERSITY

FACULTY OF PHYSIOTHERAPY

RITA A. PATEL INSTITUTE OF PHYSIOTHERAPY

BPT - Semester VI

Course Code: BPT – 135

Course Title: Surgery-2

Course Credit Hours:

Hrs. / Wk			Credits			Marks		Total Marks
L	P	T	L	P	T	Theory	Practical	
4	-	-	4	-	-	100	-	100

Course Outline: This course is designed to provide students with fundamental knowledge of the anatomy, pathophysiology, clinical features, diagnostic investigations, and basic principles of management of common thoracic, cardiac, circulatory, and neurosurgical conditions. The course also introduces the principles, indications, contraindications, and procedures of commonly performed surgical interventions in these systems, enabling students to develop an understanding of the clinical aspects and surgical management of these disorders.

Sr No	Title of the Unit	Minimum number of Hours
1.	Thoracic Surgeries	22
2.	Cardiac Surgeries	18
3.	Circulatory Surgeries	14
4.	Neurosurgery	22

Total hours (Theory): 76 Hrs.

Total hours (Practical): 00 Hrs.

Total hours: 76 Hrs.

Unit Sr No	Course Content	Hours of Teaching
1	**Thoracic Surgeries**	**22 Hours**
1.1	Basic anatomy Chest wall, trachea and bronchial tree, lungs, broncho-pulmonary segments, Pleura and mediastinum	
1.2	Chest injury & Common disease of lungs Bronchiectasis, lung abscess, Bronchogenic carcinoma, pulmonary tuberculosis etc.	
1.3	Common Investigation of lung disease • Pulmonary function tests • Endoscopies • Other radiological investigations	
1.4	Common disease of oesoaphagus and related conditions causing dysphagia	
1.5	Basic principles, Pre-operative assessment, indications and contra-indications for common thoracic surgeries: • Thoracoplasty • pulmonary resection surgery • thoracotomy • lobectomy • pneumonectomy • decortication • Surgery for Pneumothorax, hydrothorax, heamothorax, hydro-pneumothorax, empyema. • pulmonary tuberculosis surgery • lung transplant • pleurectomy	
2	**Cardiac Surgeries**	**18 Hours**
2.1	Basic anatomy of heart, great vessels	
2.2	Investigations of patient undergoing cardiac surgery	
2.3	Common drugs used in cardiac surgery, its uses, side effects	
2.4	Basic principles, Pre-operative assessment, indications and contra-indications for Common cardiac surgeries : • Open-heart surgery • Heart-lung bypass (extracorporeal circulation) • Congenital heart disease surgeries • Coronary artery bypass grafting (CABG) • Aneurysm surgery	

	• Cardiac tamponade management • Heart transplant • Cardiac shunts	
3	**Circulatory Surgeries**	**14 Hours**
3.1	Basic anatomy of peripheral circulatory system	
3.2	Basic principles, Pre-operative assessment, indications and contra-indications for Common Circulatory Surgeries: • Embolectomy • Vascular reconstruction • Aneurysm surgery • Amputation • Gangrene surgery • Deep vein thrombosis (DVT) • Pulmonary embolism • Kidney transplant and portal hypertension management	
4	**Neurosurgery**	**22 Hours**
4.1	Neurophysiology, basis of tone, disorders of tone and posture, bladder control, muscle contraction, movement and pain with clinical features and management of the following: - • Congenital and childhood disorders - hydrocephalus spina bifida • Trauma - Broad localization, first aid and management of squeal of head injury and spinal cord injury. • Diseases of the Spinal Cord - Craniovertebral junction anomalies, syringomyelia, cervical and lumbar disc disease, tumors. • Peripheral nerve disorders – Peripheral nerve injuries, localization & management. Entrapment neuropathies. • Intracranial tumors – Broad classification, signs and symptoms.	
4.2	Basic principles, Pre-operative assessment, indications and contra-indications for Common neurosurgery: • Craniotomy • Cranioplasty • Stereotactic surgery • Deep brain stimulation, Burr-hole, Shunting, stereotactic surgery • Laminectomy, Hemi-laminectomy, Rhizotomy, Microvascular decompression surgery, • Endarterectomy, Embolization, Pituitary surgery • Ablative surgery – Thalamotomy and Pallidotomy, coiling/ Clipping of	

	aneurysm • Neural implantation
4.3	Management of pain, electrical stimulation of brain and spinal cord

Course Outcomes (COs):

At the end of the course, the students will be able to:

CO1	Describe the surgical anatomy and physiological basis of thoracic, cardiac, vascular, and neurological disorders.
CO2	Identify clinical features and interpret diagnostic investigations (Radiological, PFT, and Neuro-investigations) for surgical pathologies.
CO3	Explain the indications, contra-indications, and basic principles of major surgeries including transplants, bypasses, and resections.
CO4	Formulate comprehensive pre-operative assessment and post-operative management plans for patients undergoing complex thoracic and cardiac procedures.
CO5	Analyze the management of trauma, congenital anomalies, and tumors of the central nervous system and spinal cord.
CO6	Evaluate the efficacy of pharmacological agents and electrical stimulation techniques in managing surgical pain and tone disorders.

Recommended Text Books:

1. S. Das: A concise textbook of surgery, Dr. S. Das, Calcutta.
2. Russell RCG, Williams NS, Bulstrode CJK: Bailey & Love's short practice of surgery.
3. Chest disease - Corofion and Douglos
4. Textbook of heart, chest, vascular disease for physiotherapy - Patricia A Downie

Recommended Reference Books:

1. Under graduate surgery – Nan
2. General surgical operations - Kirk and Williamson

CO-PO-PSO Matrix:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PS04	PSO5
CO1	3	2	1	1	1	1	1	1	1	1	1	1	3	2	1	1	1
CO2	2	3	1	1	1	3	1	1	1	1	1	1	3	2	1	1	1
CO3	2	3	1	1	1	2	1	1	1	1	1	1	3	2	1	1	1
CO4	3	3	2	2	2	2	1	1	2	1	1	1	3	3	3	2	1
CO5	2	3	1	1	1	1	1	1	1	1	1	1	3	2	2	1	1
CO6	2	2	1	1	1	2	2	1	1	1	1	1	3	3	2	1	2

CHARUTAR VIDYA MANDAL UNIVERSITY

FACULTY OF PHYSIOTHERAPY

RITA A. PATEL INSTITUTE OF PHYSIOTHERAPY

BPT - Semester VI

Course Code: BPT-136

Course Title: Traumatic Orthopedics

Course Credit Hours:

Hrs. / Wk			Credits			Marks		Total Marks
L	P	T	L	P	T	Theory	Practical	
4	-	-	4	-	-	100	-	100

Course Outline: This course builds upon the foundational basic science subjects and provides essential clinical and surgical knowledge related to orthopedic injuries, deformities, and musculoskeletal conditions commonly encountered in physiotherapy practice. The course aims to enable students to develop a comprehensive understanding of orthopedic conditions causing disability, including their etiology, clinical features, methods of investigation, and management strategies. It equips physiotherapy students with the ability to plan appropriate rehabilitation programs and contribute to optimal orthopedic recovery.

Sr No	Title of the Unit	Minimum number of Hours
1.	Introduction to Traumatology	8
2.	Fractures and Dislocations of Upper Limb	18
3.	Fracture of Spine	12
4.	Fractures and Dislocations of Lower Limb	18
5.	Soft Tissue Injuries	8
6.	Hand Injuries and Amputation	6
7.	Traumatic Spinal Cord Injuries	4
8.	Orthopedic Surgeries	4

Total hours (Theory): 76 Hrs.

Total hours (Practical): 00 Hrs.

Total hours: 76 Hrs.

Unit Sr No	Course Content	Hours of Teaching
1	**Introduction to Traumatology**	**8 Hours**
1.1	Fracture: definition, types, signs and symptoms	
1.2	Fracture healing, Complications of fractures	
1.3	Conservative and surgical approaches, Principles of management – reduction (open/closed, immobilization etc.)	
1.4	Subluxation/ dislocations – definition, signs and symptoms, management (conservative and operative)	
2	**Fractures and Dislocations of Upper Limb**	**18 Hours**
2.1	Fractures of Upper Limb - causes, clinical features, mechanism of injury, complications, conservative and surgical management of the following fractures: Fractures of clavicle and scapula, Fractures of greater tuberosity and neck of humerus, Fracture shaft of humerus, Supracondylar fracture of humerus, Fractures of capitulum, radial head, olecranon, coronoid, and epicondyles, Side swipe injury of elbow, Both bone fractures of ulna and radius, Fracture of forearm – monteggia, Galeazzi fracture – dislocation, Chauffer's fracture, Colle's fracture, Smith's fracture, Scaphoid fracture, Fracture of the metacarpals, Bennett's fracture, Fracture of the phalanges (Proximal and middle)	
2.2	Dislocations of Upper Limb Anterior dislocation of shoulder – mechanism of injury, clinical feature, complications, conservative management (Kocher's and Hippocrates maneuver), surgical management (putti plat, Bankart's) etc., Recurrent dislocation of shoulder, Posterior dislocation of shoulder – mechanism of injury, clinical features and management, Posterior dislocation of elbow – mechanism of injury, clinical feature, complications & management	
3	**Fracture of Spine**	**12 Hours**
3.1	Fracture of Cervical Spine - Mechanism of injury, clinical feature, complications (quadriplegia); Management- immobilization (collar, cast, brace, traction); Management for stabilization, management of complication (bladder and bowel, quadriplegia) i. Clay shoveller's fracture	

	ii. Hangman's fracture iii. Fracture odontoid iv. Fracture of atlas	
3.2	Fracture of Thoracic and Lumbar Regions - Mechanism of injury, clinical features, and management— conservative and surgical of common fractures around thoracic and lumbar regions	
3.3	Fracture of coccyx	
3.4	Fracture of Rib Cage - Mechanism of injury, clinical features, management for Fracture Ribs, Fracture of sternum	
4	**Fractures and Dislocations of Lower Limb**	**18 Hours**
4.1	Fracture of Pelvis and Lower Limb - causes, clinical features, mechanism of injury, complications, conservative and surgical management of the following fractures: Fracture of pelvis, Fracture neck of femur, Fractures of trochanters, Fracture shaft femur, Supracondylar fracture of femur, Fractures of the condyles of femur, Fracture patella, Fractures of tibial condyles, Both bones fracture of tibia and fibula, Dupuytren's fracture, Maisonneuve's fracture, Pott's fracture, Bi malleoli fracture, Tri malleolar fracture, Fracture calcaneus, Fracture of talus, Fracture of metatarsals—stress fractures Jone's fracture, fracture of phalanges	
4.2	Dislocations of Lower Limb - mechanism of injury, clinical features, complications, management of the following dislocations of lower limb: i. Anterior dislocation of hip ii. Posterior dislocation of hip iii. Central dislocation of hip iv. Dislocation of patella v. Recurrent dislocation of patella	
5	**Soft Tissue Injuries**	**8 Hours**
5.1	Define terms such as sprains, strains, contusion, tendinitis, rupture, tenosynovitis, tendinosis, bursitis	
5.2	Mechanism of injury of each, clinical features, managements- conservative and surgical of the following soft tissue injuries: i. Meniscal injuries of knee	

	ii. Cruciate injuries of knee iii. Medial and lateral collateral injuries of knee iv. Lateral ligament of ankle v. Wrist sprains vi. Strains- quadriceps, hamstrings, calf, biceps, triceps etc. vii. Contusions- quadriceps, gluteal, calf, deltoid etc. viii. Tendon ruptures-Achilles, rotator cuff muscles, biceps, pectorals etc.	
6	**Hand Injuries and Amputation**	**6 Hours**
6.1	Mechanism of injury, clinical features, and management of the following – a. Crush injuries b. Flexor and extensor injuries c. Burn injuries of hand	
6.2	Amputations - Definition, levels of amputation of both lower and upper limbs, indications, complications	
7	**Traumatic Spinal Cord Injuries**	**4 Hours**
7.1	Clinical features, complications, medical and surgical management of Paraplegia and Quadriplegia	
8	**Orthopedic Surgeries**	**4 Hours**
8.1	Indications, Classification, Types, Principles of management of the following Surgeries: a. Arthrodesis b. Arthroplasty (partial and total replacement) c. Osteotomy d. External fixators e. Spinal stabilization surgeries (Harrington's, Luque's, Steffi plating) etc. Limb re attachments	

Course Outcomes (COs):

At the end of the course, the students will be able to

CO1	Understand the fundamental principles of orthopedics and traumatology, including the basic concepts of fracture, dislocation, inflammation, repair, and healing.
CO2	Develop knowledge regarding the etiology, clinical presentation, complications, and management of fractures and dislocations affecting the upper limb.
CO3	Understanding of the etiology, clinical presentation, complications, and management of fractures and dislocations affecting the lower limb.
CO4	Explain the mechanisms of injury, clinical features, complications, and management strategies for spinal, thoracic, lumbar, rib cage, and pelvic fractures.
CO5	Describe the types, indications, techniques, complications, and management of amputations and soft tissue injuries.
CO6	Analyze the clinical features, complications, and management approaches for traumatic spinal cord injuries.

Recommended Text Books:

1. Essentials of Orthopaedics by – Maheswari, 3rd edition Mehta publications
2. David L. Hamblen, John Crawford Adams, A. Hamish R. W. Simpson. Adams's Outline of Fractures, Including Joint Injuries. Elsevier Health Sciences,2007
3. John Crawford Adams, David L. Hamblen. Outline of Orthopedics. Hamblen ChurchillLivingstone,2001
4. John Ebnezar, Textbook of Orthopedics: With Clinical Examination Methods in Orthopedics, Boydell & Brewer Ltd;2010
5. Louis Solomon, David Warwick, Selvadurai Nayagam, Apley's System of Orthopaedics and Fractures, 10th Edition, CRC Press, 2010

Recommended Reference Books:

1. Tureks Orthopaedics
2. Cambells Operative Orthopaedics

CO PO PSO Matrix:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3	PS 04	PS O5
C O1	3	2	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1
C O2	3	3	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1
C O3	3	3	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1
C O4	3	3	2	1	1	1	1	1	1	1	1	1	3	1	2	1	1
C O5	3	2	2	1	1	1	1	1	1	1	1	1	3	1	3	2	1
C O6	3	3	2	1	1	1	1	1	1	1	1	1	3	1	3	2	1

CHARUTAR VIDYA MANDAL UNIVERSITY

FACULTY OF PHYSIOTHERAPY

RITA A. PATEL INSTITUTE OF PHYSIOTHERAPY

BPT - Semester VI

Course Code: BPT-137

Course Title: Physical and Functional Diagnosis-2

Course Credit Hours:

Hrs. / Wk			Credits			Marks		Total Marks
L	P	T	L	P	T	Theory	Practical	
4	4	-	4	2	-	100	100	200

Course Outline: This course provides knowledge and skills in physiotherapy assessment across musculoskeletal, cardiovascular, pulmonary, and sports domains. It emphasizes the application of the ICF framework for functional diagnosis along with systematic subjective and objective examination, special tests, pain assessment, and interpretation of investigations. The course also includes functional and fitness assessment, aiming to develop clinical reasoning and evidence-based practice skills

Sr No	Title of the Unit	Minimum number of Hours
1.	Introduction to ICF	6
2.	Assessment Of Musculoskeletal Disorders	88
3.	Assessment of Cardiovascular and Pulmonary dysfunction	40
4.	Fitness testing for Sports	18

Total hours (Theory): 76 Hrs.

Total hours (Practical): 76 Hrs.

Total hours: 152 Hrs.

Unit Sr No	Course Content	Hours Of Teaching
1	**Introduction to ICF**	**6 Hours**
1.1	Introduction to International Classification of Function, Disability & Health (I.C.F.) as a basis Functional Diagnosis of impairment, activity limitation and participation restriction	
2	**Assessment of Musculoskeletal Disorders**	**88 Hours**
2.1	**a) Subjective Examination:** Demographic Data, Chief complaint, History of Present illness including functional limitation, Past Medical Surgical history, Family history, Occupational & Personal history, Socio-Economic, Environmental and Psychological History, Drug and Treatment History etc. **b) Objective Examination:** • **General Examination:** Vital parameters (Temperature, Respiratory Rate, Peripheral Pulses, Blood Pressure), Body Built of Patient, Attitude of Limb, Bony contours, Deformities, Trophic changes. Examination of Posture. Examination of Spasm, Tenderness, Edema /swelling/wasting including Limb girth measurement, Scar examination etc. • **Motor Examination**: Range of Motion, Joint Play & End Feel, Muscle Strength, Power, Endurance, Flexibility, Isometric Resisted Testing, Limb-length discrepancy, Pelvic inclination, Examination of Balance, Gait & External aids/assistive Device used etc. • **Sensory Examination**: Superficial & Deep sensation, Reflexes, Dermatomes, and Myotomes etc. **c) Assessment of Hand:** Pinches, Grips, Routine sensory motor evaluation, Stereo gnosis etc.	
2.2	**Special Test: Cervical Spine**: • Test for Vertigo & Dizziness tests: Vertebral Artery Test Dizziness Test etc. • Test for Thoracic Outlet Syndrome: Adson's test, Roos stress Test etc. • Test for Neurological symptoms: Foraminal Compression Test • Distraction Test, Shoulder Depression Test etc.	
2.3	**Special Test: Shoulder Joint**: • Test for Shoulder Instability: Apprehension, Jerk, Drawer, Sulcus sign etc. • Test for Impingement: Hawkins–Kennedy Test Neer's Impingement Test, Painful Arc Test, Empty Can Test, Drop Arm Test etc. • Test for Labral Lesion: Active Compression test of O'Brien, KIM test etc. • Test for Scapular Dyskinesia: Scapular Dyskinesia test, Scapular Load Test etc. • Test for Muscle Pathology: Yergason's, Speed's, Drop- Arm, Empty can, Lift-Off Sign, Test for Supraspinatus, Infraspinatus, Horn blower Sign etc.	
2.4	**Special Test: Elbow Joint**: • Test for ligament instability: Valgus- Varus ligamental Test etc. • Test for Tennis Elbow: Cozens, Mill's, Maudsley's etc. • Test for Golfer's Elbow. • Test for Neurological symptoms: Pinch Grip Test, Tinnel Sign etc.	

2.5	**Special Test: Wrist &Hand Complex**: • Test for Carpal Tunnel Syndrome: Carpal Compression test, Hand Elevation Test, Phalen's, Froment's sign etc. • Test for Bone, Ligament, Capsule & joint Instability: Ulnar fovea Test, Ulno Menisco Triquetral dorsal Glide Test, Watson Test, Bunnel-Littler Test etc. • Test for circulation & Swelling: Allen Test, Digital blood flow, Figure of 8 measurement of swelling, Hand volume Test etc.
2.6	**Special Test: Lumbo-Sacral region:** • Test for Lumbar Instability: Passive lumbar extension Test etc. • Test for Muscle Dysfunction: 90-90 Straight leg rising, Trendelenburg Test etc. • Test for Neurological Dysfunction: SLR, Slump Test etc. • Test for Joint Dysfunction: Schober's, Faber- Patrick's, Gaenslen, Gillet, March's Test etc.
2.7	**Special Test: Hip Joint:** • Test For hip Pathology: Hip scour Test, Leg Roll Test, Patrick's etc. • Labral Lesion: Anterior Labral tear Test etc. • Pediatric Hip Pathology: Barlow's Test, Galeazzi Sign, Ortolani Sign etc. • Test For Muscle dysfunction: Hip Lag sign, 90-90 Straight leg rising, Thomas, Nelaton's line, Bryant's triangle, Faber- Gaenslen, Gillet, March's test, Finkelstein Test, Tripod sign, Trendelenburg sign etc.
2.8	**Special Test: Knee Joint**: • Tests for Ligament Integrity (Collateral & Cruciate): Valgus Stress, Test, Varus Stress Test, Lachman Test, Anterior Drawer Test, Posterior Drawer Test etc. • Tests for Meniscal Injury: McMurray's Test, Apley's Compression & Distraction Test etc. • Tests for Joint Effusion & Patellofemoral Dysfunction: Fluctuation Test, Patellar Tap Test, Clarke's Test etc. • Other Measurements: Q-Angle
2.9	**Special Test: Ankle & Foot Complex:** • Tests for Ligament Stability: Anterior Drawer Test, Talar Tilt Test etc. • Tests for Vascular Conditions (e.g., DVT): Homan's Test, Moses Test etc.
2.10	**Assessment of Pain:** • Types of pain: Somatic, Somatic referred, Neurogenic, Visceral • Subjective Assessment: Location, duration, progression, distribution, quality, diurnal variations, modifying factors, Severity, nature of pain, tissue irritability • Objective Measurement & Documentation- Visual Analogue Scale (V.A.S), Numerical Rating Scale (N.R.S.), and McGill's modified questionnaire (including Body Charts) etc.
2.11	**Investigations for Musculoskeletal Disorders:** Blood Investigations / Markers, Radiological & Imaging Investigations (USG, X-rays, CT scan, MRI) etc.
2.12	**Functional Assessment:** NDI, SPADI, DASH, ODI, KOOS, WOMAC etc.

3	**Assessment of Cardiovascular and Pulmonary dysfunction**	**40 Hours**
3.1	Physical and functional evaluation of cardiovascular and pulmonary, normal and pathological conditions. **a) Subjective Examination:** Demographic Data. Chief complaint, History of Present illness including functional limitation, Past Medical Surgical history, Family history, Occupational & Personal history, Socio-Economic, Environmental and Psychological History, Drug and Treatment History etc. **b) Objective Examination:** • Vital parameters (Temperature, Respiratory Rate, Peripheral Pulses, Blood Pressure), Body Built of Patient, Breathing Pattern and breath hold test (rate, rhythm, use of accessory muscles), Attitude of Limb, Bony contours, Symmetry/Deformities of Head, Neck, Extremities, Trophic changes. Examination of cough, sputum, tactile and vocal fremitus, mobility of thoracic spine and rib cage, percussion etc. • **Auscultation:** Normal and Abnormal Heart and breath sounds etc. • **Measurements:** Chest Expansion, Symmetry of chest movement, BMI, Waist – Hip Ratio etc.	
3.2	**Investigation for Cardiovascular and Pulmonary dysfunction:** • Blood Investigations /Markers, ABG Analysis, Pulmonary Function Test, ECG, Echocardiography, Coronary Angiography, Chest X-ray (Normal and variation in common pathological condition) etc. • Test for Peripheral arterial and venous conditions, Ankle brachial index etc.	
3.3	**Functional Assessment for Cardiovascular and Pulmonary dysfunction:** • Borg and modified borg scales for rate of perceived excretion, Grades of dyspnea (mMRC and NYHA) etc. • Exercise Tolerance Test: 6-minute walk test, 12-minute walk test, Shuttle run test, Step test, Treadmill test • Theoretical bases of different protocols for maximal exercise testing (e.g.: Bruce Protocol, Modified Bruce Protocol, Balke) etc.	
4	**Fitness testing for Sports**	**18 Hours**
4.1	Sports specific assessment including Cardiovascular endurance, Muscular strength, flexibility, speed, agility, power, balance, coordination reaction time etc.	

Course Outcomes (COs):

At the end of the course, the students will be able to

CO1	Explain the framework of International Classification of Functioning, Disability and Health (ICF) and its role in functional diagnosis
CO2	Perform and interpret systematic subjective and objective assessments of musculoskeletal disorders, including special tests, standardized pain assessment, and clinical documentation using appropriate clinical reasoning.
CO3	Interpret laboratory and imaging investigations relevant to musculoskeletal disorders.
CO4	Conduct assessment of cardiovascular and pulmonary functions including clinical examination and functional capacity tests.
CO5	Evaluate physical fitness components and perform sports-specific fitness assessment.

Recommended Text Books:

1. Orthopedics physical examination by Magee
2. Physical Rehabilitation Assessment and Treatment - O'Sullivan Schmitz
3. Cash's textbook of chest, heart, vascular disorder for physiotherapist
4. Physiotherapy for respiratory and cardiac problems - Webber and Pryor
5. Exercise Physiology - Mc' Ardle

Recommended Reference Books:

1. Orthopaedic Physical therapy - Donnatelli
2. Exercise & Heart - Wenger
3. Orthopedic examination - Hoppenfield
4. Cardiorespiratory physiotherapy - Elizabeth Dean

CO-PO-PSO Matrix:

	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	2	1	1	1	2	2	1	1	1	2	2	1	1	1	2
CO2	3	3	3	2	2	2	2	1	2	2	2	2	3	3	2	2	2
CO3	3	3	3	2	2	2	2	1	2	2	2	2	3	3	2	2	2
CO4	3	3	2	2	2	1	2	1	2	2	2	2	3	2	3	2	2
CO5	2	2	1	1	1	3	2	1	2	1	2	2	2	1	1	1	3

CHARUTAR VIDYA MANDAL UNIVERSITY

FACULTY OF PHYSIOTHERAPY

RITA A. PATEL INSTITUTE OF PHYSIOTHERAPY

BPT - Semester VI

Course Code: BPT-138

Course Title: Public Health & Health Promotion

Course Credit Hours:

Hrs. / Wk			Credits			Marks		Total Marks
L	P	T	L	P	T	Theory	Practical	
3	-	-	3	-	-	50	-	50

Course Outline: This course builds upon the foundational basic science subjects to provide comprehensive knowledge of health, disease, and community-based conditions encountered by physiotherapists in clinical and public health settings. It emphasizes understanding the various dimensions and determinants of health and disease, along with the principles of disease prevention, health promotion, and community health care delivery systems.

Sr No	Title of the Unit	Minimum number of Hours
1.	Public Health and Epidemiology	20
2.	Public Health Systems, Programs and Preventive Care	20
3.	Nutrition, Environment and Disaster Management	11
4.	Occupational, Mental Health and Health Promotion	06

Total hours (Theory): 57Hrs.

Total hours (Practical): 00 Hrs.

Total hours: 57Hrs.

Unit Sr No	Course Content	Hours of Teaching
1	**Public Health and Epidemiology**	**20**
1.1	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	
1.2	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.	
1.3	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, 0besity, Blindness, Accidents and Injuries.	
2	**Public Health Systems, Programs and Preventive Care**	**20**
2.1	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.	
2.2	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.	
2.3	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.	
2.4	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.	
3	**Nutrition, Environment and Disaster Management**	**11**
3.1	Nutrition and Health: Classification of foods, Nutritional profiles of principal foods, Nutritional problems in public health, Community nutrition programmes.	
3.2	Environment and Health: Components of environment, Water and air pollution and public health: Pollution control, Disposal of waste, Medical entomology.	
3.3	Hospital waste management: Sources of hospital waste, Health hazards, Waste management.	
3.4	Disaster Management: Natural and man-made disasters, Disaster impact and response, Relief phase, Epidemiologic surveillance and disease control, Nutrition, Rehabilitation, Disaster preparedness.	

4	**Occupational, Mental Health and Health Promotion**	**06**
4.1	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.	
4.2	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 Intellectual Disability	
4.3	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.	
4.4	Exercise as Preventive Medicine: for Old age, Working Population, Adolescents and Children. How to keep your Society fit.	

Course Outcomes (COs):

At the end of the course, the students will be able to

CO1	Describe the concepts, determinants, indicators of health, natural history of disease, and principles and methods of epidemiology.
CO2	Analyze disease transmission, screening, immunization, and preventive strategies for communicable and non-communicable diseases.
CO3	Explain public health administration, national health programmes in India, and preventive healthcare strategies in maternal, child, geriatric, nutritional, environmental, and occupational health.
CO4	Apply principles of hospital waste management, disaster management, exercise as preventive medicine, mental health care, and health education at individual and community levels.

Recommended Text Books:

1. Park’s Textbook of Preventive & Social Medicine - K.Park
2. Rao SB: Principles of community medicine. 4th Ed, AITBS Publishers & distributors, New Delhi,2005
3. Piyush Gupta O.P.Ghai; T.B. of Preventive & social medicine 2nd edition CBS publishers & distributors 2007
4. Gupta MC & Mahajan BK: Textbook of preventive and social medicine. 3rd Ed, Jaypee Brothers,New Delhi, 2003

Recommended Reference Books:

1. Status of Disabled in India -2000-RCI publication
2. Legal Rights of disabled in India- Gautam Bannerjee
3. ICF –WHO Health Organization 2001publication
4. Training in the Community for the people with disability – Hallender Padmini
5. Matzen RN, Lang RS: Clinical preventive medicine. Mosby, Missouri

CO-PO-PSO MATRIX:

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO1**	**PSO2**	**PSO3**	**PS 04**	**PSO5**
CO1	2	1	3	1	1	1	1	1	1	1	1	2	2	2	1	1	1
CO2	2	2	3	1	1	1	2	1	1	1	1	2	3	2	1	1	2
CO3	2	2	3	1	1	1	2	1	1	1	1	2	3	2	1	1	2
CO4	2	1	3	2	1	1	1	1	1	1	1	3	2	3	2	2	1

CHARUTAR VIDYA MANDAL UNIVERSITY

FACULTY OF PHYSIOTHERAPY

RITA A. PATEL INSTITUTE OF PHYSIOTHERAPY

BPT - Semester VI

Course Code: BPT-139

Course Title: Clinical Education - 3

Course Credit Hours:

Hrs. / Wk			Credits			Marks		Total Marks
L	P	T	L	P	T	Theory	Practical	
-	15	-	-	5	-	-	100	100

Course Outline: This course provides comprehensive knowledge of neurological evaluation, functional assessment, and clinical reasoning in rehabilitation settings. It emphasizes the application of the ICF framework, standardized assessment tools, and electro-diagnostic techniques for effective patient evaluation. The course also focuses on clinical case analysis, documentation, and professional communication to enhance decision-making and patient-centered care in neurological and paediatric rehabilitation.

Unit Sr No	Course Content
1	Introduction to the ICF framework with emphasis on impairment, activity limitation, and participation restriction and its relevance in physiotherapy clinical evaluation.
2	Neurological Examination Skills – History taking, higher mental functions, cranial
3	Functional Assessment in Neuro Rehab – Modified Ashworth Scale, FIM, Barthel Index, Berg Balance Scale, ASIA, MMSE, STREAM, DGI, FAC, TUG
4	Clinical Case Exposure – Neuro &Paediatric Rehab – Stroke, TBI, SCI, GBS, CP, Parkinson's disease, polyneuropathy, myopathies
5	Documentation and Clinical Reasoning – SOAP notes, ICF format, goal setting, prognostic planning
6	Electro-diagn Clinical evaluation approaches for complex conditions including abdominal surgery, neurosurgical cases, amputations, antenatal/postnatal, geriatric, obesity. ostics in Neurology – EMG, NCV, strength-duration curves – observation, interpretation, clinical relevance
7	Communication, Ethics, and Professional Conduct – Caregiver education, counselling, cultural sensitivity, informed consent, confidentiality

Total hours (Theory):00 Hrs.

Total hours (Practical): 285 Hrs.

Total hours: 285 Hrs.

Course Outcomes (COs):

At the end of the course, the students will be able to

CO1	Describe the ICF framework and apply it to the clinical evaluation of impairments, activity limitations, and participation restrictions.
CO2	Demonstrate neurological examination skills, including history taking, higher mental functions, cranial nerve assessment, and the application of standardized functional assessment tools in neuro-rehabilitation.

CO3	Analyze clinical cases in neurological and paediatric rehabilitation and interpret electrodiagnostic investigations, including EMG, NCV, and strength-duration curves, in correlation with clinical findings.
CO4	Develop clinical reasoning, documentation, goal-setting, and prognostic planning skills using SOAP notes and the ICF framework.

CO PO PSO Matrix:

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO1**	**PSO2**	**PSO3**	**PS 04**	**PSO5**
CO1	3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	2	2
CO2	3	3	2	2	3	2	2	2	3	2	2	2	3	2	3	3	2
CO3	3	3	3	2	2	3	3	2	2	2	3	2	3	3	3	2	3
CO4	3	3	3	2	2	2	3	2	2	2	2	3	3	3	3	2	3