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Deverakaggalahalli, Kanakapura Road
Ramanagara Dt., Karnataka - 562 112
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BPT YEAR–IV

SL. NO	COURSE CODE	COURSE TITLE	M/E	NO. OF TEACHING HOURS			SCHEME OF EVALUATION							TOTAL
							THEORY				PRACTICAL			
				D	CL	P	W	VV	CA	IA	P	CA	IA	
1	22PT401	NEUROLOGY &NEUROSURGERY	M	02	--	--	80	--	10	10	--	--	--	100
2	22PT402	COMMUNITYMEDICINE & BIOSTATISTICS	M	02	--	--	80	--	10	10	--	--	--	100
3	22PT403	NEURO – PHYSIOTHERAPY	M	02	--	--	100	30	10	10	--	--	--	150
4	22PT404	COMMUNITY PHYSIOTHERAPY	M	02	--	--	100	30	10	10	--	--	--	150
5	22PT405	**ON FIELD MANAGEMENT OF ATHLETIC INJURIES**	E	01	--	--	40	--	05	05	--	--	--	50
	22PT406	**OR PHYSIOTHERAPY REHABILITATION IN ONCOLOGY**	E	01	--	--	40	--	05	05	--	--	--	50
6	22PT471	NEUROPHYSIO THERAPY PRACTICAL	M	--	01	01	--	--	--	--	40	05	05	50
7	22PT472	COMMUNITY PHYSIOTHERAPY PRACTICAL	M	--	01	01	--	--	--	--	40	05	05	50
8	22PT473	**ON FIELD MANAGEMENT OF ATHLETIC INJURIES – PRACTICAL**	E			01	--	--	--	--	40	05	05	50
	22PT474	**OR PHYSIOTHERAPY REHABILITATION IN ONCOLOGY - PRACTICAL**	E			01	--	--	--	--	40	05	05	50
9	22PT475	CLINICALTRAINING	M	--	18	--	--	--	--	--	--	--	--	--
10	22PT491	PROJECT	S	01	--	--	--	--	--	--	--	--	--	--
GRANDTOTAL				**10**	**20**	**03**	**400**	**60**	**45**	**50**	**120**	**10**	**15**	**700**
TOTALNUMBEROFHOURS/WEEK				**33**	--	--	--	--	--	--	--	--	--	--

Note: M- Main Course, E- Elective Course D – Didactic, CL – Clinical, P – Practical, W – Written, VV–Viva Voce, CA–Continuous Assessment, IA– Internal Assessment

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COURSE CODE: 24PT401

TITLE OF THE COURSE: NEUROMEDICINE & NEUROSURGERY

COURSE OBJECTIVES

This course aims to provide students with a comprehensive understanding of neurological disorders, neurosurgical interventions, and their implications for rehabilitation. It focuses on the assessment, treatment, and management of neurological conditions to enhance functional recovery and improve patient outcomes.

COURSE OUTCOMES

1. The students will be able to identify the pathophysiology, clinical features, and management of neurological conditions such as stroke, Parkinson's disease, multiple sclerosis, spinal cord injuries, and peripheral neuropathies. Also will be able to differentiate between upper and lower motor neuron lesions.
2. The students will be able explain indications, procedures, and post-surgical complications of common neurosurgical interventions (e.g., craniotomy, spinal decompression, deep brain stimulation) and application of rehabilitation protocols following neurosurgical procedures.
3. The students will be able to assess Neurological Impairments by perform a detailed neurological examination, including reflex testing, tone assessment, and cranial nerve evaluation.
4. The students will be able to design Neurorehabilitation Strategies for neurological conditions, focusing on motor control, balance, coordination, and gait training
5. The students will be able to implement Evidence-Based Physiotherapy Interventions such as application of therapeutic exercises, functional electrical stimulation (FES), robotics, and virtual reality in neurological rehabilitation.

Course Title :- NEUROMEDICINE & NEUROSURGERY **Course Code:-24PT401**											
Course Credit for **NEUROMEDICINE & NEUROSURGERY**											
Hours				Hrs/Wk				Evaluation Pattern			
Th	Pr	Sct	Tot	Lec	Pr	Sct	Tot	Written	Total	Practical	Total

60	-	-	60	2	-	-	2	IA	Final exam	VV	Final Exam	IA	Final exam	Final exam
								20	80	-	100	-	-	-

Topic Sr. No	Course content	Hours of teaching /Learning Theory
	SECTION A- NEUROMEDICINE	**48**
1	Introduction to Nervous system	2
	Must Know	
	Applied Neuro- anatomy and Neuro-Physiology	
2	Classification of neurological involvement depending on level of lesion- UMN and LMN	1
3	**Neurological assessment- Approach to the Patient**	3
	Must Know	
	Subjective and Objective assessment including higher mental function, cranial nerves, assessment of brain & spinal cord function, and evaluation of autonomic nervous system etc.	
4	**Neurological Investigations**	3
	Must Know	
	Skull x-ray, CT, MRI, EMG, Evoked potentials, NCV	
	Desirable to Know	
	Lumbar puncture, CSF examination, EEG	
5	**Cranial Nerve Assessment and Disorders**	6
	Must Know	
	Olfactory function **Neuro-ophthalmology**: 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 **Ocular nerves function**- disorders of eye movements, central disorders of eye movement. **Trigeminal nerve function**- trigeminal neuralgia, trigeminal sensory neuropathy **Facial nerve function**- facial palsy, bell's palsy, hemi facial spasm Vestibulocochlear nerve functions- 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. **Glossopharyngeal nerve function**- neuralgia, Dysphagia – swallowing mechanisms, causes of dysphagia, symptoms,	

	examination, and management of dysphagia **Lesions of Vagus nerve, spinal accessory nerve, hypoglossal nerve.**	
6	**Higher cortical, neuro psychological and neurobehavioral disorders:**	3
	Must Know	
	Causes of blackouts, non-epileptic attacks of childhood, Epilepsy in childhood and adult, Alzheimer's, Dementia, Neural basis of consciousness, causes & investigations of Coma, criteria for diagnosis of Brain death, Perceptual disorders and Speech disorders	
	Desirable to know	
	Dyssomnias, Parasomnias, Obsessive compulsive disorders, Schizophrenia	
7	**Cerebro-vascular diseases**	4
	Must Know	
	Define stroke, Pathophysiology, Classification of stroke – Ischemic, haemorrhagic, venous infarcts, Etiology and Risk factors, Stroke syndromes based on territory, Investigations, Differential diagnosis, Management- Medical and surgical, Complications.	
8	**Movement disorders** Definition, etiology, risk factors, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders:	2
	Must Know	
	Parkinson's disease, Tremors, Dystonia, Huntington's disease, Chorea, Ballism, Athetosis	
	Desirable to Know	
	Tics, Myoclonus and Wilson's disease	
9	**Cerebellar and coordination disorders** Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, management:	2
	Must Know	
	Congenital ataxia, Friedreich's ataxia, Hereditary cerebellar ataxia	
	Desirable to Know	
	Metabolic ataxia, Tabes dorsalis and Syphilis, Ataxia telangiectasia	
10	**Infections of brain and spinal cord** Etiology, pathophysiology, classification, clinical signs & Symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders	2
	Must Know	

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	Meningitis, Encephalitis, Poliomyelitis and Post-Polio syndrome, AIDS, Rheumatic fever	
	Desirable to Know	
	Septic Encephalopathy, , Brucellosis, Tetanus, and Pertussis.	
11	**Motor neuron diseases** Etiology, pathophysiology, classification, clinical signs & symptoms, Investigations, differential diagnosis, medical management, and complications of following Disorders	2
	Must Know	
	Amyotrophic lateral sclerosis, Spinal Muscular Atrophy, Hereditary Bulbar Palsy	
	Desirable to Know	
	Neuromyotonia and Post-irradiation lumbosacral polyradiculopathy	
12	**Demyelinating disorders** Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, and complications-	2
	Multiple sclerosis	
	Desirable to Know	
	Neuromyelitis optica	
13	**Disorders of neuromuscular junction** Etiology, classification, signs & symptoms, investigations, management, of following disorders	2
	Must Know	
	Myasthenia gravis, Myasthenia Crisis, Eaton- Lambert syndrome	
	Desirable to Know	
	Botulism	
14	**Muscle diseases** Classification, investigations, imaging methods, Muscle biopsy, management of muscle diseases, genetic counselling. Classification, etiology, signs & symptoms of following disorders	2
	Must Know	
	Muscular dystrophy, Myotonic dystrophy, myopathy	
	Desirable to Know	
	Non-dystrophic myotonia.	
15	**Polyneuropathy** Causes, clinical features, management, Chronic Idiopathic Polyneuropathies, diagnosis of polyneuropathy, nerve biopsy, Classification of Polyneuropathies	2
	Must Know	
	Guillain-Barre syndrome, Hereditary motor sensory neuropathy, Hereditary sensory and Autonomic neuropathies,	
	Desirable to Know	

	Amyloid neuropathy, Acute idiopathic Polyneuropathies.	
16	**Focal peripheral neuropathy** Clinical diagnosis of focal neuropathy, neurotmesis, Axonotmesis, Neuropraxia. Etiology, risk factors, classification, neurological signs & symptoms, investigations, management, of following disorders	3
	Must Know	
	Reflex Sympathetic Dystrophy, 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, Pudendal nerve palsy.	
17	**Paediatric neurology** Neural development, Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders	3
	Must Know	
	Cerebral palsy, Hydrocephalus, Autism, Dandy walker syndrome and Down's syndrome, Arnold-chiari malformation	
	Desirable to Know	
	Basilar impression, Klippel-Feil syndrome, Achondroplasia,	
18	**Toxic, metabolic and environmental disorders** Etiology, risk factors, classification, neurological signs & symptoms, investigations, management, of following disorders.	2
	Must Know	
	Encephalopathy, Alcohol toxicity, Metal toxicity, Pesticide poisoning, Complications of organ transplantation,Recreational drug abuse, Toxic gases & Asphyxia	
	Desirable to Know	
	Pant & Fungal poisoning, Animal poisons, Therapeutic & diagnostic agent toxicity, Environmental & physical insults	
19	**Deficiency Disorders**	2
	Must Know	
	Vitamin A, B, D, E Beriberi Wernicke's Korsakoff syndrome Pellagra Vitamin B12 Neuropathy Folate Deficiency	

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	SECTION B- NEUROSURGERY	12
1	**Introduction, Indications and Complications of following Neuro surgeries**	3
	Must Know	
	Craniotomy, Cranioplasty, Stereotactic surgery, Burr-hole, Pituitary surgery, Ablative surgery - Thalamotomy and Pallidotomy, Coiling of aneurysm, Clipping of aneurysm, Laminectomy, Hemilaminectomy, Rhizotomy, Embolization	
	Desirable to Know	
	Deep brain stimulation, Shunting, Microvascular decompression surgery, Endarterectomy and Neural implantation.	
2	**Traumatic Brain injury**	3
	Must Know	
	Etiology, Mechanism, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications.	
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 of following disorders	3
	Must Know	
	Traumatic Spinal cord injury, Compression by IVD prolapse, Spinal epidural abscess, Transverse myelitis, Viral myelitis, Syringomyelia, Spina bifida, Hereditary spastic paraplegia, Conus medullaris syndrome, Bladder & bowel dysfunction, and Sarcoidosis	
	Desirable to Know	
	Sub-acute combined degeneration of the cord, Radiation myelopathy, Progressive encephalomyelitis,	
4	**Tumours of the CNS** Classification, clinical features, investigations, medical and surgical management	3
	Must Know	
	Brain tumours and spinal tumours	

Question Paper pattern for University Exams –

Long Essay Answers (Answer any 2 out of 3): $2 \times 10 = 20$ marks

Short Essay Answers (Answer any 8 out of 10): $8 \times 5 = 40$ marks

Short Answers (Answer all 10 questions): $10 \times 2 = 20$ marks

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COURSE CODE: 24PT402

TITLE OF THE COURSE: COMMUNITY MEDICINE & BIOSTATISTICS

COURSEOBJECTIVES:

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1. Understand the concepts of health, disease, and preventive & promotive measures in community health.

2. Learn methods of health administration and principles of health education for effective community practice.

3. Develop skills in biostatistical techniques for analyzing and interpreting health data.

4. Evaluate community health trends using evidence-based approaches.

5. Apply statistical and informed decision-making to address community health challenges.

COURSE OUTCOMES:

1. Understand and explain the principles of health and disease, including preventive, promotive, and curative measures in community health.

2. Apply biostatistical methods for collecting, analyzing, and interpreting health-related data effectively.

3. Demonstrate knowledge of health administration and health education to support community health initiatives.

4. Develop skills to critically evaluate community health trends and implement evidence-based solutions in practice.

COMMUNITY MEDICINE & BIOSTATISTICS: UNIT - I

S. No.	**Topic**		**Theory hours**
1.	Health & Disease:	**- Must to know** • Definitions, Concepts, Dimensions and Indicators of Health,Determinants of Health, NaturalhistoryofDisease,Conceptsofdiseasecontrolandprevention,Theroleofsocio-economicandculturalenvironmentinhealthanddisease • Concepts of Causation	**5 Hours** 7

			Hours
2.	Epidemiology	**- Must to know** DefinitionandEpidemiologicalmethods:Usesof Epidemiology, Dynamics and modes of diseasetransmission,Immunization. • Morbidity and Mortality Statistics • Immunization + Immunity • Epidemiologicalmethods:Descriptive epidemiology • Cohort study • Case-Control study • Experimental epidemiology **-Desire to know:** • Screening for Disease: Concept ofscreening,AimsandObjectives,Usesandtypesofscreening.	5 Hours 9 Hours
3.	Epidemiology ofcommunicabledisease:	**-Must to know** • Respiratoryinfections,Intestinalinfections,Arthropod-borneinfections,Zoonoses,Surfaceinfections,HospitalacquiredinfectionsEpidemiologyofchronic non-communicablediseasesandconditions:Cardiovascular diseases: Coronary heart disease, Hypertension, Stroke, Rheumaticheartdisease,Cancer,Diabetes,0besity,Blindness,AccidentsandInjuries	**4 Hours**
4.	Public health administration	**- Must to know** • Overview of the health administration set up atCentral and state levels. The national health programme-highlighting the role ofsocial,economicandculturalfactorsintheimplementationofthenationalprogrammes.Healthproblemsofvulnerablegroups-pregnantandlactatingwomen,infantsandpre-schoolchildren,occupationalgroups	**4 Hours**
5.	Health programmes in India:	**- Must to know** • Vector borne disease control programme, Nationalleprosyeradicationprogramme,Nationaltuberculosisprogramme,NationalAIDScontr	**5 Ho**

		ol programme,Nationalcancercontrolprogramme. • National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Disease & Stroke (NPCDCS)	**urs** 6 Hours
6	Biostatistics Introduction:	**-Must to know** • 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	**3 Hours**
7	Tabulation of data:	- **Must to know** • Basic principles of graphical representation Types of diagrams – histograms, frequency polygons, smooth frequency polygon, cumulative frequency curve – Qualitative data Quantitative data • Normal probability curve	**3 Hours**

COMMUNITY MEDICINE & BIOSTATISTICS: UNIT - II

S.No.	**Topic**		**Theory hours**
1.	Demography and Family Planning:	**- Must to know** • Demographic cycle, Fertility, Family planning-objectives of national family planning	**4 Hou**

		programme and family planning methods, Ageneralideaofadvantageanddisadvantagesofthemethods.	**rs**
2.	PreventiveMedicineinObstetrics,PaediatricsandGeriatrics:	**- Must to know** • MCHproblems,Antenatal, Intranatal and post-natal care, MCHservicesandindicatorsofMCHcare, Preventive medicine andgeriatrics	**3 Hours**
3.	Nutrition and Health:	**- Must to know** • Classification of foods, Nutritional profiles of principal foods,Nutritionalproblemsinpublichealth,Communitynutritionprogrammes	**2 Hours**
4.	Environment and Health:	**- Must to know** • Components of environment, Water and air pollution,Disposalofwaste.	**3 Hours**
5.	Hospital waste management:	**- Must to know** • Sources of hospital waste, Health hazards, Wastemanagement	**2 Hours**
6	Measure of Central Tendency:	**-Must to know** • Needformeasuresofcentralte ndency • Definitionandcalculationofm ean–ungroupedandgrouped • Meaning,Interpretationandc alculationofmedianungroup edand grouped • Meaning and calculation ofmode • Comparisonofmean,mediana ndmode • Guidelinesfortheuseofvario usmeasuresofcentraltendenc y	**5 Hours**

		• Measures of Dispersion (Variability)	
7	ProbabilityandStandardDistributions:	**-Must to know** • Meaningofprobabilityofstandarddistribution • The binominaldistribution • The normaldistribution • Divergence from normality – skewness,kurtosis	**5 Hours**

COMMUNITYMEDICINE & BIOSTATISTICS: UNIT - III

S.No.	**Topic**		**Theory hours**
1.	DisasterManagement:	**-Must to know** • Naturalandman-madedisasters,Disasterimpactandresponse, Relief phase, Epidemiologic surveillance and disease control, Nutrition,Rehabilitation,Disasterpreparedness	**4 Hours**
2.	Occupational Health:	**-Must to know** • Occupationalenvironment,Occupationalhazards,Occupationaldiseases,Preventionofoccupationaldiseases.Socialsecurity andother measures for the protection from occupational hazard accidents and diseases.Detailsofcompensationacts.	**4 Hours**
3.	Mental Health:	**- Must to know** • Characteristics of a mentally healthy person, Types of mental illness,Causesofmentalillhealth,Prevention,Mentalhealthservices,Alcoholanddrugdependence.Emphasisoncommunityaspectsofmentalhealth.RoleofPhysiotherapistinmentalhealthproblemssuchasmentalretardation	**6 Hours**
4	Health	**- Must to know**	**3**

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.	Education:	• Concepts, aims and objectives, Approaches to health education,Modelsofhealtheducation,Contentsofhealthe ducation,Principlesofhealtheducation,Practiceofhealthe ducation	**Hours**
5.	Sampling techniques:	**- Must to know** • 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	**5 Hours**
6.	Statistical significance:	**- Must to know** • Parametrictests:t–test • Nonparametrictests:chisquaretest, MannwhitneyUtest,Ztest, Wilcoxons matched pairtest • Correlations	**4 Hours**
7.	Analysisofvariancea ndcovarianc e:	**- Must to know** • Analysis of variance(ANOVA) • What isANOVA? • Basic/principle ofANOVA • ANOVAtechnique • Analysis of Covariance (ANACOVA) • Use of Statistical Package for Data Analysis	**5 Hours** **6 Hours**

Question Paper pattern for University Exams –

Long Essay Answers (Answer any 2 out of 3): 2 × 10 = 20 marks

Short Essay Answers (Answer any 8 out of 10): 8 × 5 = 40 marks

Short Answers (Answer all 10 questions): 10 × 2 = 20 marks

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COURSE CODE: 24PT403

TITLE OF THE COURSE: NEURO-PHYSIOTHERAPY

COURSE CODE:22PT471

TITLE OF THE COURSE:NEURO-PHYSIOTHERAPY - PRACTICAL

COURSE TITLE – NEURO-PHYSIOTHERAPY **COURSE CODE** – 22PT403															
Hours				**Hours per week**				**Evaluation pattern**							
Th	Prac	SPT	Total	Th	Prac	SPT	Total	Theory			Th Aggregate	Practical		Th+Prac	
								IA	Written	VV		IA	Final	Final Exam	

									exam				Exam	
150	76	38	264	4	2	1	7	20	100	30	150	10	40	200

Course Objectives:

1. To equip students with the ability to perform comprehensive neurological assessments, utilizing clinical reasoning, history-taking, and specialized examination techniques to identify neurological dysfunctions and impairments.
2. To provide in-depth knowledge and practical application of neurophysiological techniques, such as NDT, PNF, and motor relearning, for the rehabilitation of patients with neurological conditions.
3. To enable students to assess and manage pediatric neurological disorders, focusing on developmental milestones, neurodevelopmental screening, and the application of therapeutic interventions tailored to the needs of pediatric patients.
4. To foster proficiency in the evaluation and management of neurological gait abnormalities, using kinetic and kinematic analysis to create effective treatment plans that improve patients' mobility and functional independence.
5. To introduce students to the role of electrophysiological testing and the therapeutic use of yoga in neurological conditions, promoting holistic rehabilitation approaches for patients with neuro-motor dysfunctions.

Course Outcomes:

1. Students will be able to conduct detailed neurological assessments, including motor and sensory evaluations, balance, coordination, and the use of diagnostic tools to differentiate between various neurological disorders.
2. Students will gain the ability to apply neurophysiological techniques such as NDT and PNF effectively in clinical practice to enhance motor control, functional recovery, and pain management in neurological patients.
3. Students will demonstrate the ability to assess and manage pediatric neurological conditions by developing comprehensive treatment plans addressing both motor and cognitive aspects of neurodevelopment.
4. Students will be able to assess and correct abnormal gait patterns in neurological patients using advanced quantitative and qualitative analysis, contributing to improved gait efficiency and independence.
5. Students will understand and apply electrophysiological testing results to inform clinical interventions and will be able to incorporate yoga as an adjunct therapy to enhance neuro-motor control, flexibility, and patient well-being in neurological rehabilitation.

S.I No.	Topic	Theory hours	Practical hours

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1.	Neurological Assessment	**- Must Know** ● Basic tools for neurological examination ● Detailed Assessment ➢ Reflexes –Developmental reflexes, deep tendon reflexes, Superficial reflexes ➢ Cranial Nerve Examination ➢ Sensory examination –Superficial, Deep and Cortical sensation ➢ Motor Examination –Muscle power, Muscle tone, ROM, Muscle bulb measurement, Limb Length Measurement ➢ Higher mental function- Consciousness, Orientation, Wakefulness, memory, Speech, Reading, Language, Writing, Calculations, Left right confusion, Reasoning and Judgement ➢ Pain assessment ➢ Balance assessment ➢ Co-ordination assessment ➢ Gait assessment ➢ ADL assessment ● Special tests – Romberg's, Kernig's sign, Brudenzki sign, Tinels's sign, Slum test, Lehermitte's sign, Bells Phenomenon, Gower's sign, Sun set sign, Battle's sign, Glabellar tap sign, etc, ● Documentation tools: assessment sheets and scales. **Desirable to know** ICF format for problem list **Nice to know** ● Recent advancement in Gait Assessment ● Recent advancement in Balance Assessment\ ● Recent advancement in Coordination Assessment	10	25
2.	Neuro physiological Techniques **Concepts, Principles,**	**- Must Know** Concepts, Principles, Techniques, Effects of following Neurophysiological techniques:	14	20

	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 reeducation approach and Constraint induced Movement therapy.	➢ NDT ➢ PNF ➢ Rood's Sensory motor ➢ Approach, Sensory Integration Approach ➢ Brunnstorm movement therapy ➢ Motor relearning program ➢ Contemporary task-oriented approach ➢ Muscle re-education approach ➢ Constraint induced Movement therapy **Nice to know** • Advanced Theories and Concepts in Neuroplasticity • Advanced Clinical Applications of PNF • Integration of Neurophysiological Approaches with Emerging Technology • Advanced Sensory Integration Approaches • Vojta Therapy in Complex Neurological Disorders		
3.	Paediatric Neurology	**Must Know** Pediatric Assessment in detail ● Developmental Milestones-**Gross Motor, Fine Motor, Cognitive, Language** ● Developmental Reflexes: Primitive Reflexes,Postural Reflexes ● Neurodevelopmental Screening Tests ● Evaluation and Management-**History Taking-Prenatal, Perinatal, and Postnatal history, Family history,** Genetic disorders, Developmental delays, **Birth history,** APGAR score.Observation, Palpation, **Milestone Examination, Developmental Reflex Examination,** Higher Mental Functions, Cranial Nerve Examination, Motor and Sensory Examination, Reflex Testing, Differential Diagnosis, Balance	14	30

		and Coordination Examination, **Gait Analysis,** Functional Analysis, **List of Problems and Complications,** ● Management of Systemic Complications in Pediatrics ● Management of Mechanical Complications in Pediatrics ● Pediatric Conditions and Their Management:- ➢ Minimum Brain Damage, ➢ Developmental Disorders ➢ **Cerebral Palsy** ➢ Autism ➢ Down's Syndrome ➢ Hydrocephalus ➢ **Chorea** ➢ Spina Bifida ➢ Syringomyelia **Desirable to know** ● **<u>Neurophysiological Approaches & Modalities in Risk Babies</u>** **Nice to know** <u>Recent advancement in management of Motor and Sensory component in Pediatric Conditions</u>		
4.	Evaluation and Management of Brain and Spinal Cord Disorders	**Must Know** ● 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 for the following conditions ● Management of systemic complications for the following conditions ● Management of Mechanical Complications for the following conditions ➢ Cerebro vascular Accident ➢ Meningitis	10	8

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		➢ Encephalitis ➢ Head Injury ➢ Brain Tumors ➢ Perceptual disorders ➢ Amyotrophic Lateral sclerosis ➢ Multiple sclerosis **Desirable to know** ● Use of Various Neurophysiological approaches in Brain and Spinal Cord Disorders **Nice to know** ● <u>Recent advancement in management of Motor and Sensory component in Brain and Spinal Cord Injury</u>		
5.	Evaluation and Management of Cerebellar, Spinal Cord and Muscle Disorders	**Must Know** ● 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 for the following conditions ● Management of systemic complications for the following conditions for the following conditions ● Management of Mechanical Complications for the following conditions ➢ 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 **Desirable to know**	10	8

		● Use of various Neurophysiological approaches & Modalities in Cerebellar, Spinal Cord and Muscle Disorders **Nice to know** ● Recent advancement in management of Motor and Sensory component Cerebellar, Spinal Cord and Muscle Disorders		
6.	Peripheral Nerve Injuries and Disorders	**Must Know** ● 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 for the following conditions ● Management of systemic complications for the following conditions ● Management of Mechanical Complications for the following conditions ➢ 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 ➢ Pudendal nerve palsy **Desirable to know** ● Use of various Neurophysiological	10	8

		approaches & Modalities in Peripheral Nerve Injuries and Disorders **Nice to know** ● Recent advancement in the management of Peripheral Nerve Injuries and Disorders		
7.	**A**ssessment and management of Neurological gaits	**Must Know** ● 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 **Desirable to know** ➢ Choreaform Gait ➢ Diplegic Gait ➢ Myopathic Gait **Nice to know** • Recent advancement in Gait Assessment	10	10
8.	Pre and Post surgical assessment and treatment	**Must Know** ● Detail Pre and post Surgical Assessment and treatment for : ➢ Spinal disc herniation ➢ Spinal stenosis ➢ Spinal cord trauma ➢ Head traum ➢ Brain tumors ➢ Tumors of the spine ➢ Spinal cord and peripheral nerves ➢ Cerebral aneurysms ➢ Subarachnoid hemorrhages ➢ Epilepsy ➢ Parkinson's Disease ➢ Chorea ➢ Hemiballism ➢ Psychiatric disorders	9	5

		➢ Malformations of the nervous system ➢ Carotid artery stenosis ➢ Arteriovenous malformations ➢ Spina bifida **Desirable to know** ● Goal setting and Management for recovery **Nice to know** ● Multidisciplinary Care		
9.	Applications of Electrophysiological Testing in Physiotherapy	**Must Know** ● Nerve Conduction Studies ● Electromyography (EMG) ● Evoked Potentials ● Somatosensory Evoked Potentials (SSEP) **Desirable to know** ● Transcranial Magnetic Stimulation (TMS) **Nice to know** ● Assessment and Diagnosis	8	
10.	Applied Yoga in Neurological condition			

Question Paper pattern for University Exams –

Long Essay Answers (Answer any 2 out of 3): 2 × 10 = 20 marks

Short Essay Answers (Answer any 12 out of 15): 12× 5 = 60 marks

Short Answers (Answer all 10 questions): 10 × 2 = 20 marks

ppl-physio@dsu.edu.in
Deverakaggalahalli, Kanakapura Road
Ramanagara Dt., Karnataka - 562 112
www.dsu.edu.in/physiotherapy

COURSE CODE: 22PT404

TITLE OF THE COURSE: COMMUNITY PHYSIOTHEARAPY

COURSE CODE: 22PT472

TITLE OF THE COURSE: COMMUNITY PHYSIOTHEARAPY - PRACTICAL

Course Objectives:

Course Outcomes:

At the end of this course, the candidate will:

- Describe the **general concepts of health, disease, and physical fitness** in relation to community rehabilitation.
- Understand the **physiology of aging** and its influence on physical fitness.
- Explain **national and international policies for the rehabilitation of disabled individuals**, including the role of physiotherapy.

- Assess the **prevalence and incidence of various conditions** responsible for increased morbidity in the community.
- Identify **barriers to rehabilitation** and propose solutions.
- Conduct small projects (cross-sectional study/survey) to **assess specific physical health problems in the community**.
- Develop and implement **community-based intervention programs**.
- **Apply advanced neurological rehabilitation approaches in CBR.**
- **Understand the role of physiotherapy in women's health, including prenatal and postnatal care, uro-genital dysfunctions, and menopause-related conditions.**

Hours				**Hrs/Wk**				**Evaluation Pattern**						
Th	**Pr**	**Sct**	**Tot**	**Lec**	**Pr**	**Sct**	**Tot**	**Written**		**Total**		**Practical**		**Total**
100	50	0	180	2	1		3	IA	Final exam	VV	Final Exam	IA	Final exam	Final exam
								20	100	30	150	10	40	200

Topic Sr.No	**Course content**	**Hours of teaching /Learning**	
		Theory	**Practical**
	UNIT 1		
1	**FUNDAMENTALS OF COMMUNITY-BASED REHABILITATION**		
Chap 1	**Introduction to CBR**	10	4
	Must Know: • Rehabilitation: Definition, types • Definition and Evolution of Community-Based Rehabilitation (CBR) • WHO-CBR Matrix and its Applications • Objectives and Scope of CBR • Difference Between Institution-Based and Community-Based Rehabilitation **Desirable to Know:** • Role of rehabilitation professionals in the community		

	• Historical perspectives on rehabilitation **Nice to Know:** • Community-driven rehabilitation models worldwide		
2	**Role of Rehabilitation Professionals in CBR**	8	
	Must Know: • Multidisciplinary approach in rehabilitation • Responsibilities of physiotherapists in CBR programs **Desirable to Know:** • Role of community health workers in rehabilitation **Nice to Know:** • Ethical considerations in community-based practice		
3	**Disability Rights and Global Policies**	8	6
	Must Know: • Disability Rights and Global Policies (UNCRPD, WHO policies, ICF framework) • RPWD Act 2016 and Disability Evaluation • Role of Rehabilitation Professionals in Policy Implementation **Desirable to Know:** • Government schemes and programs for disability support		
4	**Legal Aspects and Community Participation**	8	
	Must Know: • Community Entry Strategies • Legal Rights and Benefits for Women, Elderly, and Disabled Individuals **Desirable to Know:** • Community-Initiated vs. Community-Oriented Programs **Nice to Know:** • Role of advocacy in community rehabilitation		
	UNIT II		
	PLANNING, MANAGEMENT, AND REHABILITATION STRATEGIES IN CBR		
5	**CBR Program Planning & Management**	10	4
	Must Know: • Ownership, Governance, and Decentralization in CBR • Integration of Digital Health & Tele-Rehabilitation		

	• Disaster Management and Role of PT in CBR **Desirable to Know:** • Strategies for sustainable rehabilitation programs **Nice to Know:** • Economic impact of community rehabilitation programs		
6	**Rehabilitation Strategies for Women's Health**	10	8
	Must to know : • Prenatal & Postnatal Physiotherapy, Uro-genital Dysfunction, PCOD, Prolapse, and Menopause-related Conditions **Desirable to Know:** • Role of lifestyle and nutrition in women's health **Nice to Know:** • Global initiatives in maternal health		
7	**Pediatric Rehabilitation in CBR**	10	10
	Must Know: • Neurodevelopmental Disorders, Cerebral Palsy, Autism, ADHD, Down Syndrome • Mental Health & Psychosocial Rehabilitation in CBR **Desirable to Know:** • Family-centered rehabilitation approaches **Nice to Know:** • Assistive technology in pediatric rehabilitation		
8	**Industrial Rehabilitation and Ergonomics**	15	8
	Must to know: • Application of Functional Capacity Assessment & Job Demand Analysis • Workplace Modifications, Work Hardening, Stress Management • Architectural Barriers and Modifications for Accessibility • Environmental Stress in the Industrial Area: • Occupational Hazards: Physical, chemical, mechanical, and biological hazards • Role of Physiotherapy in Industrial Setup & Stress Management with Relaxation Techniques **Desirable to Know:** • Ergonomics for remote work **Nice to Know:**		

	• Case studies on occupational rehabilitation		
	UNIT III		
	SPECIAL POPULATIONS & ADVANCED REHABILITATION STRATEGIES		
9	**Geriatric Rehabilitation**	14s	8
	Must to know: • Theories of Aging, Falls Prevention, Frailty & Sarcopenia Screening • Cognitive Impairments (Alzheimer's, Dementia, Parkinson's Disease, Stroke Recovery) • Role of Physiotherapy in Home-Based Elderly Care **Desirable to Know:** • Assistive technologies in geriatric rehabilitation **Nice to Know:** • Holistic wellness programs for the elderly		
10	**Community Health Promotion & Fitness**	6	2
	Must to know: • Community Fitness & Health Promotion **Desirable to Know:** • Role of alternative medicine in community wellness **Nice to Know:** • Traditional fitness approaches in different cultures		
11	**Vocational & Social Rehabilitation**	6	
	Must to know: • Role of Physiotherapy in Vocational Training and Employment for Disabled Individuals • Ethical Perspectives in Community-Based Rehabilitation **Desirable to Know:** • Advocacy and policy development in vocational rehab **Nice to Know:** • Impact of social enterprises on disability employment		

ppl-physio@dsu.edu.in
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References:

1. **WHO Disability and Rehabilitation**
   https://www.who.int/teams/noncommunicable-diseases/disability-and-rehabilitation
2. **UN Convention on the Rights of Persons with Disabilities (UNCRPD)**
   https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html
3. **Rights of Persons with Disabilities (RPWD) Act 2016 – India**
   https://legislative.gov.in/sites/default/files/A2016-49_1.pdf
4. **International Classification of Functioning, Disability and Health (ICF) – WHO**
   https://www.who.int/classifications/icf/en/
5. **CBR Matrix Tool (WHO)**
   https://www.who.int/publications/i/item/9789241548052
6. **National Programme for Health Care of the Elderly (NPHCE – India)**
   https://main.mohfw.gov.in/national-programme-health-care-elderly-nphce
7. **National Health Mission (NHM) Schemes**
   https://nhm.gov.in/
8. **Tele-rehabilitation Guidelines – Ministry of Health & Family Welfare, India**
   https://main.mohfw.gov.in/sites/default/files/TelerhabGuidelines.pdf

BOOK REFERENCES

1. **Community-Based Rehabilitation: CBR Guidelines**
   - *Publisher:* WHO, ILO, UNESCO & IDDC
   - *Available at:* WHO Website
2. **Braddom's Physical Medicine and Rehabilitation**
   - *Author:* David X. Cifu
3. **Physiotherapy in Obstetrics and Gynaecology**
   - *Author:* Margaret Polden, Jill Mantle
4. **Neurological Rehabilitation**
   - *Author:* Darcy Ann Umphred
5. **Geriatric Physical Therapy**
   - *Authors:* Andrew Guccione, Rita Wong
6. **Occupational Ergonomics: A Practical Approach**
   - *Author:* Waldemar Karwowski

ppl-physio@dsu.edu.in
Deverakaggalahalli, Kanakapura Road
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Long Essay Answers (Answer any 2 out of 3): 2 × 10 = 20 marks

Short Essay Answers (Answer any 12 out of 15): 12 × 5 = 60 marks

Short Answers (Answer all 10 questions): 10 × 2 = 20 marks

COURSE CODE: 22PT405

22PT473

TITLE OF THE COURSE: ON FIELD MANAGEMENT OF ATHLETIC INJURIES

ppl-physio@dsu.edu.in
Deverakaggalahalli, Kanakapura Road
Ramanagara Dt., Karnataka - 562 112
www.dsu.edu.in/physiotherapy

ON FIELD MANAGEMENT OF ATHLETIC INJURIES – PRACTICAL

COURSE OBJECTIVES:

This course aims to equip students with the knowledge and practical skills necessary for the assessment, prevention, and rehabilitation of sports injuries. By integrating principles from biomechanics, physiotherapy, and exercise science, students will develop clinical expertise in managing musculoskeletal dysfunctions related to athletic performance. Additionally, the course emphasizes evidence-based practice, ethical considerations, and professional competency in on-field and clinical sports rehabilitation settings.

COURSE OUTCOMES

CO1: Demonstrate a comprehensive understanding of orthopedic and sports physiotherapy concepts, including biomechanics, injury assessment, and rehabilitation techniques.

CO2: Apply knowledge of orthopedic and sports physiotherapy principles in patient care, treatment planning, and rehabilitation interventions.

CO3: Effectively integrate theoretical knowledge with clinical practice, enabling the assessment and management of sports-related injuries in a clinical setup.

CO4: Utilize orthopedic and sports physiotherapy expertise in on-field and sports-specific rehabilitation settings to enhance athletic performance and injury prevention.

Course Title :- ON FIELD MANAGEMENT OF ATHLETIC INJURIES

Course Code:-22PT405

Course Title :- ON FIELD MANAGEMENT OF ATHLETIC INJURIES – PRACTICAL
Course Code:- 22PT473

Course Credit for ON FIELD MANAGEMENT OF ATHLETIC INJURIES

Hours				**Hrs/Wk**				**Evaluation Pattern**						
Th	**Pr**	**Sct**	**Tot**	**Lec**	**Pr**	**Sct**	**Tot**	**Written**		**Total**		**Practical**		**Total**
40	40	0	80	1	1		2	IA	Final exam	VV	Final Exam	IA	Final exam	Final exam
								10	40	00	50	10	40	100

Topic Sr.No	**Course content**	**Hours of teaching /Learning**	
		Theory	**Practical**
	UNIT I		

	Injury Assessment Techniques	3	6

1.	**Must to Know:**
	• **General Assessment:**
	  ○ History taking and subjective examination.
	  ○ Postural and gait analysis.
	• **Regional Injury Assessment:**
	  ○ Upper limb: Shoulder, elbow, wrist, and hand.
	  ○ Lower limb: Hip, knee, ankle, and foot.
	  ○ Spine: Cervical, thoracic, and lumbar.
	• **Special Tests for Sports Injuries:**
	  ○ Ligament stress tests.
	  ○ Muscle strength and flexibility testing.
	Desirable to know:
	Functional movement screening		

2.	**Training & Conditioning in Sports**	6	6

	Must to know:
	• Definition and Meaning of Training
	• Components of Motor Training (Strength, Speed, Endurance, Mobility, Coordination)
	• Principles and Methods of Warm-Up and Conditioning
	Desirable to Know:
	• **Exercise-Based Rehabilitation:**
	  ○ Strengthening and flexibility exercises.
	  ○ Balance and proprioceptive training.
	  ○ Plyometric and agility drills.
	Nice to Know:
	• Periodization in Sports Training
	• Overtraining and Fatigue Management
	• Sport-Specific Training Adaptations (Football, Basketball, Cricket)		

3.	**Protective Equipment Considerations**	2	
	Must Know: • Role of Protective Equipment in Injury Prevention • Common Protective Gear in Different Sports (Helmet, Braces, Padding, Mouthguards) **Desirable to Know:** • Legal and Safety Standards for Sports Equipment **Nice to Know:**		

	• Custom-Made Protective Equipment		
4.	**Bioenergetics in Sports**	2	
	Must Know: • Energy Systems in Exercise (ATP-PC, Glycolytic, Aerobic) • Influence of Training on Energy System Efficiency **Desirable to Know:** • Metabolic Fatigue and Recovery Strategies **Nice to Know:** • Sports-Specific Energy Demands and Nutrition		
	UNIT II		
5.	**Physical Fitness Assessment in Sports**	3	6

	Must Know:
	• Components of Physical Fitness
	  ○ Health-Related (Cardiovascular Endurance, Muscular Strength, Flexibility)
	  ○ Skill-Related (Agility, Power, Balance, Coordination, Reaction Time)
	• Common Fitness Tests (VO2 Max, Beep Test, Functional Movement Screening)
	Desirable to Know:
	• Isokinetic and Electromyographic Testing for Athletes
	Nice to Know:
	• Wearable Technology in Fitness Assessment		

6.	**Introduction to Sports Injuries**	4	4

	Must Know:
	• Basic Concepts of Sports Injuries
	  ○ Definition and Classification (Acute vs. Chronic)
	  ○ Contact vs. Non-Contact Mechanisms
	• Pre-Participation Screening and Risk Factors
	  ○ Importance of Screening for Injury Prevention
	  ○ Biomechanical and Physiological Considerations
	• Tissue Healing and Phases of Recovery
	  ○ Inflammatory Response, Repair, Remodeling		

	○ Factors Influencing Healing **Desirable to Know:** • Genetic and Hormonal Influences on Injury Risk **Nice to Know:** Role of Sleep and Nutrition in Tissue Healing		
7.	**Acute Care Management of Sports Injuries**	6	6
	Must Know: • On-Field and Sideline Management ○ Primary and Secondary Assessment ○ Decision-Making: Return to Play vs. Removal • Emergency Situations and First Aid ○ CPR and AED for Athletes ○ Management of Shock, Concussions, Fractures, Dislocations ○ Heat Stroke, Dehydration, Electrolyte Imbalance • PRICE / POLICE / PEACE & LOVE / MEAT Protocols ○ Principles of Protection, Rest, Ice, Compression, Elevation ○ Optimized Loading in Early-Stage Rehabilitation **Desirable to Know:** • Emergency Equipment and Transportation for Injured Athletes		
	UNIT III		
8.	**Common Sports Injuries and Early Rehabilitation Strategies**	8	6
	Must Know: • **Upper Limb Injuries:** ○ Shoulder Dislocations, Rotator Cuff Tears ○ Tennis Elbow and Golfer's Elbow ○ Fractures of Clavicle, Humerus, and Wrist • **Lower Limb Injuries:** ○ ACL, MCL, and Meniscus Injuries ○ Ankle Sprains and Achilles Tendinopathy ○ Stress Fractures and Shin Splints • **Spinal and Head Injuries:** ○ Concussions and Return-to-Play Guidelines ○ Whiplash and Cervical Spine Injuries ○ Low Back Pain and Sacroiliac		

	Dysfunction • **Basic Physiotherapy Management:** o Acute Pain Management (TENS, IFT, Cryotherapy) o Early Mobilization and Isometric Exercises o Taping and Bracing Techniques **Desirable to Know:** • Tendinopathies and Load Management **Nice to Know:** • Rehabilitation of Nerve Injuries in Sports		
9.	**Rehabilitation Protocols and Return to Play Guidelines**	6	6
	Must Know: • **Early-Stage Rehabilitation Principles** o Safe Progression from Passive to Active Movement o Neuromuscular Control and Proprioceptive Training • **Rehabilitation of Specific Sports Injuries** o Football, Basketball, Tennis, Running o Special Considerations for Contact vs. Endurance Sports • **Return-to-Play Decision-Making** o Strength, Balance, and Agility Assessments o Psychological Readiness and Confidence in Athletes • **Injury Prevention Strategies** o Warm-Up and Cool-Down Protocols o Strength and Conditioning for Injury Prevention **Desirable to Know:** • Functional Testing and Performance-Based Return-to-Sport Criteria		

Books Recommended:

1. 1. Brukner& Khan's Clinical Sports Medicine.
2. Principles of Athletic Training – William E. Prentice.
3. Rehabilitation Techniques in Sports Medicine – William E. Prentice.
4. James G. Hay – The Biomechanics of Sports Techniques, Prentice Hall

5. Evidence-Based Practice in Sports Physiotherapy – Paul Comfort & Earle Abrahamson
6. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
7. Hartley: Practical Joint Assessment, A Sports Medicine Manual, upper and lower quadrants, C.V. Mosby
8. Dick, Frank, W. - "sports Training Principles" Henry Kimpton Publishers, London.
9. Albert: Eccentric Muscle Training in Sports and Orthopeadics, W.B. Saunders.
10. Singh, Hardayal, "Science of Sports Training" Dr. V.S. publishers, New Delhi.
11. Dvir: Isokinetics: Muscle Testing, Interpretation and Clinical Applications, W.B. Saunders.
12. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
13. Lillegard, Butcher & Rucker: Handbook of Sports Medicine: A Symptom – Oriented Approach, Butterworth & Heinemann
14. Baker: The Hughston Clinic Sports Medicine Book, Williams & Wilkins
15. Fox, Edward.L: 'The Physiological Basis of Physical Education And * Athletics" (3 Ed.) Sydney: WB Saunders Company.
16. Kreighbaum, Ellen &Barthels, Katherine. M. Bio-mechanics, 'A Qualitative Approach for Studying Human Movement - MacMilla publishing Co., New York.
17. Hartley: Practical Joint Assessment, A Sports Medicine Manual, upper and lower quadrants, C.V. Mosby.
18. Smith L.K", Weiss E.L. "Clinical Kinesiology" Jaypee Brothers, New Delhi
19. Physical Assessment & Rehabilitation (Susan O' Sullivan) Fifth Edition.
20. Systems of Orthopedics – Apleys – Butterworth Heinmann.
21. . Text Book of Radiology – Sutton D. – Churchill Livingstone.
22. Brunnstrom – Clinical Kinesiology, F.A. Davis.
23. Luttgens K., Hamilton N.: Kinesiology – Scientific Basis of Human Motion 9th Ed., 1997, Brown & Benchmark.
24. . Kennedy: Mosby's Sports Therapy Taping Guide.
25. The Pharmacological basis of Therapeutics – Goodman and Gilman – MacMillan.
26. Pharmacology and Pharmacotherapeutics – Satoskar& Bhandarkar – Popular Publications – Bombay.

Question Paper pattern for University Exams –

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Long Essay Answers (Answer any 2 out of 3): 2 × 10 = 20 marks

Short Essay Answers (Answer any 8 out of 10): 8 × 5 = 40 marks

Short Answers (Answer all 10 questions): 10 × 2 = 20 marks

COURSE CODE: 22PT406/ 22PT474

TITLE OF THE COURSE:

PHYSIOTHERAPY REHABILITATION IN ONCOLOGY (PROGRAM ELECTIVE)

PHYSIOTHERAPY REHABILITATION IN ONCOLOGY - PRACTICAL

COURSE OBJECTIVES

THIS COURSE SERVES TO INTEGRATE THE KNOWLEDGE GAINED BY THE STUDENTS IN ONCOLGY REHABILITATION WITH THE SKILLS GAINED IN EXERCISE THERAPY, ELECTRO THERAPY AND MASSAGE, THUS ENABLING THEM TO APPLY THESE IN CLINICAL SITUATIONS.

ppl-physio@dsu.edu.in
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COURSE OUTCOMES

CO 1: Apply clinical reasoning and evidence-based practices in physiotherapy to optimize rehabilitation outcomes for oncology patients.

CO 2: Perform comprehensive assessments to develop individualized and effective treatment plans for oncology rehabilitation.

CO 3: Utilize modern rehabilitation technologies and innovative approaches to enhance treatment strategies and improve patient care in oncology.

CO 4: Practice ethically while considering psychosocial aspects and promoting patient education to achieve holistic rehabilitation outcomes.

Course Title :- PHYSIOTHERAPY REHABILITATION IN ONCOLOGY **Course Code:- 22PT406** **Course Title :- PHYSIOTHERAPY REHABILITATION IN ONCOLOGY PRACTICALS** **Course Code:- 22PT474**														
Course Credit for PHYSIOTHERAPY REHABILITATION IN ONCOLOGY														
Hours: 80				**Hrs/Wk: 2**				**Evaluation Pattern**						
Th	**Pr**	**Sct**	**Tot**	**Lec**	**Pr**	**Sct**	**Tot**	**Written**		**Total**		**Practical**		**Total**
40	40	0	80	1	1		2	IA	Final exam	VV	Final Exam	IA	Final exam	Final exam
								10	40	00	50	10	40	100

Topic Sr.No	**Course content**	**Hours of teaching /Learning**	
		Theory	**Practical**
	UNIT 1		
1	**Cancer Pathophysiology and Assessment**	15	10
	Must to know		
	• Basic Cancer Biology (Cell cycle, metastasis, angiogenesis) • Pathophysiology of cancer and tumor • Principles of cancer management-		

	Surgical, Medical, Radiation and Chemotherapy, Cancer Screening and Cancer Diagnosis • Common Cancer Types (Breast, Lung, Colorectal, Prostate, CNS, Thorax, Head and Neck, bone) - including basic pathology, staging, and prognosis • Cancer Treatment Modalities (Surgery, Chemotherapy, Radiation, Immunotherapy, Targeted Therapies) - including common side effects relevant to physiotherapy • Comprehensive Patient Assessment:		
2	**Population Health**		
	Desirable to know		
	• Cancer Epidemiology and Risk Factors • Cancer Genetics and Familial Cancer Syndromes (e.g., BRCA mutations) - awareness of genetic counseling • Paraneoplastic Syndromes - identification of red flags • Nutritional Considerations in Cancer - basic understanding of nutritional impact and when to refer		
3	**Cancer**		
	Nice to know		
	• Cancer Stem Cells (Brief overview) • Minimal Residual Disease (MRD) (Brief overview)		
3	**Cancer Gene**		
	Must to know		
	• Cancer Stem Cells • Minimal Residual Disease (MRD) • Specific details of less common cancers		
5	**UNIT 2** **Rehabilitation**	15	15
	Must to know		
	• Effects of Cancer and Its Treatments on Exercise Capacity • Exercise Physiology in Cancer Patients including changes in aerobic and anaerobic metabolism in oncology patients, pulmonary and cardiovascular function in cancer patients • Exercise Prescription for Cancer		

	Patients • Lymphedema Management • Pain Management • Physical therapy modalities • Manual therapy techniques for pain relief • Mind-body techniques • Fatigue Management • Management of Specific Impairments: including Chemotherapy-induced peripheral neuropathy (CIPN), Radiation-induced fibrosis, post-surgical rehabilitation		
	Desirable to Know		
	• Prosthetic Rehabilitation of Head and Neck Cancer Patients • Prosthetic rehabilitation for Cancer-Related Limb Loss • Assistive Devices and Adaptive Equipment (Types of devices and fitting guidelines) • Ergonomics and Body Mechanics (Principles for preventing injury)		
	Nice to Know		
	• Aquatic Therapy for Cancer Rehabilitation • Vocational Rehabilitation		
6	**UNIT 3** **Rehabilitation in Palliative Care**	10	15
	Must to know		
	• Principles of Palliative Care • Palliative Care Need Assessment • Functional rehabilitation and QOL enhancement strategies		
	Desirable to know		
	• Multidisciplinary approach • Survivorship care		
	Nice to Know		
	• Molecular Rehabilitation		

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Books Recommended:

1. 2.Cancer Rehabilitation: Principles and Practice (3rd Edition) by Deborah K. Rhodes PT, DPT, MS, and Elizabeth Anne Nichols PT, PhD.
2. Integrative Oncology by Donald Abrams MD and Andrew Weil MD.
3. ACSM's Resources for Cancer Survivorship by American College of Sports Medicine

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Short Essay Answers (Answer any 8 out of 10):	8 × 5 = 40 marks
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