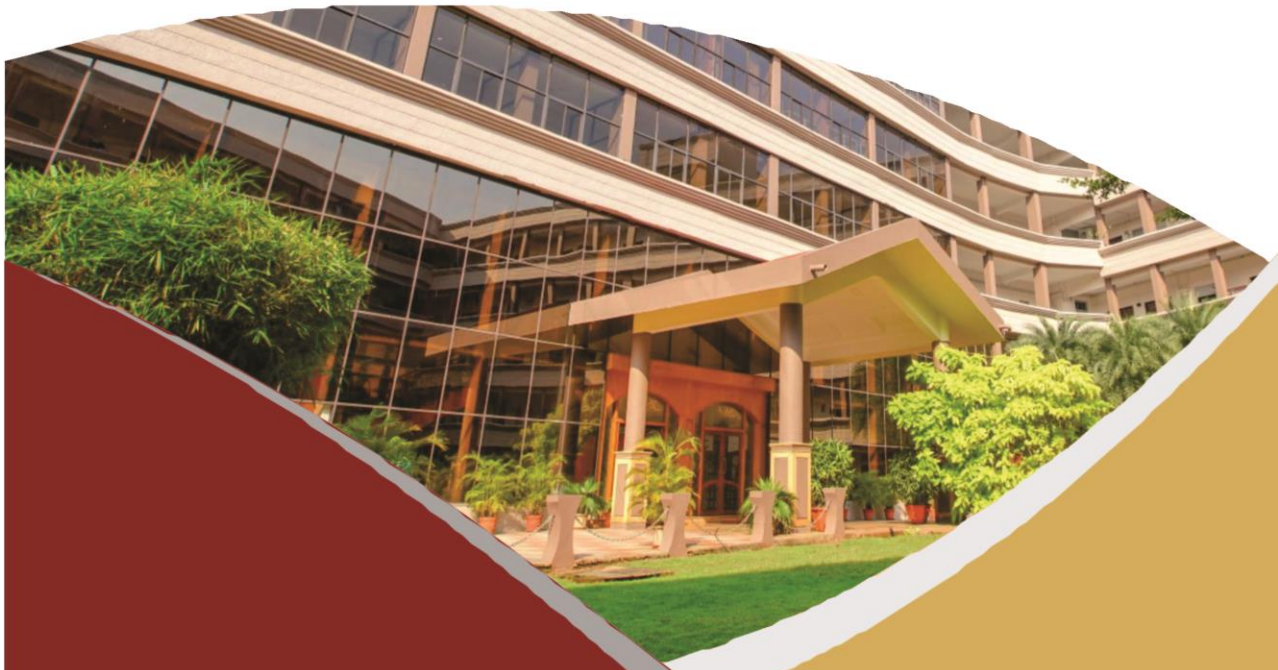
D. Y. PATIL EDUCATION SOCIETY
(DEEMED TO BE UNIVERSITY), KOLHAPUR

Declared Ested U/S 3 of UGC Act 1956
Accredited by NAAC with 'A++' Grade



BACHELOR OF PHYSIOTHERAPY (B.P.TH)

D. Y. PATIL EDUCATION SOCIETY, KOLHAPUR
(DEEMED TO BE UNIVERSITY)

D. Y. Patil College of Physiotherapy
Syllabus for
I - Bachelor of Physiotherapy

VISION

- To be an excellence in training physiotherapy students
- To train future leaders for education, research and practice in physiotherapy using advance techniques
- To promote sustainable development by using various skills and techniques in certain conditions by assuring best teaching and educational centre.
- To seek a leadership role in institutional and community research through developing innovative, multidisciplinary collabarative approaches.

MISSION

- The mission of course is to impart indepth knowledge in various specialities with regards to scope and up-liGment in our profession.
- To advance basic knowledge of physiotherapy by understanding how it works in various diseases, disorders and dysfunction.
- To develop holistic approach in society for success in life.

I - Bachelor of Physiotherapy

Program Code	Exam Code	Course Name	Subject Name	Sub/Course Code
16	**1601**	**Ist B.P.Th.**	Human Anatomy	160101
			Human Physiology	160102
			Biochemistry	160103
			Fundamentals of Kinesiology & Kinesiotherapy	160104
			Fundamentals of Electrotherapy	160105
	1602	**IInd B.P.Th.**	Pathology & Microbiology	160201
			Pharmacology	160202
			Psychiatry & Psychology	160203
			Kinesiology	160204
			Kinesiotherapy	160205
			Electrotherapy	160206
	1603	**IIIrd B.P.Th.**	Surgery I	160301
			Surgery II	160302
			Medicine I	160303
			Medicine II	160304
			Community Health & Sociology	160305
			Functional Diagnosis and Physiotherapeutic Skills	160306
	1604	**IVth B.P.Th.**	Musculoskeletal Physiotherapy	160401
			Neuro Physiotherapy	460402
			Cardio-Vascular & Respiratory Physiotherapy	160403
			Community Physiotherapy	160404

PROGRAM OUTCOME

PO1: Ability to acquire knowledge about normal- abnormal basic medical and human movement sciences, understand relevant investigations, role of drugs related to various medicalconditions,surgicaltreatmentandapplicationofphysiotherapyinterventions.

PO2: To gain knowledge about planning and problem solving abilities to delineate the cognitive, affective and psychomotor skills to perform as a competent physiotherapist who will be able to evaluate, plan and effectively perform the physiotherapeutic skills.

PO3: Demonstrate the ability to acquire good listening potential with effective interpersonal and intra personal communicationskills.

PO4: Extend the acquired knowledge to conduct research activities and publications that contribute to the upliGment in field of physiotherapy and betterment of society.

PO5: Understand moral value, professional ethics and accountability towards patient and colleagues, develop good behaviors skills with confidentiality and humanitarian approach maintaining the respect and privacy of patient.

PO6: Develop leadership skills, time management, logical reasoning, values required for self directed and lifelong learning, soG skills for professional development and execute their professionalroleinsocietyasaphysiotherapistatvariousacademicinstitutions,Hospital/ Clinics,Organizations,ResearchlaboratoriesandRehabilitationcenters.

PO7: Understanding about society's needs in terms of health and wellness, to improve multiculturalcompetencyamongprofessionalandgeneralpublic,promotingsocialpolicies that affect the demands of patients in terms of function, health and wellness, develop a character with good moral values, human values, good social behavior, gratitude, honesty, ethics,safety,hygiene,responsibility,confidence,toleranceandcriticalthinking.

PO8: Able to contribute in sustainable development to achieve the national sustainable development goal, further the relationship between the environment, human health and functioning and physiotherapy are considered and respected to mutually benefit patient'shealth.Ensurehealthylife'sandpromotewellbeingforallatallages.

PO9: Demonstrate ability to acquire new knowledge skill and reflect upon their experience to enhance personal, professional growth and apply the information for patient care.

COURSE OUTCOME

ANATOMY:

CO1: Dissect and identify the normal disposition, inter relationship, gross functional and applied anatomy of various structures in thecadaver.

CO2: Ability to identify the microscopic structures of basic tissues, organs in the human body andbasicprinciplesofembryologyinstagesofnormaldevelopment.

CO3: Demonstrate different movements of joints, there attachments, palpate important bony landmarks.

CO4: Identify and describe various parts, structures and blood circulation of CNS and spinal cord.Describethecourseofperipheralnervesanditsimportance.Understandanatomical basis of clinical conditions of nervoussystem.

CO5: Identify and describe various structures, mechanism, blood supply of cardiovascular and respiratory system and understand its anatomical basis of clinical conditions.

CO6: Ability to understand the knowledge of systemic anatomy, abdomen, endocrine and exocrine system and sensory organs with their appliedanatomy.

CO7: Demonstrate the knowledge and application of imaging techniques and interpretation ofradiogram.

PHYSIOLOGY:

CO1: Acquire the knowledge of general physiology and its contribution in each organ system to maintainhomeostasis.

CO2: Understand the basic physiological functions of various systems with special emphasis on Musculo-skeletal, Neuro-motor, cardio-respiratory, endocrine and uro-genital function and alteration in function withaging.

CO3: Acquire the knowledge about structure and function of special sense organs and its applied physiology (eye &ear).

CO4: Acquire the skills of basic clinical examination with special emphasis to peripheral and central nervous system, cardiovascular and respiratory system and exercise tolerance/ Ergography.

CO5: Analyze physiological response and adaptation to environmental stresses with special emphasis on physical activity, attitude, and temperature.

CO6: Explain and correlate the applied physiology of diseases and disorders related to organ systems of body which are commonly treated by the physiotherapist.

BIOCHEMISTRY:

CO1: Acquire and demonstrate the knowledge of formation, functioning and fate of biomolecules, their normal and abnormal levels to understand the disease process and their clinicalinterpretation.

CO2: Acquire the knowledge of vitamins, minerals their functions, deficiency manifestations and their role in daily nutritiverequirements.

CO3: Acquire the knowledge about healthy balanced diet with its nutritive importance and dietarydeficiencies.

CO4: Describe the fundamentals aspect of enzymes and hormones with their role in various metabolicdisorderswhereinregulationofenzymaticandhormonalmechanismisaltered.

CO5: Abilitytounderstandmechanismandbiochemicaleventsinconnectivetissue.

FUNDAMENTALS OF KINESIOLOGY AND KINESIOTHERAPY:

CO1: Understand basic principles of biomechanics, biophysics and application of these principles inKinesiotherapy.

CO2: Understand classification of joints and muscles, types of movements along with their distinguishing characteristics. Demonstrate various starting and derived position used in therapeutics.

CO3: Acquire the skills of assessment of basic evaluation like sensations, reflexes and vital parameters and also the skills of objective assessment of range of motion by goniometry.

CO4: Understand physiological principles and acquire the skills of application of therapeutic massage.

CO5: Acquire the knowledge on physiological basis and principle of relaxation and the skills of relaxation methods. Understand principles of aerobic exercises for general fitness and demonstratefitnessskillsonselfandgroup.

CO6: Acquire the knowledge on physiological principles and skills of performing Pranayama and Yogasan for maintaining general fitness.

FUNDAMENTALS OF ELECTROTHERAPY:

CO1: Ability to acquire basic physics principles, laws of electricity, electromagnetic spectrum, common electrical components, fundamentals of currents, sound waves and theireffects.

CO2: Ability to understand effects of environmental and man-made electromagnetic field at the cellular level and risk factorson prolong exposure.

CO3: Describe and identify various types of electrodes used in electrotherapy, electrical skin resistanceandsignificanceofvariousmediausedtoreduceskinresistance.

CO4: Acquireknowledgeofvarioussuperficialthermalagentsandtheirskillsofapplication.

CO5: Ability to understand types and production of various therapeutic electrical currents and inapplicationondifferentelectrotherapeuticmodalities.

HUMAN ANATOMY

1st Year B.P.Th

(Didactic-138 hrs. + Practical/Laboratory-72hrs.) **Total- 210Hrs**

COURSE DESCRIPTION :

The focus of this course is an in-depth study and analysis of the regional and systemic organization of the body. Emphasis is placed upon structure and function of human movement. A comprehensive study of human anatomy with emphasis on the nervous, musculoskeletal, and circulatory systems is incorporated. Introduction to general anatomy lays the foundation of the course. Dissection and identification of structures in the cadaver supplemented with the study of charts, models, prosected material, and radiographs are utilized to identify anatomical landmarks and configurations of the:

- Upper limb and thoracicregion
- Lower limb, abdomen, andpelvis
- Head andNeck
- Nervoussystem

Sr. No	Regions	Didactic Hours	Practical Hours	Total Hours
1	GENERAL ANATOMY AND HISTOLOGY	17	08	**25**
2	MUSCULOSKELETAL SYSTEM	50	40	**90**
3	NEURO ANATOMY	37	12	**49**
4	SYSTEMIC ANATOMY	06	06	**12**
5	CARDIOVASCULAR & RESPIRATORY ANATOMY	10	04	**14**
6	ABDOMEN	04	02	**06**
7	SENSORY ORGANS	04	-	**04**
8	ENDOCRINE & EXOCRINE SYSTEM	04	-	**04**
9	RADIOLOGY	06	-	**06**
	TOTAL	**138**	**72**	**210**

OBJECTIVES :

1) MUSCULOSKELETALANATOMY

i. The student be able to identify & describe Anatomical aspects of muscles, bones, joints,theirattachments&tounderstandandanalysemovements.
ii. Applicationofknowledgeofanatomyontheliving(livinganatomy.)
iii. TounderstandtheAnatomicalbasisofvariousclinicalconditions.

2) NEUROANATOMY

i. Toidentify&describevariouspartsofnervoussystem.
ii. To describe blood supply of C. N. S. &spinalcord.
iii. To identify and describe the course of cranialnerves.
iv. Toidentifyanddescribethecourseofperipheralnerves.
v. Tounderstandanatomicalbasisofclinicalconditionsofnervoussystem.

3) CARDIOVASCULAR &RESPIRATORYANATOMY

i. To identify & describe various structures of the Cardiovascular & Respiratory system and the course of major bloodvessels
ii. Identify and describe various structures of Thoracicage and mechanisms ofRespiration
iii. To understand anatomical basis of clinical conditions of cardiovascular &Respiratory system.

4) ToobtainKnowledgeof**OTHERSYSTEMS,SENSORYORGANIS&Radiology.**

SYLLABUS

1ST YEAR HUMAN ANATOMY								
GENERAL ANATOMY AND HISTOLOGY	**Didactic Hours**		**Practical Hours**		**Total Hours**	**MUST KNOW**	**DESIRABLE TO KNOW**	**NICE TO KNOW**
	Topic	Hours	Topic	Hours				
GENERAL ANATOMY			Cadaveric Oath	2	9	2 (Practical)		
	Skin & Fascia	1					1	
	Muscular System	1				1		
	Bones	1				1		
	Joints	2				2		
	Vascular System	1				1		
	Nervous System	1				1		
General Histology		**7**		**6**	**13**			
	Epithelial	1	Epithelial & connective Tissue	2			3	
	Connective Tissue	1	Muscular Tissue, Bone & Cartilage	2		1+2		
	Muscular Tissue	1	Vessels & Nerves	2		5+2		
	Bone	1						
	Cartilage	1						
	Vessels	1						
	Nerves	1						
EMBRIOLOGY		3						
	Cell Division	1				1		
	Oogenesis	1					1	
	Spermatogenesis	1					1	
Musculoskeletal System		**14**		**10**	**24**			
a.Superior Extremity	Muscles of Pectoral Region	1	Clavicle & Scapula	2		1+2		
	Scapular Muscles	1	Humerus & Radius	2		1+2		
	Pectoral Girdle	1	Ulna & Articulated	2		1+2		

			Hand					
	Axilla	1	Axilla & Arm	2		1+2		
	Muscles of Arm	1	Forearm & Hand	2		1+2		
	Shoulder Joint	1				1		
	Muscles of Forearm (Anterior)	1				1		
	Muscles of Forearm (Posterior)	1				1		
	Cubital Fossa	1				1		
	Elbow Joint	1				1		
	Muscles of Hand	1				1		
	Pronation & Supination	1				1		
	Carpal Tunnel	1				1		
	First Metacarpophalangeal joint	1				1		
		15		**12**	**27**			
b.Lower extremity	Muscles of Thigh (Anterior)	1	Hip Bone	2		1+2		
	Femoral Triangle	1	Femur & Patella	2		1+2		
	Muscles of Thigh (Medical)	1	Tibia, Fibula & Articulated Foot	2		1+2		
	Muscles of Gluteal Region	1	Thigh	2		1+2		
	Muscles of Thigh (Posterior)	1	Gluteal Region	2		1+2		
	Hip Joint	1	Leg & Foot	2		1+2		
	Muscles of Leg (Anterior)	1				1		
	Muscles of Leg (Lateral)	1				1		
	Muscles of Leg (Posterior)	1				1		
	Popliteal Fossa	1				1		
	Knee joint	1				1		
	Ankle joint	1				1		
	Muscles of Foot	1				1		
	Arches of foot	1				1		
	Inversion & Eversion	1				1		

c.Back and thoracic cage		**6**		**8**	**14**			
	Superficial muscles of back	1	Cervical Vertebra	2		1+2		
	Deep muscles of back	1	Thoracic Vertebra	2		1+2		
	Sub-occipital triangle	1	Ribs & Sternum	2		2 (practical)	1	
	Trapezius & Latissimus Dorsi	1	Lumbar vertebrae & Sacrum	2		1+2		
	Vertebral Column	1				1		
	Bony Pelvis	1				1		
d. Head neck and face		**11**		**10**	**21**			
	Deep Cervical Fascia	1	Skull Frontalis & Lateralis	2			1+2	
	Triangles of Neck (Stemocleidomastoid)	1	Skull Occipitalis & Basalis	2		1	2 (Practical)	
	Facial Muscles	1	Skull Interior & Vault	2		1	2 (Practical)	
	Muscles of Mastication	1	Mandible & Hyoid Bone	2		1	2 (Practical)	
	Suprahyoid & Infrahyoid Muslces	1	Cut Section (SoG palate, Tongue, Pharynx & Larynx)	2		1	2 (Practical)	
	Temporomandibular Joint	1				1		
	Extraocular Muscles	1					1	
	Muscles of Soft Palate	1					1	
	Muscles of Tongue	1						1
	Muscles of Pharynx	1					1	
	Muscles of Larynx	1					1	
e. Living Anatomy		**4**			**4**			
	Superior Extremity	1				1		
	Lower Extremity	1				1		
	Head, neck & Face	1				1		

	Trunk	1					1	
NEURO ANATOMY		**37**		**12**	**49**			
		12		**4**	**16**			
a. Peripheral Nerves	Autonomic Nervous System	1	Nerves of Lower limb	2		2 (Practical)	1	
	Lumbosacral Plexus	1	Nerves of Upper Limb	2		1+2		
	Femoral Nerve	1				1		
	Obturator Nerve	1				1		
	Sciatic Nerve	1				1		
	Tibial Nerve	1				1		
	Common Peroneal Nerve	1				1		
	Brachial Plexus	1				1		
	Axillary & Musculocutaneous Nerve	1				1		
	Median Nerve	1				1		
	Radial Nerve	1				1		
	Ulnar Nerve	1				1		
b. Cranial nerves		**10**		**-**	**10**			
	Cranial Nerve Nuclei	1						1
	Olfactory & Optic Nerve	1				1		
	Oculomotor Nerve	1				1		
	Trochlear &Abducent Nerve	1					1	
	Trigeminal Nerve	1				1		
	Facial Nerve	1				1		
	Vestibulocochlear nerve	1					1	
	Glossopharyngeal nerve	1					1	
	Vagus& Accessory Nerve	1				1		
	Hypoglossal nerve	1					1	

		15		**8**	**23**			
	Meninges	1	Spinal Cord	2		2 (Practical)	1	
	Spinal Cord Gross	1	Brain Stem	2		1+2		
	Spinal Cord Descending Tracts	1	Cerebellum	2		1+2		
c. Central Nervous system	Spinal Cord Ascending Tracts	1	Cerebrum	2		1+2		
	Brain stem Gross	1				1		
	Medulla	1				1		
	Pons	1				1		
	Mid-brain	1				1		
	Cerebellum	1				1		
	Cerebrum Functional areas	1				1		
	Cerebrum White Matter	1					1	
	Thalamus	1				1		
	Basal Ganglia	1				1		
	Hypothalamus	1				1		
	Ventricle& C.S.F	1				1		
Systemic anatomy		**6**		**6**	**12**			
		2		**2**	**4**			
a. Alimentary system	Gross Anatomy of Stomach	1	Stomach & Liver	2				
	Gross Anatomy of Liver							1+2
		2		**2**	**4**			
Urinary System	Gross Anatomy of Kidney	1	Kidney & Urinary Bladder	2		2 (Theory)	2 (Practical)	
	Gross Anatomy of Urinary bladder	1						
		2		**2**	**4**			
. Genital system	Gross Anatomy of Testis	2	Uterus & Testis	2				
	Gross Anatomy of Uterus						2+2	
CARDIOVASCULAR & RESPIRATORY ANATOMY		**10**		**04**	**14**			
Thoracic Cavity		**2**		**-**	**2**			
	Thoracic cage & movements of	1				1		

	respiration							
	Mediastinum	1					1	
b. Heart and major blood vessels		**4**		**2**	**6**			
			Heart	2				
	Pericardium	1						1
	Gross Anatomy of Heart	1				1		
	Coronary Circulation	1				1		
	Arch of Aorta	1					1	
c. Lungs		**2**		**2**	**4**			
	Pleura	1						1
	Lungs	1	Lungs	2		1+2		
a. Diapharagm& Intercostals		**2**		-	**2**			
	Intercostal Space	1				1		
	Diapharagm	1				1		
ABDOMEN		**4**		**2**		**6**		
Muscles of abdomen & Pelvis	Anterior Abdominal Wall	1	Anterior Abdominal wall	2		1+2		
	Inguinal Canal	1						1
	Pelvic Diaphragm	1						1
	Perineal Body	1						1
SENSORY ORGANS		**4**		**-**		**4**		
	External ear & Tympanic membrane	1					1	
	Middle Ear	1				1		
	Eyeball	1					1	
	Skin	1					1	
ENDOCRINE & EXOCRINE SYSTEM		**4**		**-**	**4**			
	Pituitary	1					1	
	Thyroid	1					1	
	Suprarenal	1					1	
	Pancreas	1					1	
RADIOLOGY		**6**			**6**			
	Introduction to Radiology	1				1		
	Radiology of Superior Extremity	1				1		

	Radiology of Inferior Extremity	1				1		
	Radiology of Thorax	1				1		
	Radiology of Abdomen	1					1	
	Radiology of Head Neck Face	1					1	

1st year BPTH HUMAN PHYSIOLOGY							
Sr. No.	**Topic**	**Didactic Hours**	**Practical Hours**	**Total Hours**	**MK**	**DK**	**NK**
1	a. Cell:			**4**			
	i. Structure of cell membrane	1					1
	ii. Transport across cell membrane	1					1
	iii. Homeostasis	2			2		
	b. Blood:			**7**			
	i. Rh- ABO system & mismatch-transfusion	2			2		
	ii. WBC	1			1		
	iii. Plasma protein	1				1	
	iv. Platelets	1				1	
	v. Hemoglobin, Anemia, Immunity	1			1		
	vi. Normal values of blood (composition & function)	1			1		
	vii. Bleeding time & clotting time	1			1		
	c. Nerve:			**6**			
	i. Structure, classification & Properties	2			2		
	ii. R.M.P& action potential	1			1		
	iii. Propagation of nerve impulse	1			1		
	iv. Nerve injuries –degeneration, regeneration and reaction of degeneration	2			1		
	d. Muscle:			**8**			
	i. Structure- properties- classification- smooth, skeletal, cardiac,excitation/ contraction coupling	3			3		
	ii. Factors affecting development of muscle tension, fatigue, load.	2				2	
	iii. Neuro-muscular transmission; applied physiology: Myasthenia gravis,Eaton Lambert Syndrome.	3			3		
2	NERVOUS SYSTEM:			**35**			

	a. Introduction of nervous system, classification – C.N.S., P.N.S. & A.N.S.	3			3		
	b. Synapse-structure, properties, & transmission;	4			4		
	c. Reflexes-classification & properties;	3			3		
	d. Receptor physiology: classification, properties.	3				3	
	e. Physiology of Touch, Pain, Temperature & Proprioception;	4			4		
	f. Sensory and motor tracts: effect of transaction (complete andincomplete) at various levels	4			4		
	g. Physiology of Muscle Tone (muscle spindle); Stretchreflex	3			3		
	h. Connection & function of Basal ganglia, Thalamus, Hypothalamus,Sensory and Motor cortex, Cerebellum, Limbic system, VestibularApparatus	4			4		
	i. Autonomic nervous system: Structure and functions of thesympathetic and the parasympathetic nervoussystem.	4				4	
	j. Learning, memory & conditioned reflex	3					3
	k. Physiology of Voluntary movement	3			3		
3	EXCRETORY SYSTEM:			**6**			
	a. Kidneys-structure & function;	1				1	
	b. Urine formation;(to exclude concentration and dilution)	0.5					0.5
	c. Juxtaglomerular apparatus	0.5					0.5
	d. Fluid and electrolyte balance – Na, K, H2O	1			1		
	e. Neural control of Micturation	1			1		
	f. Applied physiology: Types of bladder	2			2		
4	TEMPERATURE REGULATION			**2**			
5	ENDOCRINE SYSTEM:			**6**			
	a. Secretion- regulation & function of Pituitary - Thyroid - Adrenal -Parathyroid - Pancreas	3					3

	b. Applied physiology (abnormalities) of the above mentioned glands	3				3	
6	REPRODUCTIVE SYSTEM:			**20**			
	a. Physiology of ovary and testis	1					1
	b. Physiology of menstrual cycle and spermatogenesis	2			2		
	c. Functions of progesterone, estrogen and testosterone	2			2		
	d. Puberty & menopause	1					1
	e. Physiological changes during pregnancy	2			2		
7	SPECIAL SENSES:			**5**			
	a. Structure and function of the eye				2		
	b. Applied physiology: errors of refraction, accommodation, reflexes –dark and light adaptation, photosensitivity						1
	c. Structure and function of the ear					1	
	d. Applied physiology- types of deafness					1	
	RESPIRATORY SYSTEM:			**20**			
	a. Introduction, structure and function of the RS	3			3		
	b. Mechanics of respiration;	3			3		
	c. Pulmonary Volumes & capacities;	3			3		
	d. Anatomical & Physiological Dead space- ventilation/perfusion ratio,alveolar ventilation	2					2
	e. Transport of respiratory gases	2				2	
	f. Nervous & Chemical control of respiration	2				2	
	g. Pulmonary function tests-Direct & indirect method of measurement	3			3		
	h. Physiological changes with altitude & acclimatization	2				2	
9	CARDIOVASCULAR SYSTEM:			**20**			
	a. Structure & properties of cardiac muscle	3			3		
	b. Cardiac impulse- initiation and conduction	3			3		
	c. Cardiac cycle	3			3		
	d. Heart rate regulation	3			3		
	e. Blood pressure- definition-regulation-Cardiac output- regulation &function affecting; Peripheral resistance, venous return	4			4		
	f. Regional circulation-coronary-muscular, cerebral	2				2	
	g. Normal ECG.	2			2		

10	GASTRO INTESTINAL SYSTEM:			3			
	a. Absorption and digestion in brief	2				2	
	b. Liver function	1					1
11	EXERCISE PHYSIOLOGY			**15**			
	a. Basal Metabolic Rate and Respiratory Quotient	1			1		DK
	b. Energy metabolism	1			1	NK	
	c. Fatigue	1			1	NK	
	d. Oxygen debt	1			1		DK
	e. Acute cardio vascular changes during exercise,between mild, moderate and severe exercise, difference concept of endurance	2			2		
	f. Acute respiratory changes during exercise	2			2		
	g. Concept of training/conditioning, effects of chronic exercise/effect of training on the cardiovascular & respiratory system	1			1		
	h. Body temperature regulation during exercise	1			1		
	i. Hormonal and metabolic effects during exercise	1					1
	j. Effects of exercise on muscle strength,power,endurance	2			2		
	k. Physical fitness and its components	2			2		
12	PHYSIOLOGY OF AGEING (With respect to all systems)			5	5		

PRACTICALS					
SR NO	**TOPIC**	**HOURS**	**MUST KNOW**	**DESIRABLE TO KNOW**	**NICE TO KNOW**
1	Haematology – (demonstration only)	6	6		
2	GRAPHS :	5			
	a. Skeletal muscle and its properties			5	
	b. Cardiac muscle-properties-effect of Ach & Adrenaline				
3	Blood pressure- effects of change in posture & exercise	4	4		
4	Examination of pulse	2	2		
5	Spirometry	4			
	a. Lung volumes and capacities			2	
	b. Timed vital capacity			2	

6	Perimetry	1		1	
7	Physical fitness :	10			
	a. Breath holding		2		
	b. Mercury column test;		2		
	c. Cardiac efficiency test- Harvard step test-Master Step test		2		
	d. Ergography		2		
	e. Guidelines for Covid - 19 pandemic		2		
8	Clinical examination: Historytaking and general examination /Respiratory system / cardio vascular system / Higher functions/Cranial nerves /Reflexes / Motor & Sensory system	18	18		

RECOMMEMDED TEXT BOOKS

1. Human Anatomy –Snell
2. Anatomy- Chaurasia, Volume- I,II &III
3. Neuro anatomy -- InderbirSingh
4. HumanAnatomy–Kadasne,Volume-I,II&III
5. Neuroanatomy -- VishrsamSingh
6. Human Anatomy –Datta

RECOMMEMDED REFERENCE BOOKS

1. Gray'sAnatomy
2. Extremities -- QuiningWasb
3. Atlas of Histology -- Mariano DeFiore
4. Anatomy & Physiology -- Smout andMcDowell
5. Kinesiology -- KatherineWells
6. Neuroanatomy --Snell
7. Neuroanatomy -- VishrsamSingh
8. Cunnigham`s- PracticalAnatomy

SCHEME OF UNIVERSITY EXAMINATION

Theory * The question paper will give appropriate weight age to all the topics in the syllabus.		**Marks**
Section A	Question 1 MCQ (1×20)	20
Section B	Question 2 BAQ (2×10)	20
	Question 3 SAQ (any 4 out of 5) (5×4)	20
Section C	Question 4 LAQ (any 2 out of 3) (10×2)	20
	Internal Assessment	20
	Total	**100**

MCQs : 20	**BAQs: 20**	**SAQs: 20**	**LAQs: 20**
MK – 12 DK – 06 NK – 02	MK – 06 DK – 03 NK – 01	MK – 03 DK – 01 NK – 01	MK – 03 DK – 00 NK – 00

PRACTICAL		**Marks**
80 MARKS + I.A. – 20 MARKS [15 + 5]		**100**
Spots	Based on: I. Musculoskeletal (7x3) =21marks II. Systemic (5x3) = 15marks III. Neuroanatomy (3x3) =09marks	**45**
Radiology		**05**
Living anatomy		**05**
Viva	i. Hardparts ii. SoGparts	**20**
Journal	Year work on practicals performed	**05**
Total Marks		**80**

INTERNAL ASSESSMENT:

1. Two exams – Terminal and prelims of 80 marks each (Theory & Practical) TOTAL - 160marks
2. I.A. to be calculated out of 20 marks (Theory &Practical).
3. Internal assessment as per University pattern.

HUMAN PHYSIOLOGY

(Theory-150hrs,Practical/Laboratory-50hrs) **TOTAL 200 hrs)**

COURSEDESCRIPTION:

The course is designed to study the function of the human body at the molecular, cellular, tissue andsystemslevels.Themajorunderlyingthemesare;themechanismsforpromotinghomeostasis, cellular processes of the metabolism, membrane function and cellular signaling; the mechanisms that match supply of nutrients to tissue demands at different activity levels; the mechanisms that match the rate of excretion of waste products to their rate of production; the mechanisms that defend the body against injury andpromote healing.

These topics address the consideration of nervous and endocrine regulation of the cardiovascular, hematopoietic, pulmonary, renal, gastro-intestinal and musculoskeletal systems including the control of cellular metabolism. The course stresses on the integrative nature of physiological responses in normal function and disease.

This course will serve as a pre-requisite/foundation for the further courses i.e. Exercise physiology or Pathology.

Sr. No.	Topics	Didactic hrs	Practical hrs	Total hrs
1.	**GENERAL PHYSIOLOGY**	25	42	**175**
2.	**NERVOUS SYSTEM**	38		
3.	**EXCRETORY SYSTEM**	06		
4.	**TEMPERATURE REGULATION**	02		
5.	**ENDOCRINE SYSTEM**	06		
6.	**REPRODUCTIVE SYSTEM**	08		
7.	**SPECIAL SENSES**	05		
8.	**RESPIRATORY SYSTEM**	20		
9.	**CARDIOVASCULAR SYSTEM**	20		
10.	**GASTRO INTESTINAL SYSTEM**	03		
11.	**EXERCISE PHYSIOLOGY**	15	08	**023**
12.	**PHYSIOLOGY OF AGEING**	02	-	**02**
Total		**150**	**50**	**200**

OBJECTIVES:

At the end of the course, the candidate will:

1. Acquire the knowledge of the relative contribution of each organ system in maintenance of the MilieuInterior (Homeostasis)
2. Be able to describe physiological functions of various systems, with special reference to Musculo-skeletal, Neuro-motor, Cardio-respiratory, Endocrine, Uro-genital function, & alterations in functionwith aging
3. Analyze physiological response & adaptation to environmental stresses-with special emphasis on physical activity, altitude,temperature
4. Acquire the skill of basic clinical examination, with special emphasis to Peripheral & Central Nervous system, Cardiovascular & Respiratory system, & Exercise tolerance / Ergography

1st year BPTH HUMAN PHYSIOLOGY							
Sr. No.	**Topic**	**Didactic Hours**	**Practical Hours**	**Total Hours**	**MK**	**DK**	**NK**
1	a. Cell:			**4**			
	i. Structure of cell membrane	1					1
	ii. Transport across cell membrane	1					1
	iii. Homeostasis	2			2		
	b. Blood:			**7**			
	i. Rh- ABO system & mismatch-transfusion	2			2		
	ii. WBC	1			1		
	iii. Plasma protein	1				1	
	iv. Platelets	1				1	
	v. Hemoglobin, Anemia, Immunity	1			1		
	vi. Normal values of blood (composition & function)	1			1		
	vii. Bleeding time & clotting time	1			1		
	c. Nerve:			**6**			
	i. Structure, classification & Properties	2			2		
	ii. R.M.P& action potential	1			1		
	iii. Propagation of nerve impulse	1			1		
	iv. Nerve injuries –degeneration, regeneration and reaction of degeneration	2			1		
	d. Muscle:			**8**			
	i. Structure- properties- classification- smooth, skeletal, cardiac,excitation/ contraction coupling	3			3		
	ii. Factors affecting development of muscle tension, fatigue, load.	2				2	
	iii. Neuro-muscular transmission; applied physiology: Myasthenia gravis,Eaton Lambert Syndrome.	3			3		
2	NERVOUS SYSTEM:			**35**			
	a. Introduction of nervous system, classification – C.N.S., P.N.S. & A.N.S.	3			3		
	b. Synapse-structure, properties, & transmission;	4			4		
	c. Reflexes-classification & properties;	3			3		
	d. Receptor physiology: classification, properties.	3				3	
	e. Physiology of Touch, Pain, Temperature & Proprioception;	4			4		

	f. Sensory and motor tracts: effect of transaction (complete andincomplete) at various levels	4			4		
	g. Physiology of Muscle Tone (muscle spindle); Stretchreflex	3			3		
	h. Connection & function of Basal ganglia, Thalamus, Hypothalamus,Sensory and Motor cortex, Cerebellum, Limbic system, VestibularApparatus	4			4		
	i. Autonomic nervous system: Structure and functions of thesympathetic and the parasympathetic nervoussystem.	4				4	
	j. Learning, memory & conditioned reflex	3					3
	k. Physiology of Voluntary movement	3			3		
3	EXCRETORY SYSTEM:			**6**			
	a. Kidneys-structure & function;	1				1	
	b. Urine formation;(to exclude concentration and dilution)	0.5					0.5
	c. Juxtaglomerular apparatus	0.5					0.5
	d. Fluid and electrolyte balance – Na, K, H2O	1			1		
	e. Neural control of Micturation	1			1		
	f. Applied physiology: Types of bladder	2			2		
4	TEMPERATURE REGULATION			**2**			
5	ENDOCRINE SYSTEM:			**6**			
	a. Secretion- regulation & function of Pituitary - Thyroid - Adrenal -Parathyroid - Pancreas	3					3
	b. Applied physiology (abnormalities) of the above mentioned glands	3				3	
6	REPRODUCTIVE SYSTEM:			**20**			
	a. Physiology of ovary and testis	1					1
	b. Physiology of menstrual cycle and spermatogenesis	2			2		
	c. Functions of progesterone, estrogen and testosterone	2			2		
	d. Puberty & menopause	1					1
	e. Physiological changes during pregnancy	2			2		

	SPECIAL SENSES:			**5**			
7	a. Structure and function of the eye				2		
	b. Applied physiology: errors of refraction, accommodation, reflexes –dark and light adaptation, photosensitivity						1
	c. Structure and function of the ear					1	
	d. Applied physiology- types of deafness					1	
	RESPIRATORY SYSTEM:			**20**			
	a. Introduction, structure and function of the RS	3			3		
	b. Mechanics of respiration;	3			3		
	c. Pulmonary Volumes & capacities;	3			3		
	d. Anatomical & Physiological Dead space- ventilation/perfusion ratio,alveolar ventilation	2					2
	e. Transport of respiratory gases	2				2	
	f. Nervous & Chemical control of respiration	2				2	
	g. Pulmonary function tests-Direct & indirect method of measurement	3			3		
	h. Physiological changes with altitude & acclimatization	2				2	
	CARDIOVASCULAR SYSTEM:			**20**			
	a. Structure & properties of cardiac muscle	3			3		
9	b. Cardiac impulse- initiation and conduction	3			3		
	c. Cardiac cycle	3			3		
	d. Heart rate regulation	3			3		
	e. Blood pressure- definition-regulation-Cardiac output- regulation &function affecting; Peripheral resistance, venous return	4			4		
	f. Regional circulation-coronary-muscular, cerebral	2				2	
	g. Normal ECG.	2			2		
10	GASTRO INTESTINAL SYSTEM:			3			
	a. Absorption and digestion in brief	2				2	
	b. Liver function	1					1
11	EXERCISE PHYSIOLOGY			**15**			
	a. Basal Metabolic Rate and Respiratory Quotient	1			1		DK
	b. Energy metabolism	1			1	NK	
	c. Fatigue	1			1	NK	
	d. Oxygen debt	1			1		DK

	e. Acute cardio vascular changes during exercise,between mild, moderate and severe exercise, difference concept of endurance	2			2		
	f. Acute respiratory changes during exercise	2			2		
	g. Concept of training/conditioning, effects of chronic exercise/effect of training on the cardiovascular & respiratory system	1			1		
	h. Body temperature regulation during exercise	1			1		
	i. Hormonal and metabolic effects during exercise	1					1
	j. Effects of exercise on muscle strength,power,endurance	2			2		
	k. Physical fitness and its components	2			2		
12	PHYSIOLOGY OF AGEING (With respect to all systems)			5	5		

PRACTICALS					
SR NO	**TOPIC**	**HOURS**	**MUST KNOW**	**DESIRABLE TO KNOW**	**NICE TO KNOW**
1	Haematology – (demonstration only)	6	6		
2	GRAPHS :	5			
	a. Skeletal muscle and its properties			5	
	b. Cardiac muscle-properties-effect of Ach & Adrenaline				
3	Blood pressure- effects of change in posture & exercise	4	4		
4	Examination of pulse	2	2		
5	Spirometry	2			
	a. Lung volumes and capacities			1	
	b. Timed vital capacity			1	
6	Perimetry	1		1	
7	Physical fitness :	10			
	a. Breath holding		2		
	b. Mercury column test;		2		
	c. Cardiac efficiency test- Harvard step test-Master Step test		2		
	d. Ergography		2		
	e. Guidelines for Covid - 19 pandemic		2		

8	Clinical examination: Historytaking and general examination /Respiratory system / cardio vascular system / Higher functions/Cranial nerves /Reflexes / Motor & Sensory system	20	20		

PRACTICALS

Sr. No.	Topics	Practical Hours
1.	Haematology – (demonstration only)	6 hrs
2.	GRAPHS :	5 hrs
	a. Skeletal muscle and its properties	
	b. Cardiac muscle-properties-effect of Ach & Adrenaline	
3.	Blood pressure- effects of change in posture & exercise	4 hrs
4.	Examination of pulse	2 hrs
5.	Spirometry	4 hrs
	a. Lung volumes and capacities	
	b. Timed vital capacity	
6.	Perimetry	1 hr
7.	Physical fitness :	10 hrs
	a. Breath holding	
	b. Mercury column test;	
	c. Cardiac efficiency test- Harvard step test-Master Step test	
	d. Ergography	
	e. Guidelines for Covid - 19 pandemic	
8.	Clinical examination: Historytakingandgeneralexamination/Respiratorysystem/cardiovascular system/Higherfunctions/Cranialnerves/Reflexes/Motor&Sensorysystem	18 hrs
TOTAL		**50 hrs**

RECOMMENDED TEXT BOOKS

1. Text book on Medical Physiology –Guyton
2. Textbook of Physiology – A KJain
3. Textbook of Physiology- G KPal

RECOMMENDED REFERENCE BOOKS

1. Review of Medical Physiology –Ganong
2. Samson &Wright's AppliedPhysiology
3. TextbookofMedicalPhysiology–BernandLevy

SCHEME OF UNIVERSITY EXAMINATION

Theory * The question paper will give appropriate weightage to all the topics in the syllabus.		**Marks**
Section A	Question 1 MCQ (1×20)	20
Section B	Question 2 BAQ (2×10)	20
	Question 3 SAQ (any 4 out of 5) (5×4)	20
Section C	Question 4 LAQ (any 2 out of 3) (10×2)	20
	Internal Assessment	20
	Total	**100**

MCQs : 20	**BAQs: 20**	**SAQs: 20**	**LAQs: 20**
MK – 12 DK – 06 NK – 02	MK – 06 DK – 03 NK – 01	MK – 03 DK – 01 NK – 01	MK – 03 DK – 00 NK – 00

PRACTICAL 80 MARKS + I.A. – 20 MARKS [15 + 5]		**Marks** **100**
Spots	Based on : Topic 1, 2, 3, 6, 7, 8, 9, 11 & 12 (10 X 2 Marks)	**20**
Viva	Based on theory	**20**
Demonstration	On Clinical Physiology C.V.S. 10Marks R.S. 10Marks C. N. S. Cranial Nerves andSpecialSenses 15 Marks	**35**
Journal	Year work on practicals performed	**05**
Total Marks		**80**

INTERNAL ASSESSMENT :

1. Two exams – Terminal and prelims of 80 marks each (Theory & Practical) TOTAL - 160 marks
2. I.A. to be calculated out of 20 marks (Theory& Practical)
3. Internal assessment as per Universitypattern.

BIOCHEMISTRY

(Didactic46hrs+Demonstrations4hrs) **TOTAL 50 HRS**

COURSEDESCRIPTION:

This course provides the knowledge and skills in fundamental organic chemistry and introductory biochemistry that are essential for further studies It covers basic biochemical, cellular, biological and microbiological processes, basic chemical reactions in the prokaryotic and eukaryotic cells, the structure of biological molecules, introduction to the nutrients i.e. carbohydrates, fats, enzymes, nucleic acids and amino acids.

Sr. No.	Topics	Didactic Hours	Total Hours
1	**CARBOHYDRATES**	10	10
2	**PROTEINS**	06	06
3	**ENZYMES**	05	05
4	**VITAMINS**	05	05
5	**MINERALS**	05	05
6	**NUTRITION**	04	04
7	**CLINICAL BIOCHEMISTRY**	07	07
8	**LIPID**	04	04
9	**MUSCLE CONTRACTION**	04	04
10	**TOTAL**	**50**	**50**

OBJECTIVES:

The student would know:

1. Various biomolecules which are present in the body andfunctions
2. The formation and fate of thesebiomolecules
3. Their normal levels in body fluids required for functioning and their abnormal levels to understand the diseaseprocess.

SYLLABUS

1st year BPTH BIOCHEMISTRY							
Sr. No.	**Topic**	**Didactic Hours**	**Practical Hours**	**Total Hours**	**MK**	**DK**	**NK**
1	CARBOHYDRATES			10			
	a. Chemistry, Definition, Classification with examples, Functions	2			2		
	b. Digestion and Absorption, Glycogenesis, Gluconeogenesis, Glycogenolysis and HMP pathway, Glycolysis, Electron transport chain for ATP synthesis, TCA cycle. Hormonal regulation of blood	3			3		
	c. Glucose, Glycogen storage disorders, Diabetes mellitus, Glycosuria, changes in Carbohydrate, Protein & Lipid metabolism.	2			2		
	d. All the metabolisms should be taught based on the following points such as starting and ending products, tissues of occurrence and the conditions when the pathway is activated, deactivated and significance of the pathway.	2			2		
2	PROTEINS			**6**			
	a. Definition, Importance, Functional Classification, Digestion & decarboxylation, deamination, transamination, transmethylation, Urea Absorption, cycle, clinical significance of serum urea, function of glycine, Phenylalanine, trytophan, methionine tyrosine.	4			4		
	b. There should be an emphasis on understanding the structure of protein, the essential and non-essential amino acids.	2					2
3	ENZYMES			**5**			
	Definition, Modern Classification, Factors affecting enzymes Action, diagnostic & therapeutics uses & enzymes, Isoenzymes, Competitive &Non competitiveinhibition,.	3				3	
	Glycolysis	2					2
4	VITAMINS			**5**			
	Definition, Classification, Fat & water soluble vitamins, functions,manifestations sources & RDA Deficiency	5			5		
5	MINERALS			**5**			

	Ca, P, Fe, I, Zinc, Selenium, Fluorine, Magnesium include Na and K. Function sources,	3			3		
	Deficiency manifestations	2				2	
6	NUTRITION 4			**4**			
	Composition of food, balanced diet, Kwashiorkor, Marasmus, Nitrogen balance, major Dietary constituent & their importance. Include energy requirements, factors affecting B.M.R., S.D.A. (Specific Dynamic Action) and R.Q. (Respiratory Quotient)	4			4		
	CLINICAL BIOCHEMISTRY 7			**7**			
	a. Liver Function Test, Renal Function Test, Lipid profile in serum	1			3		
	b. Starvation metabolism, Hemoglobin chemistry and metabolism	2			2		
7	c. Demonstrations: Demonstration of estimation of various biomolecules and their interpretation Interpret reports of various conditions (including Diabetic profile, Cardiac profile, Uric acid and Gout)	4				2	
8	LIPID						
	Definition, classification with examples biomedical importance, Phospholipids & lipoproteins functions. Digestion & absorption of lipid, β oxidation of fatty acid with Energetics, Ketone bodies and their metabolism, Prostaglandins and essential fatty acids, Cholesterol, importance of cholesterol, obesity	4			4		
	MUSCLE CONTRACTION			**4**			
	Mechanism & Biochemical events	2					2
9	Connective Tissue - Biochemistry of connective tissue Collagen-Glyco-protein proteoglycans	2					2

RECOMMENDED TEXT BOOKS

1. Biochemistry – Dr. PankajaNaik
2. TextbookofBiochemistryforMedicalstudents–Dr.Vasudevan/ShriKumar
3. Biochemistry – Dr.Satyanarayan

RECOMMENDED REFERENCE BOOK

1. Review of Biochemistry (24th edition) -Harpar

SCHEME OF UNIVERSITY EXAMINATION

Theory * The question paper will give appropriate weightage to all the topics in the syllabus.		**Marks**
Section A	Question 1 MCQ (1×10)	10
Section B	Question 2 BAQ (2×5)	10
	Question 3 SAQ (any 2 out of 3) (5×2)	10
Section C	Question 4 LAQ (any 1 out of 2) (10×1)	10
	Internal Assessment	10
	Total	**50**

MCQs : 10	**BAQs: 10**	**SAQs: 10**	**LAQs: 10**
Must Know (MK) – 05 Desirable to Know (DK)– 03 Nice to Know (NK) – 02	MK – 02 DK – 01 NK – 02	MK – 02 DK – 01 NK – 00	MK – 02 DK – 00 NK – 00

INTERNAL ASSESEMENT

1. Twoexams–TerminalandprelimsofmarkseachTOTAL-marks
2. I.A. to be calculated out of 10 marks (Theoryonly)
3. Internal assessment asper University pattern.

FUNDAMENTALS OF KINESIOLOGY &KINESIOTHERAPY

(Didactic–100Hrs&Practical/Laboratory–150Hrs) **TOTAL 250 HRS**

COURSE DESCRIPTION:

This course covers the definition of various terms used in mechanics, biomechanics kinesiology as well as its importance in physical therapy. It applies the mechanical principles to simple equipments of therapeutic gymnasium and familiarizes the candidate to its use. It covers the types of human motions as well as planes and relative axes of motion. It also explains the inter-relationshipamongkinematicvariablesandutilizesthisknowledgetodescribeandanalyzemotion. It covers the classification of the joints and muscles along their distinguishing characteristics and skill of measurement of its ranges in various planes and axes. This course additionally covers therapeutic principles and skills of application of massage, yoga, aerobic exercise and use of suspensiontherapy.Italsoenhancestheskillofevaluationofvitalparameters&sensorysystem.

Sr. No.	Topics	Didactic Hours	Practical/ Laboratory Hours	Total Hours
1	**MECHANICS & BASIC BIOMECHANICS**	25	---	**25**
2	**BIO-PHYSICS RELATED TO KINESIOTHERAPY**	15	30	**45**
3	**CLASSIFICATION OF MOVEMENTS**	10	15	**25**
4	**BASIC EVALUATION**	15	35	**50**
5	**MASSAGE**	05	20	**25**
6	**RELAXATION**	05	10	**15**
7	**AEROBIC EXERCISE**	05	05	**10**
8	**YOGA**	15	40	**55**
TOTAL		**95**	**155**	**250**

OBJECTIVE :

Cognitive :

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

a) DefinethevarioustermsusedinrelationtoMechanics,Biomechanics&Kinesiology

b) Recall the basic principles of Biophysics related to mechanics of movement / motion & understandtheapplicationoftheseprinciplestothesimpleequipmentdesignsalongwith their efficacy in Therapeutic Gymnasium & various starting positions used intherapeutics.

Psychomotor:

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

a. Describe&alsoacquiretheskillsofuseofvarioustoolsoftheTherapeuticGymnasium.

b. Demonstratethemovementsintermsofvariousanatomicalplanesandaxes.

c. Demonstratevariousstarting&derivedpositionsusedintherapeutics.

d. Describephysiologicalprinciples&acquiretheskillsofapplicationoftherapeuticmassage

e. Acquire the skills of assessment of basic evaluation like sensations, reflexes & vital parameters.

f. AcquiretheskillofobjectiveassessmentofRangeofMotionofthejointsbyGoniometry

g. Describe physiological basis and principle of relaxation and acquire the skills of relaxation methods.

h. Describe physiological responses and principles of aerobic exercises for general fitness &demonstratefitnessskillsonself&group.

i. Describe physiological principles and acquire the skill of performing Pranayama &Yogasanas.

1st year FUNDAMENTALS OF KINESIOLOGY & KINESIOTHERAPY							
Sr. No.	**MECHANICS & BASIC BIOMECHANICS**	**Didactic Hours**	**Practical Hours**	**Total Hours**	**MK**	**DK**	**NK**
				20			
1	I . Definition and terminologies: Mechanics	2			2		
	ii. Axes / planes	2			2		
	iii. Laws of inertia & motion,	2			2		
	iv. Gravity, C.O.G., L.O.G. and B.O.S.	2			2		
	v. Equilibrium – Types and affecting factors	2			2		
	vi. Mechanics of Forces Work, Energy, Power, Friction,	2			2		
	vii. Torque	2			2		
	viii. Pendulum	2			2		
	ix. Mechanical and Anatomical pulleys	2			2		
	x. Levers	2			2		
	xi. Fluid mechanics related to Hydrotherapy (physics,	2			2		
	MUASCLE MECHANICS	**5**		5			
	i. Types of Muscles- Anatomical & Physiological	1			1		
	ii. Types of muscle work / Contraction iii.Muscle Action: Roles as Agonist, Antagonist, Fixators, Synergist	1			1		
	iv. Active & Passive insufficiency	1			1		
	v. Range of muscle work ,Angle of pull – with importance to efficiency of muscle work and stability of joint	2			2		
2	**BIO-PHYSICS RELATED TO KINESIOTHERAPY**	**20**	**25**	**45**			
	a. Starting Positions & Derived Positions	6	7		13		
	i. Application of stability						
	ii. BOS, Gravity and muscle work in relation to various positions						
	b. Therapeutic Gymnasium i. Use of accessories such as Pulleys Springs, Shoulder wheel, Walking aids,	6	7		13		
	ii. Finger ladder, Therapeutic balls, Weights,Resistance bands, tubes, & wands						
	iii.Applied mechanics of all above accessories						

	c. Suspension Therapy	8	11		18		
	i. Principles						
	ii. Suspension Apparatus						
	iii. Types of Suspension						
	iv. Effects and uses						
	v. Techniques for individual joints						
3	**CLASSIFICATION OF MOVEMENTS**	**10**	**15**	**25**			
	a. Definition and classification	2	3		5		
	b. Principles of movements	3	2		5		
	c. Effects, uses and Techniques (active: assisted, free,assisted- resisted, resisted &passive)	5	10		15		
4	**BASIC EVALUATION**	**15**	**35**	**50**			
	a. Assessment of Vital Parameters	5	12		17		
	i. Temperature	1	3		4		
	ii. Blood Pressure	1	3		4		
	iii. Heart Rate/ Pulse rate	1	2		3		
	iv. Respiratory Rate	1	2		3		
	v. Chest expansion	1	2		3		
	b. Assessment of Sensations and Reflex testing	**5**	**12**		**17**		
	c. Goniometry	**5**	**13**				
	i. Definition and Types of Goniometers	1	3		4		
	ii. Principles	1	3		4		
	iii. Techniques for individual joints with biomechanical principles	2	4		6		
	iv. Uses	1	3		4		
5	**MASSAGE**	**5**	**20**	**25**			
	a. Definition	1	1		2		
	b. Classification	1	1		2		
	c. Principles	1	2		3		
	d. Effects & uses	1	2		3		
	e. Indications and contra indications	1	2		3		
	f. Techniques- Upper limb, Lower Limb, Neck, Back, Abdomen, Face & Scalp		12		12		
6	**RELAXATION**	**5**	**10**	**15**			
	a. Principles,	1	3			4	
	b. Techniques along with their effects & uses	1	1			2	
	i. General - Jacobson's, Shavasana &Reciprocal (Laura Mitchell)	1	3			4	

	ii. Local - Heat, Massage, Gentle/Rhythmic passive movements	2	3			5	
7	**AEROBIC CONDITIONING AND BASIC PRINCIPLES OF GENERAL FITNESS**	**5**	**5**	**10**			
	a. Physiology of aerobic and anaerobic exercise.	1	1			2	
	b. Components of fitness (definition of terms only)	1	1			2	
	c. Warm up	1	1			2	
	d. Cool down exercises	1	1			2	
	e. Group & Recreational activities	1	1			2	
8	**YOGA**	**15**	**40**	**55**	**MK**		
	a. Definition	1			1		
	b. Principles of Yoga	1			1		
	c. Yogasana- Technique, Benefits, Contraindications & cautions for each Asanas:	1	2		6		
	i. Asanas in supine	3	8		11		
	a) Pawanamuktasana						
	b) Ardha Halasana						
	c) Halasana						
	d) Setubandhasana						
	e) Naukasana						
	f) Matsyasana						
	g) Shavasana						
	h) Sarvangasana						
	ii. Asanas in prone	2	8		10		
	a) Bhujangasana						
	b) Ardha-Shalabhasana						
	c) Dhanurasana						
	d) Makarasana						
	iii. Asanas in sittng	2	8		10		
	a) Padmasana, Siddhasana, Sukhasana						
	b) Yogamudrasana						
	c) Virasana						
	d) Vajrasana						
	e) Gomukhasana						
	f) Pashchimottanasana						
	iv. Asanas in standing	2	8		10		
	a) Padhastasana, Padangusthasana, Uttanasana						

	b) Utkatasana						
	c) Tadasana						
	d) Trikonasana						
	v. Pranayama	1	5		10		
	a) Anulom-vilom						
	b) Kapalbhati						

PRACTICAL: Practical demonstrations of:

Sr. No.	Topics
1	Various starting and derived positions
2	The techniques of active, passive, assisted and resisted movements
3	The techniques of various accessories and equipments used in therapeutic gymnasium its biomechanical principles and uses.
4	The techniques of use of suspension method for assisted and resisted movements
5	Relaxation procedures
6	Massage techniques
7	Yogasanas and Pranayama
8	Aerobic exercise for self and others
9	Assessment of vital parameters in different body position (supine, sitting and standing) and of sensory system and reflexes.
10	Measurement of joint R.O.M. through goniometry, method of fixation and measurement.

RECOMMENDED TEXT BOOKS

1. Principles of Exercise Therapy – DenaGardiner
2. Massage,Manipulation&Traction–SydneyLitch
3. Therapeutic Exercise – SydneyLitch
4. Massage – M.Hollis
5. Practical Exercise therapy– MargaretHollis
6. Hydrotherapy – Kisner,Hollis
7. Measurement of Joint Motion – CynthiaNorkins.
8. Biomechanics – CynthiaNorkins
9. ClinicalKinesiology-Brunnstrom
10. YogicExercises-PhysiologicandPsychicprocesses--S.DattaRay

RECOMMENDED REFERENCE BOOKS

1. Therapeutic Exercise – CarolynKisner
2. Asanas-Why&How–OmprakashTiwari

SCHEME OF UNIVERSITY EXAMINATION

Theory * The question paper will give appropriate weight age to all the topics in the syllabus.		**Marks**
Section A	Question 1 MCQ (1×20) – based on MUSTKNOW area	20
Section B	Question 2 BAQ (2×10)	20
	Question 3 SAQ (any 4 out of 5) (5×4)	20
Section C	Question 4 LAQ (any 2 out of 3) (10×2)	20
	Internal Assessment	20
	Total	**100**

MCQs : 20	**BAQs: 20**	**SAQs: 20**	**LAQs: 20**
MK – 12 DK – 06 NK – 02	MK – 06 DK – 03 NK – 01	MK – 03 DK – 01 NK – 01	MK – 03 DK – 00 NK – 00

PRACTICAL 80 MARKS + I.A. – 20 MARKS [15 + 5]		**Marks** **100**
LONG CASE	Based on Massage / Goniometry / Movements (passive) · Cognitive–Bio-physics,Biomechanicalprinciples,indications,contraindication · *Documentation offindingsetc - 20Marks* · *Psychomotor +Affectiveskills - 15Marks*	**35**
SHORT CASE	Two Short case based on · Basic evaluation (**any one**): Sensation / Reflex testing / B.P./ & Pulse Rate/ Chest Expansion / Respiratory Rate /Aerobic fitness forself · Skillperformance(**anyone**):Relaxation/Yoga posture/Starting/Derived position &SuspensionTherapy (2 x 20 = 40marks) · *Cognitive – 05 Marks* · *Psychomotor -15Marks*	**40**
JOURNAL	Year work on practicals performed.	**5**
Total Marks		**80**

INTERNAL ASSESSMENT:

1. Two exams – Terminal and preliminary examination (Theory & Practical) of 80 marks each TOTAL - 160marks
2. Internal Assessment to be calculated out of 20marks.
3. InternalassessmentasperUniversitypattern.

FUNDAMENTALS OF ELECTROTHERAPY

Didactic 95 hrs+ Practical 105hrs [**TOTAL-200 HRS**]

COURSE DESCRIPTION:

This course will cover the basic principles of Physics that are applicable in medical equipments used in Physiotherapy. It will also help to understand the fundamentals of currents, sound waves, Heat&itseffects,electromedicalradiationsandtheireffectsaswellastheirapplicationinphysical therapy.ItcoverstheskillofapplicationofsuperficialthermalagentsandCryotherapy.

Sr. No.	Topic	Didactic Hours	Practical/ Lab Hours	Total hours
1	**MEDICAL ELECTRONICS AND ELECTRICITY :**	**55**	**15**	**70**
	a) Fundamentals of Low frequency currents	32	09	41
	b) Fundamentals of High frequency currents	13	06	19
	c) Electro Magnetic Spectrum	5	-	5
	d) Cellular Bio-physics	3	-	3
	e) Environmental currents	2	-	2
2	**ELECTRICAL MODALITIES**	**25**	**40**	**065**
3	**SUPERFICIAL THERMAL AGENTS**	**15**	**50**	**065**
TOTAL		**95**	**105**	**200**

OBJECTIVES:

COGNITIVE:

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

a) Recallthephysicsprinciples&LawsofElectricity,Electromagneticspectrum,&ultrasound
b) Describe effects of environmental & man made electromagnetic field at the cellular level &riskfactorsonprolongedexposure.
c) Describe the Main electrical supply, Electric shock,precautions
d) Enumerate Types & Production of various Therapeutic electrical currents & describe the panel diagrams of themachines

PSYCHOMOTOR:

At the end of the course the candidate will be able to –

a) Test the working of the various electrotherapeuticequipments
b) Describe in brief, certain common electrical components such as transistors, valves,capacitors,transformersetc&thesimpleinstrumentsusedtotest/calibratethese

components [such as potentiometer, oscilloscope , multimeter] of the circuit ; & will be able to identify suchcomponents.

c) Describe & identify various types of electrodes used in therapeutics, describe electrical skin resistance&significanceofvariousmediausedtoreduceskinresistance.

d) Acquire knowledge of various superficial thermal agents such as Paraffin wax bath, Cryotherapy, Hydrocollator packs, Home remedies, their physiological & therapeutic effects, Merits/demerits&acquiretheskillofapplication.

SYLLABUS

1st year BPTH FUNDAMENTALS OF ELECTROTHERAPY							
Sr. No.	**Topic**	**Didactic Hours**	**Practical Hours**	**Total Hours**	**MK**	**DK**	**NK**
	MEDICAL ELECTRONICS AND ELECTRICITY	55	15	70	MK		
1 a	**a**. Fundamentals of Low frequency currents	**32**	**9**	**41**			
	i. Basic Physics :	3	0		3		
	Structure of atom, Isotopes, States of matter; Compound formation-(covalent formation), Properties of Electric lines of forces, Conductors, Non-conductors, Latent heat, Transmission of heat						
	ii. Condenser	3	0		3		
	a) Principles						
	b) Capacity						
	c) Types & construction						
	d) Electric field						
	e) Charging and discharging of the condenser						
	f) Duration of Discharge						
	g) Discharge through inductance						
	h) Capacitive reactance & uses of condenser						
	iii. Main supply:	3	3		6		
	a) Production of Electricity						
	b) Types: A.C./ D.C.						
	c) Distribution/ Grid system wiring of colour coding of electrical supply to the house,						

	d) Earthing and its importance						
	e) Types of Plugs & Switches						
	iv. Shock	2	0		2		
	a) Definition						
	b) Types (Electric Shock & Earth shock)						
	c) Severity Causes, Effects & Precaution						
	v. Static Electricity:	3	0		2		
	a) Theory of Electricity						
	b) Production of Electric Charge						
	c) Characteristics of charged electrical body and capacitor and inductance: types & uses						
	d) Potential difference						
	vi. Current electricity				1		
	a) EMF						
	b) Resistance: Combination of resistance in series and parallel						
	c) Ohms Law						
	d) D.C., A.C.						
	e) Devices for regulating current: Identification, functioning & Uses- Rheostat, Potentiometer, Ammeters, Oscilloscopes, Voltmeter	6	6		12		
	f) Voltage and Power						
	g) Thermal effects of electric current- Joule's Law.						
	vii. Electrical Skin Resistance:	2	0		2		
	a) Skin Resistance						
b	b) Factors affecting Skin resistance: electrodes used, electrode gels, skin threshold, types of skin type, skin temperature, exercises						
	c) Methods to reduce skin resistance						
	viii. Faradic currents: Duration,graphical representation, surging, faradic type frequency, wave forms & current, pulse width modulation,	5	0		5		
	ix. Galvanic currents/ Direct current: interrupted galvanic	5	0		5		

	current, duration, frequency, waveforms & graphical representation						
	Fundamentals of High frequency currents	**13**	**6**	**19**			
	i. Electro Magnetic Induction:	3					3
	a) Production						
	b) Direction of induced EMF						
	c) Strength of induced EMF						
	d) Type – Self & Mutual induction						
	e) Inductive Reactance						
	f) Eddy currents						
	g) Principles and Laws – Faraday's, Lenz's						
	h) Dynamo						
	ii. Apparatus for Modification of Currents:	2					2
	a) Interruption of current – Switch & Valve						
	b) C- R timing circuit						
	c) Multivibrator Circuit, Pulse Generator						
	d) Current supplied to patient – Impulse type						
	iii. Magnetism:	2					1
	a) Nature and Types						
	b) Molecular theory of Magnetism						
b	c) Property of Magnet						
	d) Magnetic effect of electric current –						
	Electro Magnets						
	e) Meters for measuring A.C.						
	iv. Sound:	2			2		
	a. Wave motion in sound						
	b. Infrasonics						
	c. Normal hearing band						
	d. Characteristics of sound waves and their velocities						
	e. Ultrasonics						
	f. Reflection, Refraction and Attenuation of Sound waves						
	g. Interference of sound waves						

	v. D.C. and A.C.:	**4**	**6**	**10**			
	a) Source – Cell and rectified AC				1 (Theory)		
	b) Rectification of AC				1 (Theory)		
	c) Thermionic valves – Diode and Triode				1 (Theory)		
	d) Metal Rectifier					1 (Practical)	
	e) Types of Rectification				1 (Theory)		
	f) Transformers-Types & Functions				1 (Theory)		
	g) Smoothing circuit					1 (Practical)	
	h) Semiconductor and its types						1 (Practical)
	i) Diodes & Transistors					1 (Practical)	
	j) Choke coil					1 (Practical)	
	c. Electro Magnetic Spectrum	5			5		
	i. Laws of transmission Reflection – Refraction –						
	ii. Absorption – Attenuation						
	iii. Electro Magnetic Radiation						
	iv. Laws Governing E.M.R.						
	v. Laws of Reflection, Refraction,Attenuation, Cosine Law, Inverse Square Law, Absorption, Grothus Law						
c	d. Cellular Bio-physics	3				3	
	i. Action potential,						
	ii. Resting membrane potential						
	iii. Transmission of impulses: Saltatory conduction						
	iv. Reception & emission of E.M.F. signals						
	e. Environmental currents	2					2
	Environmental currents & fields risk factors on prolonged exposure to E.M. field.						
2	ELECTRICAL MODALITIES - Production, Physical principles, Panel diagrams, Testing of	**25**	**40**	**65**			

	apparatus of the following:						
	a. S.W.D.	4	5		9		
	b. Ultrasound	3	5		8		
	c. U.V.R.	3	5		8		
	d. I.F.T.	3	5		8		
	e. I.R.	3	5		8		
	f. LASER (no panel diagram)	3	5		8		
	g. Diagnostic Electrical Muscle Stimulator,	3	5		8		
	h. T.E.N.S.	3	5		8		
	SUPERFICIAL THERMAL AGENTS	**15**	**50**	**65**			
3	Construction/Design of the Modalities, Scales of temperature, Specific heat & modes of energy transfer, Physiological effects, Therapeutic effects/ Uses, Merits/demerits, Indications/ contra-indications, Skills of application:						
	a. Home remedies	2	8		10		
	b. Paraffin wax bath	3	9		12		
	c. whirl pool	2	8		10		
	d. contrast bath	3	9		12		
	e. Hydro-collator hot packs	3	8		11		
3	f. Cryotherapy	2	8		10		

PRACTICAL

Practical demonstrations of:

Sr. No.	Topic
1.	Various ELECTRICAL COMPONENTS like Diodes & Triodes, Rheostat, Capacitor, Potentiometer, Switches, Plugs and Pulse generator
2	The technique of testing of mains supply
3	The techniques of testing the following ALONG WITH PANEL DIAGRAM:
	i. Low Frequency currents - Diagnostic Muscle stimulator, Transcutaneous NerveStimulation
	ii. Medium Frequency currents -I.F.T.
	iii. High Frequency currents - Short Wave Diathermy, Ultrasound
	iv. I.R. (no panel diagram)
	v. U.V.R. (no paneldiagram)

4	The skill of application of THERMAL AGENTS (on models) :
	i. Hotpacks
	ii. P.W.B.
	iii. Whirlpool
	iv. Contrast bath
	v. Cryotherapy

RECOMMENDED TEXT BOOKS

1. Claytons Electro therapy – 3rd & 10thedition
2. Electro therapy explained – Low &Reed
3. Electro Therapy –Kahn
4. ElectrotherapyEvidenceBasedPractice-SheilaKitchen11th edition
5. Electrotherapy – by SubhashKhatri

RECOMMENDED REFERENCE BOOK

1. ClinicalElectrotherapy--Nelson&Currier
2. Electrotherapy – byJagmohan.

SCHEME OF UNIVERSITY EXAMINATION

Theory *** The question paper will give appropriate weight age to all the topics in the syllabus.**		**Marks**
Section A	Question 1 MCQ (1×20)	20
Section B	Question 2 BAQ (2×10)	20
	Question 3 SAQ (any 4 out of 5) (5×4)	20
Section C	Question 4 LAQ (any 2 out of 3) (10×2)	20
	Internal Assessment	20
	Total	**100**

MCQs : 20	BAQs: 20	SAQs: 20	LAQs: 20
MK – 12 DK – 06 NK – 02	MK – 06 DK – 03 NK – 01	MK – 03 DK – 01 NK – 01	MK – 03 DK – 00 NK – 00

INTERNAL ASSESSMENT :

1. Two exams – Terminal and preliminary examination of 80 marks each (Theory & Practical) TOTAL - 160marks
2. Internal Assessment to be calculated out of 20marks.
3. InternalassessmentasperUniversitypattern.

SCHEME OF UNIVERSITY EXAMINATIONS AT A GLANCEI B.P.Th.

Subjects	Theory			Practical		
	University	I.A.	Total	University	I.A.	Total
Anatomy	80	20	100	80	20	100
Physiology	80	20	100	80	20	100
Biochemistry	40	10	50	-	-	-
Fundamentals of Kinesiology & Kinesiotherapy	80	20	100	80	20	100
Fundamentals of Electro Therapy	80	20	100	80	20	100
Total	**360**	**90**	**450**	**320**	**80**	**400**

STANDARD OF PASSING

B.P.Th

1. A Candidate must have minimum of 75 % attendance in theory and 80 % attendanceinpractical (irrespective of the kind of absence) of each course (subject) forappearing in the University examination.

2. For the subjects with practical, there will bethree heads of passing i.e. Theory, Practical,and Internal Assessment.For the subjects without practical there will be two heads of Passing i.e.Theory and Internal Assessment.

3. The candidate should secure minimum 50% marks in each of the theory and practical papers separately.The candidate will be held eligible to appear in the University examination only when he/she secureminimum 35% marks in Internal Assessment.

4. A Candidate should secure at least 50% marks in college exams in subject where there is no University exam.

5. If the candidate fails either in Theory or in Practical Examination of a subject he/she will have to reappear for both theory and practical /clinical examination.

6. **Grace Marks -**If a candidate fails by five or less marks in aggregate of all subjectsin the University examination;grace marks up to five will be given to the candidate by the University before the declaration of result.

7. **Supplementary Examination-**If a candidate fails in any number of course (subject)in the University examinationhe/shecan appear for those subjects onlyin Supplementary Examination, whichwill be held within **3 to 6weeks** from the date of declaration of the results of the University examination for every professional year, so that the candidates, who pass, can join the main batch for progression. Candidatewill be required to appear in the supplementary examination in that subject/ subjects while attending classes of next year.If the candidate fails in three or more subjects in supplementary examination, his/her session will be shifted by one year. If the candidate passes in all subjects or gets ATKT(for those who fail in two or less subjects)in Supplementary Examinationthen he/she is eligible to continue with the next

academic year.

8. The candidate should have passed all subjects of previous years before appearing to 4th Year B.P.Th. University Examination.

9. First class with Distinction –75% and above marks in any subject or overall aggregate. First class - 60% to 74.99% and above in the aggregate of marks of all subjects. Second Class – 55% to 59.99% or 55% in the aggregate of marks of all subjects. Pass class – 50% to 54.99% in the aggregate of marks of all subjects.

10. Themaximumperiodtocompletethe B.P.Th. successfullyshouldnotexceednineyears.

11. Internship: There shall be compulsory six months rotatory structured Internship afterpassing finalB.P.Th. examination. Internship should be done in teaching hospital/hospitalsof the university. No candidateshallbeawardeddegreecertificatewithoutsuccessfullycompletingsixmonths internship.

12. ResearchProjectwork: Each Internhavetotakeupa short research projectwork duringinternshipperiod. The protocol approval shall be obtained bytheeach internin the final year of B.P.Th. however the ethical approval should be obtained latest by the second month of internship program.Data shall be collected in the next three months after the approval by the ethics committee.Completed project shall be submitted by the end of 6thmonth.

13. Structure of the Research Project: The written text of the project shall beofminimum50pages excluding references, tables, and questionnairesandotherannexure.It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") Times new Roman, 12 fontand hard bound properly. The intern shall provide plagiarism declaration in his/her project. The guide and head of the institution shall certify the written text of the project. Three copies of project work thus preparedshallbesubmittedtothePrincipal.Thecompletioncertificateof internshipwillbeissuedonlyafter completingtheresearchproject.

14. The degree will be awarded after the satisfactory completion of internship and submission of project work, in ensuing convocation to be conducted by the University.

D. Y. PATIL EDUCATION SOCIETY

(DEEMED TO BE UNIVERSITY), KOLHAPUR

Declared Ested U/S 3 of UGC Act 1956

Accredited by NAAC with 'A++' Grade

D. Y. PATIL EDUCATION SOCIETY
(DEEMED TO BE UNIVERSITY), KOLHAPUR

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BACHELOR OF PHYSIOTHERAPY (B.P.TH)

D. Y. PATIL EDUCATION SOCIETY, KOLHAPUR (DEEMED TO BE UNIVERSITY)

D. Y. Patil College of Physiotherapy
Syllabus for
II - Bachelor of Physiotherapy

VISION

- To be an excellence in training physiotherapy students
- To train future leaders for education, research and practice in physiotherapy using advance techniques
- To promote sustainable development by using various skills and techniques in certain conditions by assuring best teaching and educational centre.
- To seek a leadership role in institutional and community research through developing innovative, multidisciplinary collabarative approaches.

MISSION

- The mission of course is to impart indepth knowledge in various specialities with regards to scope and up-liGment in our profession.
- To advance basic knowledge of physiotherapy by understanding how it works in various diseases, disorders and dysfunction.
- To develop holistic approach in society for success in life.

II-BACHELOROFPHYSIOTHERAPY

Program Code	Exam Code	Course Name	Subject Name	Sub/Course Code
16	**1601**	**Ist B.P.Th.**	Human Anatomy	160101
			Human Physiology	160102
			Biochemistry	160103
			Fundamentals of Kinesiology & Kinesiotherapy	160104
			Fundamentals of Electrotherapy	160105
	1602	**IInd B.P.Th.**	Pathology & Microbiology	160201
			Pharmacology	160202
			Psychiatry & Psychology	160203
			Kinesiology	160204
			Kinesiotherapy	160205
			Electrotherapy	160206
	1603	**IIIrd B.P.Th.**	Surgery I	160301
			Surgery II	160302
			Medicine I	160303
			Medicine II	160304
			Community Health & Sociology	160305

			Functional Diagnosis and Physiotherapeutic Skills	160306
	1604	**IVth B.P.Th.**	Musculoskeletal Physiotherapy	160401
			Neuro Physiotherapy	460402
			Cardio-Vascular & Respiratory Physiotherapy	160403
			Community Physiotherapy	160404

PROGRAM OUTCOME:

PO1: Ability to acquire knowledge about normal- abnormal basic medical and human movement sciences, understand relevant investigations, role of drugs related to various medical conditions, surgical treatment and application of physiotherapy interventions.

PO2: To gain knowledge about planning and problem solving abilities to delineate the cognitive, affective and psychomotor skills to perform as a competent physiotherapist who will be able to evaluate, plan and effectively perform the physiotherapeutic skills.

PO3: Demonstrate the ability to acquire good listening potential with effective interpersonal and intra personal communication skills.

PO4: Extend the acquired knowledge to conduct research activities and publications that contribute to the upliGment in field of physiotherapy and betterment of society.

PO5: Understand moral value, professional ethics and accountability towards patient and colleagues, develop good behaviors skills with confidentiality and humanitarian approach maintaining the respect and privacy of patient.

PO6: Develop leadership skills, time management, logical reasoning, values required for self directed and lifelong learning, soG skills for professional development and execute their professional role in society as a physiotherapist at various academic institutions, Hospital/ Clinics, Organizations, Research laboratories and Rehabilitation centers.

PO7: Understanding about society's needs in terms of health and wellness, to improve multicultural competency among professional and general public, promoting social policies that affect the demands of patients in terms of function, health and wellness, develop a character with good moral values, human values, good social behavior, gratitude, honesty, ethics, safety, hygiene, responsibility, confidence, tolerance and critical thinking.

PO8: Able to contribute in sustainable development to achieve the national sustainable development goal, further the relationship between the environment, human health and functioning and physiotherapy are considered and respected to mutually benefit patient's health. Ensure healthy life's and promote wellbeing for all at all ages.

PO9: Demonstrate ability to acquire new knowledge skill and reflect upon their experience to enhance personal, professional growth and apply the information for patient care.

PATHOLOGY & MICROBIOLOGY

CO1: Describe the concept of cell injury & change produced by different tissues, organs & capacity of the body in healing process and Understand in brief, about the common hematological disorders &investigations necessary to diagnose them.

CO2: Acquire the knowledge of common immunological circulatory disorders vitamin deficiency & their resultant effects on the human body and develop an understanding of neoplastic change in the body in appreciate need for early diagnostic& their management of neoplasia.

CO3: Recall the Etiology, pathogenesis, the pathological effects & the clinic-pathological correlation of common infections, non-infectious diseases & genital diseases. Understand correlate normal & alternate morphology of different organ system in different diseases needed for understanding disease process their clinical significance.

CO4: Knowledge about scope & the subject with classification of various Micro-organisms, demonstrate knowledge about laboratory diagnosis of the different micro-organisms causing infections epidemiology & prevention of the disease, prophylaxis and best methods to prevent the development of infections in sets and patients (Universal safety precautions).

CO5: Knowledge about immunity its types, structure and function various antigen antibody reactions with its application and demonstrate the knowledge of etio-pathogenesis of different micro-organisms (bacteria, viruses, fungi and parasites).

CO6: Knowledge of prevalent communicable diseases and the agents responsible for causing clinical infections pertaining to CNS, CVS musculoskeletal, respiratory, genitourinary, wound infections and of newer emerging pathogens.

PSYCHIATRY (INCLUDING PSYCHOLOGY)

CO1: Understand the increasing awareness of psycho-social by individual with it significance of various points the continuum of health & disability.

CO2: Understand the term psychology with it importance in the health delivery system knowledge of psychological maturation during human dire & growth with alteratims during aging procen.

CO3: Interpret theories of learning and its role in human life with the importance of psychological status in health & disease inrinonmental & emotimal on the mind & personality.

CO4: Evaluate psychiatric history a mental status Exmination of Schizophrehia, Ansich, personality somatoform ,chilahood& Organic brain disorder, mood & eating disorders, with genetic psychology.

CO5: Knowledge about management of various psychiatric disorders with the help of ECT, pharmacotherapy gro therapy psycho therapy , cognitive behavirral therapy & rational emotive therapy.

PHARMACOLOGY

CO1: Describe the Pharmacokinetics & Pharmaco dynamics, indication & contra -indication interactions & adverse reactions, precautions, formulation & route of drug administration of various drug.

CO2: Demonstrate knowledge about various drugs acting on CNS autonomic nervous system CVS, respiratory system, endocrine system, GIT tract.

CO3: Demonstrate knowledge about various haematinius & dermatological drugs.

KINESIOLOGY

CO1: Understands the principles of Biomechanics.

CO2: Acquire the knowledge of kinetics & kinematics of Spine, Extremities, Thoracic Cage.

CO3: Acquire the knowledge of musculoskeletal movements during normal gait & activities of daily living.

KINESIOTHERAPY

CO1: Understand the Biophysical properties of connective & non connective tissue & mechanical loading, & factors with which influence the muscle strength & mobility of articular & particular soGtissue.

CO2: Apply the biomechanical principles for the efficacy in the assessment methods & Acquire the skills of subjective & objective methods of muscle strengthening, joint mobility, muscle stretching, muscle testing.

CO3: Describe the physiological effects, therapeutic uses of Hydrotherapy & Demonstrate various therapeutic exercises on self & acquire the skill of application on models with home program.

CO4: Analyze the correct & faculty posture & all views of posture and acquire the knowledge of postural mechanism & factors affecting on posture, motor control, postural control & balance.

CO5: Demonstrate & acquire the skills of functional reeducation techniques on models & also skills of balance & co-ordination exercise.

CO6: Acquire the skill of using various walking aids for training of gait.

CO7: Acquire the knowledge & skills of demonstrating breathing exercise postural drainage techniques.

ELECTROTHERAPY

CO1: Acquire the knowledge of pain Physiology; pain Pathways methods of pain modulation & appropriate modality for pain modulation.

CO2: Describe the physiological effects, therapeutic uses, indications & contraindications of various low / medium & High frequency currents also with appropriate acquire the skills of application of these currents on mode models, for the purpose of assessment & treatment.

CO3: Describe the physiological effects & therapeutic uses of various therapeutic ions & topical pharmaco therapeutic agents to be used for application of into phoresis & sonophono phoresis.

CO4: Describe the physiological effects, therapeutic uses, indication & contraindication of action therapy IRR, UVR, caser & acquire an ability to select the appropriate mode as per the tissue specific & area specific application.

CO5: Acquire the knowledge of types of wound & skills of application of therapeutic arrents – us. U.V.R & Laser.

II B.P.Th.

SYLLABUS

Transcript Hours- 1400

Sr. No.	Subject	Theory Hours	Practical / Clinical Hours	Total Hours
	PROFESSIONAL PRACTICE			
1	Professional practice & Ethics *(College Examination in final year)*	005	010	015
	MEDICAL SCIENCES			
1	Pathology	050	-	050
2	Microbiology	031	004	035
3	Pharmacology	050	-	050
4	Psychiatry (Including Psychology)	030	020	050
	PHYSIOTHERAPY			
1	Kinesiology	080	-	080
2	Kinesiotherapy	080	160	240
3	Electrotherapy	100	200	300
4	Seminar (including introduction to **terms** of I.C.F. definition of terms Activity Limitation and Participation Restriction) (***not for examination***)		090	090
5	Supervised clinical practice (To practice clinical skills under the supervision, at the O.P.D./ I.P.D. set up) ➢ Clinical assignments should include Observation, Clinical History taking & technical assistance tothe clinicians • Therapeutic Gymnasium • Fundamentals of Exercise therapy& • ElectroTherapy To maintain a Register / Log book-in which the prescribed Case Histories & written assignments are documented & to obtain the signature from the respective section In-charge at the end of the assignment.		490	490

PROFESSIONAL PRACTICE AND ETHICS

(COLLEGE EXAMINATION IN FINAL YEAR)

Total -15 HRS

COURSE DESCRIPTION:

This subject would be taught in continuum from first year to final year. An exam in theory would be conducted only in final year. Professional and ethical practice curriculum content addresses the Knowledge, Skills and Behaviors required of the physiotherapist in a range of practice relationships and roles. The course will discuss the role, responsibility, ethics administration issues

and accountability of the physical therapists. The course will also cover the history and change in the profession, responsibilities of the professional to the profession, the public and to the health care team. This includes the application of professional and ethical reasoning and decision-making strategies, professional communication.

OBJECTIVES:

At the end of the course the candidate will be compliant in following domains:

Cognitive:

a. Be able to understand the moral values and meaning of ethics
b. Will acquire bedside manners and communication skills in relation with patients, peers, seniors and other professionals.

Psychomotor:

a Be able to develop psychomotor skills for physiotherapist-patient relationship.
b Skill to evaluate and make decision for plan of management based on socio cultutural values and referral practice.

Affective:

a Be able to develop behavioral skills and humanitarian approach while communicating with patients, relatives, society at large and co-professionals.
b Be able to develop bed side behavior, respect & maintain patients' confidentiality.

SYLLABUS

Sr. No.	Topics	Didactic Hours	Supervision Hours	Total Hours
1.	Ethical code of conduct	03	10	15
2.	Communication skills			
	a. Physiotherapist –Patient Relationship b. Interviewing -Types of interview, Skills of interviewing	01 01		
	TOTAL	**05**	**10**	**15**

PATHOLOGY
[DIDACTIC –50 HRS]

COURSE DESCRIPTION :

Students will develop an understanding of pathology underlying clinical disease states involving the major organ systems and epidemiological issues. Students will learn to recognize pathology signs and symptoms considered red flags for serious disease. Students will use problem-solving skills and information about pathology to decide when referrals to another health care provider or alternative interventions are indicated. Students will develop the ability to disseminate pertinent information and findings, and ascertain the appropriate steps to follow.
The course more deals with structural impairments as an important part in ICF Classification.

Sr. No.	Topics	Didactic Hours
1	**GENERAL PATHOLOGY**	04
2	**INFLAMMATION & REPAIR**	06
3	**IMMUNO –PATHOLOGY**	04
4	**CIRCULATORY DISTURBANCES**	05
5	**PATHOLOGIC CHANGES IN VITAMIN DEFICIENCIES**	01
6	**GROWTH DISTURBANCES**	04
7	**MEDICAL GENETICS**	01
8	**SPECIFIC PATHOLOGY**	11
9	**MUSCULAR DISORDERS**	02
10	**NEURO-MUSCULAR JUNCTION**	01
11	**BONE & JOINTS**	05
12	**G.I. SYSTEM**	01
13	**ENDOCRINE**	02
14	**HEPATIC DISEASES**	01
15	**CLINICAL PATHOLOGY**	03
	TOTAL	**50**

OBJECTIVES:

At the end of the course, the candidate:

COGNITIVE:

1. Will have sound knowledge of concepts of cell injury & changes produced by different tissues, organs and capacity of the body in healing process.
2. Acquire the knowledge of general concepts of neoplasia with reference to the Etiology,
3. gross & microscopic features, & diagnosis, in different tissues, & organs of the body.
4. Acquire knowledge of common immunological disorders & their resultant effects on the human body.

PSYCHOMOTOR:

a. Recall the Etiology–pathogenesis, the pathological effects & the clinico–pathological correlation of common infections & non-infectious diseases.
b. Understand in brief, about the common Haematological disorders &investigations necessary to diagnose them.
c. Correlate normal & altered morphology of different organ systems in different diseases needed for understanding disease process & their clinical significance

SYLLABUS

Sr. No.	Topics	Didactic Hours (50)	Must Know	Desirable to Know	Nice to Know
1	**GENERAL PATHOLOGY**	**4**			
	a Cell injury-Causes, Mechanism &Toxic injuries with special reference to Physical including ionizing radiation, Chemical &Biological	01	01		
	b Reversible injury (degeneration)- types- morphology-cloudy swelling, hyaline, fatty changes	01	01		
	c Intra-cellular Accumulation- Mucin, Protein	01			01
	d Irreversible cell injury-types of necrosis-Apoptosi –Calcification-Dystrophic & Metastasis				
	e Extra-cellular accumulation- Amyloidosis	01	01		01
2	**INFLAMMATION & REPAIR**	**6**			
	a. Acute inflammation – features, causes, vascular & cellular events	01	01		
	b. Morphologic variations-Ulcers	01	01		
	c. Inflammatory cells &Mediators	01	01		
	d. Chronic inflammation: Causes, Types, Non- specific & Granulomatous – with examples	01	01		
	e. Wound healing by primary & secondary union, factors promoting & delaying healing process	01	01		
	f. Healing at various sites- bone, nerve &muscle	01	01		
	g. Regeneration &Repair				

3	**IMMUNO –PATHOLOGY**	**4**			
	a Immune system: organization-cells-antibodies- regulation of immune responses	01			01
	b. Hyper-sensitivity (types and examples including graGrejection)	01			01
	c. Secondary Immuno-deficiency including H.I.V.	01		01	
	d. Basic concepts of autoimmune disease(emphasis on S.L.E. &R.A.)	01		01	
4	**CIRCULATORY DISTURBANCES**	**5**			
	a. Oedema - pathogenesis - types – trans udates/ exudates	01	01		
	b. Chronic venous congestion- lung, liver	01			01
	c. Thrombosis – formation – fate –effects	01	01		
	d. Embolism – types- clinical effects				
	e. Infarction – types – common sites	01	01		
	f. Gangrene – types –etiopathogenesis	01	01		
	g. Shock – Pathogenesis, types				
5	**PATHOLOGIC CHANGES IN VITAMIN DEFICIENCIES**	**1**		01	
6	**GROWTH DISTURBANCES**	**4**			
	a. Atrophy, Hypertrophy, Hypoplasia, Metaplasia**,** Agenesis, Dysplasia	01	01		
	b. Neoplasia classification, Histogenesis, Biologic behaviors, difference between Benign &Malignant tumour	01		01	
	c. Malignant neoplasms- grades-stages-local & distal spread	01			01
	d. Carcinogenesis: Physical, Chemical, Occupational, Heredity, Viral, Nutritional				
	e. Precancerous lesions & Carcinoma insitu	01			01
	f. Tumour & host interactions–local and systemic effects-metastatic (special reference to bones and C.N.S.)				

7	**MEDICAL GENETICS (in brief):** a. Classifications with examples of Genetic disorders	**1**			01
8	**SPECIFIC PATHOLOGY**	**11**			
	a. **Cardio Vascular System (C.V.S)** i. Atherosclerosis - Ischemic Heart Diseases–Myocardial Infarction–Pathogenesis /Pathology	01	01		
	ii. Hypertension				
	iii. C.C.F.	01			01
	iv. Rheumatic Heart Diseases				
	v. Peripheral Vascular Diseases				
	b. **Respiratory**	05			
	i C.O.P.D.	01	01		
	i Pneumonia (lobar, bronchial, viral), Lung Abscess				
	i T. B.: Primary, Secondary – morpho logic types	01	01		
	iv. Pleuritis & its complications				
	v. Lung collapse –At electasis	01			01
	vi Occupational Lung diseases (with special emphasis on Silicosis, Asbestosis, Anthracosis)				
	vii A.R.D.S.	01	01		
	viii Covid – 19 Etiology, signs & symptoms, causes & pathophysiology	01	01		
	c. Neuropathology:	**04**			
	i Reaction of nervous tissue to injury, infection & ischemia	01	01		
	i Meningitis: Pyogenic, T.B.M.,Viral				
	i Cerebro-Vascular Diseases–Atherosclerosis– Thrombosis, Embolism, Aneurysm, Hypoxia, Infarction & Hemorrhage, Hydrocephalous, Increased Intracranial Pressure	01	01		
	iv. Leprosy	01		01	
	v. Parkinsonism	01	01		

9	**MUSCULAR DISORDERS** a. Classification of Muscular disorders with emphasis on Muscular Dystrophies	02		02	
10	**NEURO-MUSCULAR JUNCTION**	**1**			
	a. Myastheniagravis b. Myasthenicsyndrome	01	01		
11	**BONE & JOINTS**	**5**			
	a. Osteomyelitis – Rickets – Osteomalacia– Osteoporosis	01	01		
	b. Arthritis- degenerative (Osteoarthritis,Calcaneal spur, Periarthritis, Spondylosis) - inflammatory (R.A., Ankylosing Spondylitis, Gout)	02	02		
	c. Miscellaneous-P.I.V.D., Haemarthosis	01			01
	d. Infective T.B.	01			01
12	**G.I. SYSTEM**	**1**			
	a. Gastric / Duodenal ulcer, Enteric fever, T.B., Enteritis, Gastritis (related to consumption of NSAID)	01			01
13	**ENDOCRINE**	**02**			
	a. Hypo and Hyperthyroidism	01		01	
	b. Diabetes Mellitus – type I and II	01	01		
14	**HEPATIC DISEASES** a. Cirrhosis – emphasis to systemic effects of portal hypertension	01		01	
15	**CLINICAL PATHOLOGY**	**03**			
	a Anemia & Platelets disorders – (deficiency) – T.C./D.C./Eosinophilia Anaemia	01		01	
	b Muscle / Skin / Nerve biopsy	01		01	
	c Microscopic appearance of muscle necrosis – fatty infiltration	01		01	

RECOMMENDED TEXT BOOKS

1. Text book of Pathology –Harsh Mohan
2. Basic Pathology-Robbins

RECOMMENDED REFERENCE BOOKS

1. Pathologic basis of disease - Cotran, Kumar, Robbins
2. General Pathology –Bhende

SCHEME OF UNIVERSITY EXAMINATION - ALONG WITH MICROBIOLOGY SUBJECT

MICROBIOLOGY

(Didactic-31hrs + Demonstration - 4hrs) **TOTAL 35 HRS**

COURSE DESCRIPTION:

Students will develop an understanding of pathology underlying clinical disease states and involving the major organ systems and epidemiological issues. Epidemiological issues will be presented and discussed. Students will learn to recognize pathology signs and symptoms considered red flags for serious disease. Students will use problem-solving skills and information about pathology to decide when referral to another health care provider or alternative intervention is indicated. Students will develop the ability to disseminate pertinent information and findings, and ascertain the appropriate steps to follow.

Sr. No.	Topics	Didactic Hours	Demonstration Hours	Total Hours
1	GENERAL MICROBIOLOGY	4	1	5
2	LABORATORY DIAGNOSIS OF INFECTION	2	1	3
3	IMMUNOLOGY	5		5
4	SYSTEMIC BACTERIOLOGY	7		7
5	MYCOLOGY	2	1	3
6	VIROLOGY	5		5
7	PARASITOLOGY	3	1	4
8	APPLIED MICROBIOLOGY	3		3
	TOTAL	31	4	35

OBJECTIVES:

At the end of the course, the candidate will

1. Have sound knowledge of prevalent communicable diseases and the agents responsible for causing clinical infections, pertaining to C.N.S, C.V.S, Musculoskeletal system, Respiratory system,Genitourinarysystem,woundinfectionsandofneweremergingpathogens
2. Know the importance and practices of best methods to prevent the development of infections in self and patients (universal safety precautions)

SYLLABUS

Sr. No.	Topics	Didactic Hours	Practical/ Lab Hours	Total Hours	Must Know	Desirable to Know	Nice to Know
1	**General Microbiology**	**4**	**1**	**5**			
	a. Introduction &scope	01	01		01		
	b. Classification of Micro-organisms and Bacterial Anatomy (cell wall, capsule, spore, flagella and types as per their shape and arrangement)	01			01		
	c. Sterilization	01				01	
	d. Disinfection						
	e. Demonstration for General Microbiology	01			01		
2	**LABORATORY DIAGNOSIS OF INFECTION**	**2**		**2**			
	a. Culture media and identification of bacteria	01					01
	b. Demonstration of Gram staining, ZN staining and culture media	01					01
3	**IMMUNOLOGY**	**4**		**4**			
	a. Innate immunity & acquired immunity	01			01		
	b. Define Antigen, Antibody and Antigen - antibody reaction& application for diagnosis	01			01		
	c. Hyper –sensitivity	01					01
	d. Auto-immunity	01					01
4	**SYSTEMIC BACTERIOLOGY**	**7**		**7**			
	a. Infection caused by gram +ve cocci Staphylococcus, Streptococcus and Pneumococcus	01			01		
	b. Infection caused by gram –vecocci Gonococci and Meningococci	01			01		
	c. Clostridium	01			01		
	d. Enterobacteriaceae (E. coli, klebsiella) and Pseudomonas	01				01	
	e. Salmonella and Vibrio	01				01	
	f. Mycobacterial infection: i. Tuberculosis-Leprosy ii. A typical Mycobacterium	01			01		
	g. Syphilis and Leptospirosis- Morphology & pathogenesis	01			01		
5	**MYCOLOGY**	**2**	**1**	**3**			
	a. Introduction and Superficial mycosis	01				01	

	b. Mycetoma and opportunistic fungal infection	01			01		
	c. Mycology and Virology demonstration		01		01		
6	**VIROLOGY**	**8**		**8**			
	a. Introduction & general properties,	01			01		
	b. DNA virus	01			01		
	c. Measles, Mumps, Rubella, polio and congenital viral infections	01			01		
	d. Dengue, chicken gunia	01			01		
	e. Herpes	01			01		
	f. Hepatitis and Rabies	01			01		
	g. H.I.V.	01			01		
	h. Morphology, Pathogenesis, clinical features & lab diagnosis of Covid – 19 Envoi mental factors influencing spread of SARS – COV-2, Prophylaxis & precautions to prevent the spread of SARS-COV-2	01			01		
7	**PARASITOLOGY**	**3**	**1**	**4**			
	a. Introduction- Entamoebahistolytica	01				01	
	b. Malaria,Filaria	01			01		
	c. Toxoplasma – Cystisarcosis & Echinococcus	01	1		02		
8	**APPLIED MICROBIOLOGY**	**2**		**2**			
	a. Hospital acquired infections, Universal safety precautions and Waste disposal	01			01		
	b. Diseases involving Bones, Joints- Nerves-Muscles-Skin-Brain- Cardiopulmonary system, Burn and woundinfections	01			01		

RECOMMENDED TEXT BOOKS

1. Concise Textbook of Microbiology – Ananth narayan
2. Concise Textbook of Microbiology - C.P. Baweja
3. Textbook of Microbiology - Nagoba

RECOMMENDED REFERENCE BOOK

1. Text books of Microbiology – R. Ananthnarayan & C.K. Jayram Panikar

SCHEME OF UNIVERSITY EXAMINATION (THEORY ONLY)

THEORY Pathology-50 marks + Microbiology-30 marks 80 marks + I.A.:20 marks			**Marks** **100**
Section A- Q.1	MCQs **PATHOLOGY**	[1 x 10]	**10**
	MICROBIOLOGY	[1 x10]	**10**
Section B- Q.2	Short Answer Question (Any four out of five) **PATHOLOGY**	[4x5]	**20**
Q.3	Brief Answer Question **MICROBIOLOGY & PATHOLOGY (5 Each)**	[10 x 2]	**20**
Section C- Q.4	Long Answer Question:- **PATHOLOGY (Any one out of two)**	[1x10]	**10**
	MICROBIOLOGY (Compulsory)	[1x10]	**10**
Total Marks			**80**

PATHOLOGY:

MCQs : 10	**BAQ**	**SAQs: 20**	**LAQs: 10**
MK – 08 DK – 02 NK – 00	MK – 03 DK – 01 NK – 01	MK – 03 DK – 01 NK – 01	MK – 02 DK – 00 NK – 00

MICROBIOLOGY:

MCQs : 10	**BAQs: 10**	**LAQs: 10**
MK – 06 DK – 03 NK – 01	MK – 03 DK – 01 NK – 01	MK – 01 DK – 00 NK – 00

INTERNAL ASSESSMENT:

1. Two exams – Terminal and preliminary examination of 80 marks each TOTAL - 160 marks
2. Internal Assessment to be calculated out of 20marks
3. Internal assessment as per University pattern

PHARMACOLOGY

[DIDACTIC – 50 hrs]

COURSE DESCRIPTION:

This course covers the basic knowledge of Pharmacology including administration, physiologic response and adverse effects of drugs under normal and pathologic conditions. Topics focus on the influence of drugs in rehabilitation patient/client management. Drugs used in iontophoresis and phonoporesis will be discussed in detail.

Sr. No.	Topics	Didactic Hours
1	GENERAL PHARMACOLOGY	04
2	DRUGS ACTING ON C.N.S	11
3	DRUGS ACTING ON AUTONOMIC NERVOUS SYSTEM	07
4	DRUGS ACTING ON C.V.S.	07
5	DRUGS ACTING ON RESPIRATORY SYSTEM	03
6	CHEMOTHERAPY	03
7	OTHER CHEMO THERAPEUTIC DRUGS	03
8	ENDOCRINE	08
9	DRUGS IN G.I. TRACT	02
10	HEAMATINICS	01
11	DERMATOLOGICAL DRUGS	01
TOTAL		**50**

OBJECTIVES:

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

COGNITIVE:

a. Describe Pharmacological effects of commonly used drugs by patients referred for Physiotherapy; list their adverse reactions, precautions, contraindications, formulation & route of administration.
b. Identify whether the pharmacological effect of the drug interferes with the Therapeutic response of Physiotherapy & vice versa
c. Indicate the use of analgesics & anti-inflammatory agents with movement disorders with consideration of cost, efficiency, & safety for individual needs

PSYCHOMOTOR:

Get the awareness of other essential & commonly used drugs by patients- The bases for their use & common as well as serious adverse reactions.

SYLLABUS

Sr. No.	Topics	Didactic Hrs (50)	Must Know	Desirable to Know	Nice to Know
1	**GENERAL PHARMACOLOGY**	**4**			
	i. Pharmacokinetics	01		01	
	ii. Routes of administration	01	01		
	iii. Adverse drug reaction and reporting	01		01	
	iv. Factors modifying drug effect	01	01		
2	**DRUGS ACTING ON C.N.S.**	**11**			
	i. Introduction	01		01	
	ii. Alcohols + Sedatives &Hypnotics	02		02	
	iii. Anti-convulsants	01	01		
	iv. Drug therapy in Parkinsonism	02	02		
	v. Analgesics & antipyretics –especially Gout &R.A.	03	03		
	vi. Psycho Therapeutics	01	01		
	vii. Local anaesthetics, counterirritants	01	01		
3	**DRUGS ACTING ON AUTONOMIC NERVOUS SYSTEM**	**7**			
	i. Adrenergic	02	02		
	ii. Cholinergic	02	02		
	iii. Skeletal muscle relaxants	03	03		
4	**DRUGS ACTING ON C.V.S.**	**7**			
	i. Anti-hypertensives	02	02		
	ii. Antianginal, Antiplatelets, Myocardial Infarction	02	02		
	iii. C.C.F.	01		01	
	iv. Shock	01		01	
	v. Coagulants and Anticoagulants	01	01		

5	**DRUGS ACTING ON RESPIRATORY SYSTEM**	**3**			
	i. Cough	01	01		
	ii. Bronchial asthma	01	01		
	iii. C.O.P.D.	01	01		
6	**CHEMOTHERAPY**	**3**			
	i. General principles	01	01		
	ii. AntiTuberculosis	01	01		
	iii. Anti–Leprosy	01	01		
7	**OTHER CHEMO THERAPEUTIC DRUGS**	**3**			
	i. Drugs used in Urinary Tract Infection	01			01
	i. Tetra /cholera				
	i. Penicillin	01			01
	iv. Cephalosporin				
	v. Aminoglycocides	01			01
	vi. Macrolides				
8	**ENDOCRINE**	**8**			
	i Insulin and oral Antidiabetic drugs	02	02		
	i Steroids-Anabolic steroids	02	02		
	i Drugs for osteoporosis, Vitamin D, Calcium, Phosphorus	02	02		
	iv Thyroid & Antithyroid	01		01	
	v Estrogen + Progesterone	01	01		
9	**DRUGS IN G.I. TRACT**	**2**			
	i. Peptic ulcer	01		01	
	ii. Diarrhoea, Constipation &Antiemetics	01		01	
10	**HEAMATINICS** i. Vitamin B, Iron	**1**		01	
11	**DERMATOLOGICAL DRUGS** i. Scabies, Psoriasis, Local antifungal	**1**			01

RECOMMENDED TEXT BOOKS

1. Pharmacology for Physiotherapy –PadmajaUdaykumar
2. Pharmacology for Physiotherapist –H. L. Sharma, K. K.Sharma
3. Essentials of Medical Pharmacology – K. D.Tripathi
4. Pharmacology and Pharmacotherapeutics – Dr. R S Satoskar, Dr. Nirmala N.Rege, Dr. S. D. Bhandarkar

SCHEME OF UNIVERSITY EXAMINATION (THEORY ONLY)

Theory		**Marks**
Section A	Question 1 MCQ (1×10)	10
Section B	Question 2 BAQ (2×5)	10
	Question 3 SAQ (any 2 out of 3) (5×2)	10
Section C	Question 4 LAQ (any 1 out of 2) (10×1)	10
	Internal Assessment	10
	Total	**50**

MCQs : 10	BAQs: 10	SAQs: 10	LAQs: 10
Must Know (MK) – 05 Desirable to Know (DK)– 03 Nice to Know (NK) – 02	MK – 02 DK – 01 NK – 02	MK – 02 DK – 01 NK – 00	MK – 02 DK – 00 NK – 00

INTERNAL ASSESSMENT

1. Two exams – Terminal and preliminary examination of 40 marks each TOTAL - 80marks
2. Internal Assessment to be calculated out of 10 marks.
3. Internal assessment as per University pattern.

PSYCHIATRY (INCLUDING PSYCHOLOGY)

[Didactic 30hrs + Clinical 20hrs**]- TOTAL 50HRS**

COURSE DESCRIPTION :

The course design increases awareness of psychosocial issues faced by individuals. Their significance at various points on the continuum of health and disability should be emphasised. The course discusses personal and professional attitudes and values as they relate to developing therapeutic relationships. It emphasizes on communication skills for effective interaction with patients, health- care professionals and others. It expects students to identify common psychiatric conditions.

Sr. No.	Topics	Didactic Hours	Clinical Hours	Total Hours
1	**PSYCHOLOGY**	10	--	**10**
2	**PSYCHIATRY**	20	20	**40**
	TOTAL	30	20	**50**

OBJECTIVES:

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

COGNITIVE:

a Define the term Psychology & its importance in the Health delivery system, & will gain knowledge of Psychological maturation during human development & growth &alterations during agingprocess.

b Understand the importance of psychological status of the person in health & disease; environmental & emotional influence on the mind &personality.

c Have the knowledge and skills required for good inter personal communication.

PSYCHOMOTOR:

a. Enumerate various Psychiatric disorders with special emphasis to movement / Pain & ADLs

b. Acquire the knowledge in brief, about the pathological & etiological factors, signs/ symptoms & management of various Psychiatric conditions.

c. Understand the patient more empathetically.

SYLLABUS

Sr. No.	Topics	Didactic Hours	Must Know	Desirable to Know	Nice to Know
1.	**PSYCHOLOGY**	**10**			
	a. Psychology: Definition, understanding, Nature &its fields and subfields	01	01		
	b. Developmental psychology (childhood, adolescence, adulthood and old age) and its theories in brief	02	02		
	c. Learning : Theories of learning, Role of learning in human life	02	02		
	c. Memory – types – Forgetting causes	02	02		
	d. Attention & perception Nature of attention [in brief] Nature of perception, Principles of grouping]	01		01	
	e. Motivation and theories: conflict and frustration–Types of Common Defence mechanisms, Stress -common reactions to frustrations	01	01		
	g. Caring for mental health during Covid – 19 pandemic	01			01
2.	**PSYCHIATRY**	**20**			
	a. Psychiatric History & Mental Status Examination	01	01		
	b. Classification of Mental disorders	01	01		
	c. Schizophrenia & its types	01	01		
	d. Other psychotic disorders (Psychotic disorder, Delusional disorder, Schizo-affective disorders, Post partum psychosis	01	01		
	e. Mood disorder	02	02		
	f. Organic brain disorders (delirium, dementia, Amnestic syndromes, Organic personality disorder,)	02		02	
	g. Anxiety disorders: Phobia, Obsessive Compulsive Disorder, Post Traumatic Disorders and Conversion disorder	02		02	
	h. Somatoform disorder, (Hypochondriasis, Dissociative disorder, Conversion disorder, & Pain disorder)	01		01	
	i. Somatization disorder	01		01	

	j. Personality disorder	01		01	
	k. Substance related disorder (alcohol)	01			01
	l. Disorders of infancy – childhood &adolescence i Attention Deficit Hyperactivity Disorder, i Mental Retardation i Conduct disorder, i Pervasive developmental disorder i Enuresis i Speech disorder	02	02		
	m. Geriatric Psychiatry	01	01		
	n. Eating disorder	01			01
	o. Management: ECT, Pharmacotherapy, Group therapy, Psycho therapy, Cognitive Behavioral Therapy and Rational Emotive Therapy.	02			02

CLINICAL **HOURS : 20hrs**

A. **History, Mental Status Examination & evaluation of :**

1. Schizophrenia
2. Anxiety Disorder
3. Personality Disorder
4. Somatoform Disorder
5. Childhood Disorder (ADHD,MR)
6. Organic Brain Disorder (dementia)

B. **Seminar/ Workshop on Communication skills**

RECOMMENDED TEXTBOOKS :

1. Morgan C.T. & King R.A. Introduction to Psychology – recent edition [Tata McGraw-Hill publication]
2. Munn N.L. Introduction to Psychology [Premium Oxford, I.B.P. publishing Co.]
3. Clinical Psychology –Akolkar
4. Developmental Psychology-Elizabeth B. Hurlock(5th edition, Tata Mc-GrawHill)
5. A short book of Psychiatry – 3 rd edn- Ahuja – Jaypee bros – medical publishers
6. Short Textbook of Psychiatry- 7th edition -M. S. Bhatia
7. Shah L. P. Handbook of Psychiatry

SCHEME OF UNIVERSITY EXAMINATION (THEORY ONLY)

Theory (PSYCHOLOGY **15 marks** + PSYCHIATRY **25 marks = 40 marks** + I.A.:10 marks**)**		**Marks**
Section A	Question:- 1 MCQ (1×10) (05 on **PSYCHOLOGY** & 05 **PSYCHIATRY)**	10
Section B	Question:- 2 BAQ (2×5) (Based on **PSYCHIATRY)**	10
	Question:- 3 SAQ (any 2 out of 3) (5×2) (based on **PSYCHOLOGY)**	10
Section C	Question:- 4 LAQ (any 1out of 2) (10×1) (based on **PSYCHIATRY)**	10
Internal Assessment		10
Total		**50**

PSYCHOLOGY:

MCQs : 05	**SAQs: 10**
MK – 03 DK – 01 NK – 01	MK – 02 DK – 01 NK – 00

PSYCHIATRY:

MCQs : 05	**BAQs: 10**	**LAQs: 10**
MK – 03 DK – 02 NK – 00	MK – 03 DK – 01 NK – 01	MK – 02 DK – 00 NK – 00

CLINICAL EXAMINATION : (College Examination only)

1. Case presentation will be taken at the end of preliminary examination
2. Case presentation : History taking : 20 marks + Communication skills : 20 marks
   Total - 40 marks

INTERNAL ASSESMENT :

1. Two exams – Terminal and preliminary examination (Theory only) of **40 marks each**
   TOTAL - 80 marks
2. Internal Assessment to be calculated out of 10 marks (Theory only)

- Internal assessment as per University pattern.

KINESIOLOGY

DIDACTIC- 80 HRS

COURSE DESCRIPTION:

This course is based on anatomical, physiological & related kinesiological principles for normal human movement. Students have the opportunity to develop and acquire understanding of kinesiological responses for the efficacy in various kinesiotherapeutic applications.

Sr. No	Topics	Didactic Hours
1.	INTRODUCTION TO BIOMECHANICS	15
2.	REGIONAL KINESIOLOGY	45
3.	KINETICS AND KINEMATICS OF GAIT & ADLs	20

Objective – At the end of the course, the candidate will be able to –

1. Understand the principles of Biomechanics.
2. Acquire the knowledge of kinetics and kinematics of Spine, Extremities, Temporo-Mandibular joint, Thoracic cage.
3. Acquire the knowledge of Musculo skeletal movements during normal Gait and Activities of Daily Living.

SYLLABUS

Sr. No.	TOPICS	DIDACTIC HOURS (80)	Must Know	Desirable to Know	Nice to Know
1	**INTRODUCTION TO BIOMECHANICS**	**15**			
	a. Muscle Biomechanics i Elements of muscle structure – fiber, size, motor unit, length tension, arrangement & number relationship i Classification of muscles i Mobility and Stability of muscles ii Types of muscle contraction and factors affecting muscle function	07	07		

	b. Joint Biomechanics i. Basic principles of joint design ii. Classification of joints iii. Osteo kinematics & Arthro kinematics iv. Concave Convex Rule v. Joint function, kinetics & kinematics	07	07		
2	**REGIONAL KINESIOLOGY**	**45**			
	a. Vertebral Column	10	10		
	b. Thorax	2	2		
	c. Shoulder Complex	5	5		
	d. Elbow joint	2	2		
	e. Wrist And Hand Complex	5	5		
	f. Hip Joint	7	7		
	g. Knee Complex	7	7		
	h. Ankle – Foot complex	5	5		
	i. Temporo- Mandibular Joint	2	2		
3.	**KINETICS AND KINEMATICS OF GAIT & ADLs**	**20**			
	a. GAIT	10			
	i. Human locomotion	02	02		
	ii. Subjective & Objective evaluation	02	02		
	iii. Gait cycle & Measurable parameters (Step Length, Step Width, Stride Length, Foot Angle, Cadence)	02	02		
	iv. Kinetics and kinematics of gait	02	02		
	v. Determinants of gait	02	02		
4.	**b. KINETICS AND KINEMATICS OFVARIOUS ACTIVITIES OF DAILYLIVING**	10			
	i. Supine to Sitting, Sitting to Standing, Squatting, Climbing up	04		04	

	& down				
	ii. Lifting, Pulling, Pushing, Overhead activities,	04		04	
	iii. Running, Jogging.	02			02

RECOMMENDED TEXT BOOKS

1. Joint Structure and Function – Cynthia .C.Norkins
2. Clinical Kinesiology –Brunnstrom

RECOMMENDED REFERENCE BOOKS

1. Kinesiology of the Human Body–Steindler
2. Kinesiology of the Musculoskeletal system – Neumann &Donald
3. Kinesiology – The mechanics and Pathomechanics of Human motion – Oatis &Carol
4. Biomechanical Basis of Human Motion – Joseph andHamill
5. Physiology of the Joints – Kapandji Vol.- I,II,&III

SCHEME OF UNIVERSITY EXAMINATION (THEORY ONLY)

Theory * The question paper will give appropriate weightage to all the topics in the syllabus.		**Marks**
Section A	Question 1 MCQ (1×20)	20
Section B	Question 2 BAQ (2×10)	20
	Question 3 SAQ (any 4 out of 5) (5×4)	20
Section C	Question 4 LAQ (any 2 out of 3) (10×2)	20
	Internal Assessment	20
	Total	**100**

MCQs : 20	**BAQs: 20**	**SAQs: 20**	**LAQs: 20**
MK – 12 DK – 06 NK – 02	MK – 06 DK – 03 NK – 01	MK – 03 DK – 01 NK – 01	MK – 03 DK – 00 NK – 00

INTERNAL ASSESSMENT – (THEORY)

1. Two exams – Terminal and preliminary examination of 80 marks marks each TOTAL - 160 marks
2. Internal Assessment to be calculated out of 20marks.
3. Internal assessment as per University pattern.

KINESIOTHERAPY

Didactic-80 Hrs + Practical/ Laboratory-160 HRS **[TOTAL - 240 HRS]**

COURSE DESCRIPTION:

This course is based on anatomical and physiological & related kinesiological principles for normal human movement and for the efficacy in the assessment methods for mobility, muscle strength. Students have the opportunity to develop and acquire understanding of physiological responses to

various types of training and develop skills of exercise programs (on models). Exercise components of muscle strength, flexibility, balance, breathing and gait are examined. Evidence of appropriate, safe and effective exercise design and proper exercise biomechanics and prescription parameters are addressed with all interventions**.**

Sr. No.	TOPICS	Didactic Hours	Practical/ Lab Hours	Total Hours
1.	BIOPHYSICS	40	115	155
2.	POSTURE	05	05	10
3.	MOTOR & POSTURAL CONTROL AND BALANCE	03	00	03
4.	FUNCTIONAL REEDUCATION	05	05	10
5.	NEUROMUSCULAR CO-ORDINATION	05	05	10
6.	GAIT &WALKING AIDS	10	15	25
7.	BRONCHIAL HYGIENE	12	15	27
	TOTAL	80	160	240

OBJECTIVES:

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

COGNITIVE:

Describe the Biophysical properties of connective tissue, & effect of mechanical loading, & factors which influence the muscle strength, & mobility of articular & periarticulars of tissues.

PSYCHOMOTOR:

1. Apply the biomechanical principles for the efficacy in the assessment methods for mobility, muscle strength
2. Acquire the skill of subjective and objective assessment of individual & group muscle strength
3. Acquire the skills of subjective and objective methods of muscle strengthening

4. Describe the physiological effects, therapeutic uses, merits / demerits of various exercise modes including Hydrotherapy
5. Demonstrate various therapeutic exercises on self;& acquire the skill of application on models with Home Programs
6. Analyze normal Human Posture [static &dynamic].
7. Acquire the skill of functional re-education techniques on models
8. Acquire the skill of Balance and Coordination Exercises
9. Acquire the skill of using various walking aids for Gait Training
10. Acquire the skill of demonstrating breathing exercises and retraining on self and others
11. Acquire the skill of demonstrating Postural Drainage on models

SYLLABUS

Sr. No.	TOPICS	Didactic Hours	Practical/ Laboratory Hours	Total Hours	Must Know	Desirable to Know	Nice to Know
1.	**BIOPHYSICS**	**40**	**115**	**155**			
	a. Biophysical Principles: i. Structures & Properties of connective and non connective tissues	02	-		02		
	b. Stretching: i. Definition ii. Types iii. Assessment of muscle length and fascia around the joint iv. Principles of stretching v. Techniques for all joints vi. Individual muscle stretching	03	12		15		
	c. Joint Mobility: i. Definition ii. Causes of limitation iii. Indication and contraindications iv. Principles v. Techniques vi. Assessment methods vii. Individual joints mobility Exercises–Upper Limb, Lower Limb viii. Spine (Using active, assisted, passive movements)	10	17		27		
	d. Manual Muscle Testing and assessment (subjective & objective):	06	35				
	i. Principles	01			01		
	ii. Trick movements	01				01	
	iii. Group Muscle Testing	02	17				
	iv. Individual Muscle testing – Upper & Lower Limbs, Trunk &	02	18				

	Face						
	e. Muscle Strengthening: i. Concepts -Strength, Power, Endurance ii. Factors influencing the Strength of normal muscle/ hypertrophy, recruitment of motor units, change after the training, training with isometric, isotonic & Isokinetic muscle contraction iii. Principles: Overload, Intensity, Motivation, Learning, Duration, Frequency, Reversibility, Specificity, Determinants iv. Methods : Subjective &Objective v. Individual joint Strengthening Exercises Upper Limb, Lower Limb & Spine vi. Concepts- 1 RM, 10 RM &Dynamometry vii. Progressive Resisted Exercise -Delorme, Zinoveiff, Mc queen protocols viii. Use of gymnasium equipments	10	40		50		
	f. Hydrotherapy: i. Physiological effects ii. Indication and Contraindications iii. Techniques	04	05		09		
	g. Traction (Cervical & Lumbar): i. Introduction ii. Types(Mechanical /Electrical, Continuous/Intermittent) iii. Indications and Contraindications iv. Techniques v. Effects and uses	03	06		09		
	h. Home Program: i. Principles ii. Ergonomic advice for ADLs iii. Home based exercise program	02	-		02		

2.	**POSTURE**	**5**	**5**	**10**			
	a. Definition b. Human posture – Changes from quadruped to biped c. Correct and faulty posture d. Postural patterns and Postural Mechanism e. Factors affecting posture f. Physiological deviations g. Analysis of all views	05	05		10		
3.	**MOTOR CONTROL, POSTURAL CONTROL AND BALANCE**	**03**	**-**	**03**		03	
	a. Motor Control b. Postural Alignment & Weight Distribution c. Sensory Organization d. C.N.S. Integration e. Motor Strategies	03	-			03	
4.	**FUNCTIONAL RE-EDUCATION**	**5**	**5**	**10**			
	a. Principles &Indications b. Mat exercises- mobility, strength and balance training c. Progression to sitting, standing and walking d. Transfers	05	05		10		
5.	**NEUROMUSCULAR CO-ORDINATION AND BALANCE**	**5**	**5**	**10**			
	a. Definition	01				01	
	b. Physiology related to coordination &Balance						
	c. Frenkel's exercise (Principles &Techniques)	02	03		05		
	d. Balance training Exercises	02	02		04		
6.	**GAIT &WALKING AIDS**	**10**	**15**	**25**			
	a. Gait i. Definition, ii. Gait cycle and measurable Parameters(Step Length, Step Width, Stride Length, Foot Angle, Cadence	03	07	10	10		

	b. Walking Aids i. Types ii. Indications iii. Selection /Prescription iv. Pre 'Walking Aids'training v. Measurements vi. Gait with walking aids	3	7	10	10		
7.	**BRONCHIAL HYGIENE**	**12**	**15**	**27**			
	a. Humidification & Nebulisation i. Definition ii. Types iii. Method of delivery iv. Indications and contraindications	03	01	04	04		
	b. Breathing Exercise– i. Types – Inspiratory , Expiratory (including forced expiratory technique) ii. Goals &Uses iii. Techniques iv. ACBT v. Autogenic drainage	05	06	11	11		
	c. Postural Drainage: i. Definition ii. Indications &Contraindications iii. Assessment &Principles iv. Techniques	04	08	12	12		

PRACTICAL: Chapter No: 1(b, c, d & e) 2, 4, 5, 6 & 7

RECOMMENDED TEXT BOOKS

1. Progressive Resisted Exercises – Margaret Hollis,
2. Therapeutic Exercise foundation and techniques – Carolyn Kisner
3. Muscle Testing – Daniel Kendall
4. Principles of Exercise Therapy – Dena Gardiner

RECOMMENDED REFERENCE BOOKS

1. Therapeutic Exercise - Basmajian &Wolf.
2. Orthopedic Evaluation –Magee
3. Cash's Textbook for Physiotherapists in Chest, Heart & Vascular diseases
4. Therapeutic Exercise- Kisner and Colby
5. Physical Rehabilitation- O'Sullivan

SCHEME OF UNIVERSITY EXAMINATION

Theory * The question paper will give appropriate weightage to all the topics in the syllabus.		**Marks**
Section A	Question 1 MCQ (1×20)	20
Section B	Question 2 BAQ (2×10)	20
	Question 3 SAQ (any 4 out of 5) (5×4)	20
Section C	Question 4 LAQ (any 2 out of 3) (10×2)	20
	Internal Assessment	20
	Total	**100**

MCQs : 20	**BAQs: 20**	**SAQs: 20**	**LAQs: 20**
MK – 12 DK – 06 NK – 02	MK – 06 DK – 03 NK – 01	MK – 03 DK – 01 NK – 01	MK – 03 DK – 00 NK – 00

PRACTICAL 80 MARKS + I.A. – 20 MARKS		**Marks** **100**
LONG CASE	Muscle Strengthening / Mobility /Bronchial hygiene (On models)	**35**
SHORT CASE	Two Short cases on M.M.T. /Coordination/Posture/Gait (Measurable parameters only as mentioned in chapter 6-a) / Walking aids/ Functional Reeducation / Breathing Exercises / Stretching 2 x 20 = 40 marks	**40**
JOURNAL	Documentation- Principles & applications for various Kinesiotherapeutics.	**5**
Total Marks		**80**

INTERNAL ASSESSMENT :

1. Two exams – Terminal and preliminary examination (Theory & Practical) of 80 marks each TOTAL - 160 marks.
2. Internal Assessment to be calculated out of 20 marks.
3. Internal assessment as per University pattern.

ELECTROTHERAPY

Didactic –100 hrs+ Practical / Laboratory –200 hrs [**TOTAL - 300 HRS**]

COURSE DESCRIPTION :

This course tends to explore fundamental skills in application of electrotherapeutic modalities and knowledge of indications, contraindications and physiological principles needed for appropriate patient care. It includes topics such as Electrical stimulation, T.E.N.S., Iontophoresis, Ultrasound / Phonophoresis, Diathermy and Electro diagnostic testing etc.

Sr. No.	Topic	Didactic	Practical	Total
1	**PAIN**	003	-	**003**
2	**LOW FREQUENCY CURRENTS**	037	085	**122**
3	**MEDIUM FREQUENCY CURRENTS**	008	022	**030**
4	**BIO FEEDBACK**	005	-	**005**
5	**HIGH FREQUENCY CURRENTS**	012	028	**040**
6	**SOUND**	010	025	**035**
7	**ACTINOTHERAPY**	015	025	**040**
8	**ELECTROTHERAPY : WOUND CARE**	010	015	**025**
	TOTAL	**100**	**200**	**300**

OBJECTIVES :

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

COGNITIVE :

1. Acquire the knowledge about the physiology of pain, Pain pathways & Methods ofpain modulation, selection of appropriate modality for Pain modulations.
2. Describe the Physiological effects, Therapeutic uses, indication & contra indications of various Low/ Medium & High Frequency modes /Actinotherapy
3. Describe the Physiological Effects & therapeutic uses of various therapeutic ions &topical pharmaco -therapeutic agents to be used for the application of iontophoresis & sono/ phonophoresis

PSYCHOMOTOR:

1. Acquire the skills of application of the Electro therapy modes on models, for the purpose of Assessment &Treatment.
2. Acquire an ability to select the appropriate mode as per the tissue specific &areaspecific application.

SYLLABUS

Sr. No.	Topic	Didactic Hours	Practical Hours	Total Hours	Must Know	Desirable to Know	Nice to Know
1	**PAIN**	**3**	**-**	**3**			
	a. Pain pathway b. Pain gate theory c. Descending pain suppressing system d. Physiological block	03		03	03		
2	**LOW FREQUENCY CURRENTS**	**37**	**85**	**122**			
	a. Faradic currents : Physiological & Therapeutic effects, indications, contraindications: vi. Faradic type vii. Strong Surged Faradic viii. Sinusoidal currents ix. Application of Faradic current • Faradism Under pressure –Indications, Principle of application, Technique of application • Faradic re-education: Indications, Principle of application, Technique of application • Short/Long pulse currents Motor Points : Definition., Identification	12	20	32	32		
	b. Galvanic / Direct currents (Continuous DC & Interrupted DC) : Physiological & Therapeutic effects, Indications, Contraindications iv. Definition: Galvanic & Interrupted Galvanic Currents v. Property of Accommodation vi. Technique & Methods of Application of Galvaniccurrents vii. Types – Anodal & Cathodal, Therapeutic effects & uses, Technique & Methods of application, Dangers & precautions viii. Ionization / Iontophoresis : Theory of Medical Ionisation,	12	20	32	32		

	Effects & Uses of various Ions, Indications and contraindications, Dangers and precautions						
	c.High Voltage Currents	01	-	01		01	
	d.Micro Currents	01	-	01		01	
	e.Didynamic Currents	01	-	01		01	
	f.Transcutaneous Electrical Nerve Stimulation (T.E.N.S.) i. Definition ,Types ii. Physiological & Therapeuticeffects iii. Technique & Methods ofApplication iv. Indications & contraindications	05	20	20	20		
	g. Strength Duration Curves on model i. Principle of S-Dcurves ii. Technique of plotting iii. Interpretation of normalcurves iv. Chronaxie and Rheobas	05	25	25	25		
3	**MEDIUM FREQUENCY CURRENTS**	**8**	**22**	**30**			
	a. Interferential Therapy i. Definition ,Types, ii. Physiological & Therapeutic effects	01	-	01	01		
	iii. Technique & Methods of Application	02	16	18	18		
	iv. Electrodes types (including vacuum), Effects &Uses	01	02	03	03		
	v. Advantages of I.F.T. over Low frequency currents	01	-	01	01		
	vi. Indications & contraindications	01	-	01	01		
	b. Russian Currents	02	04	06		06	
4	**BIOFEEDBACK**	**5**	**-**	**5**			
	i. Principles	01	-	01	01		
	ii. Methods: Electro biofeedback	02	-	02			02
	iii. Uses of Biofeedback	02	-	02	02		

5	**HIGH FREQUENCY CURRENTS S.W.D**	**12**	**28**	**40**			
	i. Types: continuous /Pulsed ii. Definition and types iii. Physiological & Therapeutic effects iv. Technique & Methods of Application v. Electrodes types, Effects &Uses vi. Indications &contraindications vii. Dangers &Precautions	12	28	40	40		
6	**SOUND**	**10**	**25**	**35**			
	Therapeutic Ultra Sound: Pulsed / Continuous i. Physiological & Therapeutic effects ii. Technique & Methods of Application iii. Phonophoresis iv. Indications &Contraindications v. Dangers &Precautions	10	25	35	35		
7	**ACTINOTHERAPY**	**15**	**25**	**40**			
	a. Radiant heat [I.R.R.] i. Physiological & Therapeutic effects ii. Technique & Methods of Application iii. Effects &Uses iv. Indications &contraindications v. Dangers &Precautions	5	5	10	10		
	b. **U.V.R.** viii. Types : a, b,c ix. Physiological & Therapeutic effects x. Technique & Methods of Application xi. Effects &Uses xii. Indications &contraindications xiii. Dangers &Precautions xiv. Test Dose	6	20	26	26		
	C.**Light amplification by the stimulated emission of radiation (LASER) – He/ Ne, & I. R. combination** i. Physiological & Therapeutic effects ii. Technique & Methods of Application	4	-	4	04		

	iii. Effects &Uses iv. Indications &Contraindications v. Dangers &Precautions vi. Dosage						
8	**ELECTROTHERAPY: WOUND CARE** i. Types of wound ii. Application of Therapeutic currents, Ultrasound, U.V.R. &LASER	**10**	**15**	**25**	10	15	

PRACTICAL:

Skills of application to be practiced on models in No-1 to 8 above

RECOMMENDED TEXT BOOKS

1. Clayton's Electro Therapy
2. Electro therapy Explained – Low &Reed
3. Electro Therapy – Kahn
4. Therapeutic Electricity – Sydney Litch
5. Electrotherapy Evidence Based Practice – Sheila Kitchen

RECOMMENDED REFERENCE BOOK

1. Clinical Electro Therapy – Nelson & Currier

SCHEME OF UNIVERSITY EXAMINATION

Theory * The question paper will give appropriate weightage to all the topics in the syllabus.		**Marks**
Section A	Question 1 MCQ (1×20)	20
Section B	Question 2 BAQ (2×10)	20
	Question 3 SAQ (any 4 out of 5) (5×4)	20
Section C	Question 4 LAQ (any 2 out of 3) (10×2)	20
	Internal Assessment	20
	Total	**100**

MCQs : 20	BAQs: 20	SAQs: 20	LAQs: 20
MK – 12 DK – 06 NK – 02	MK – 06 DK – 03 NK – 01	MK – 03 DK – 01 NK – 01	MK – 03 DK – 00 NK – 00

PRACTICAL 80 MARKS + I.A. – 20 MARKS		**Marks** **100**
LONG CASE	Motor points /Strength Duration Curve / Faradism under pressure (On models)	**35**
SHORT CASES	1. Based on Low or Medium Frequency modalities/ High Frequency modalities 2. Actinotherapy (I.R./U.V.R.) 2 x 20 =40 marks (Skill of application on models & rationale for selection of modality)	**40**
JOURNAL	Documentation- Principles & applications for various Electrotherapy Modalities.	**5**
Total Marks		**80**

INTERNAL ASSESSMENT:

1. Two exams – Terminal and preliminary examination (Theory & Practical) of 80 marks each TOTAL - 160 marks.
2. Internal Assessment to be calculated out of 20marks
3. Internal assessment as per University pattern

SCHEME OF UNIVERSITY EXAMINATIONS AT A GLANCE

II B.P.Th.

Subjects	Theory			Practical		
	University	I.A.	Total	University	I.A.	Total
Pathology & Microbiology	50 + 30	20	100	---	---	---
Pharmacology	40	10	50	---	---	---
Psychiatry (including Psychology)	40	10	50	---	---	---
Kinesiology	80	20	100	---	---	---
Kinesiotherapy	80	20	100	80	20	100
Electrotherapy	80	20	100	80	20	100
Total	**400**	**100**	**500**	**160**	**40**	**200**

STANDARD OF PASSING
B.P.Th

1. A Candidate must have minimum of 75 % attendance in theory and 80 % attendance in practical (irrespective of the kind of absence) of each course (subject) for appearing in the University examination.

2. For the subjects with practical, there will bethree heads of passing i.e. Theory, Practical, and Internal Assessment.For the subjects without practical there will be two heads of Passing i.e.Theory and Internal Assessment.

3. The candidate should secure minimum 50% marks in each of the theory and practical papers separately.The candidate will be held eligible to appear in the University examination only when he/she secureminimum 35% marks in Internal Assessment.

4. A Candidate should secure at least 50% marks in college exams in subject where there is no University exam.

5. If the candidate fails either in Theory or in Practical Examination of a subject he/she will have to reappear for both theory and practical /clinical examination.

6. **Grace Marks -**If a candidate fails by five or less marks in aggregate of all subjectsin the University examination;grace marks up to five will be given to the candidate by the University before the declaration of result.

7. **Supplementary Examination-**If a candidate fails in any number of course (subject)in the University examinationhe/shecan appear for those subjects onlyin Supplementary Examination, whichwill be held within **3 to 6weeks** from the date of declaration of the results of the University examination for every professional year, so that the candidates, who pass, can join the main batch for progression. Candidatewill be required to appear in the supplementary examination in that subject/ subjects while attending classes of next year.If the candidate fails in three or more subjects in supplementary examination, his/her session will be shifted by one year. If the candidate passes in all subjects or gets ATKT(for those who fail in two or less subjects)in Supplementary Examinationthen he/she is eligible to continue with the next academic year.

8. The candidate should have passed all subjects of previous years before appearing to 4th Year B.P.Th. University Examination.

9. First class with Distinction –75% and above marks in any subject or overall aggregate. First class - 60% to 74.99% and above in the aggregate of marks of all subjects. Second Class – 55% to 59.99% or 55% in the aggregate of marks of all subjects. Pass class – 50% to 54.99% in the aggregate of marks of all subjects.

10. Themaximumperiodtocompletethe B.P.Th. successfullyshouldnotexceednineyears.

11. Internship: There shall be compulsory six months rotatory structured Internship afterpassing finalB.P.Th. examination. Internship should be done in teaching hospital/hospitalsof the university. No candidateshallbeawardeddegreecertificatewithoutsuccessfullycompletingsixmonths internship.

12. ResearchProjectwork: Each Internhavetotakeupa short research projectwork duringinternshipperiod. The protocol approval shall be obtained bytheeach internin the final year of B.P.Th. however the ethical approval should be obtained latest by the second month of internship program.Data shall be collected in the next three months after the approval by the ethics committee.Completed project shall be submitted by the end of 6thmonth.

13. Structure of the Research Project: The written text of the project shall beofminimum50pages excluding references, tables, and questionnairesandotherannexure.It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") Times new Roman, 12 fontand hard bound properly. The intern shall provide plagiarism declaration in his/her project. The guide and head of the institution shall certify the written text of the project. Three copies of project work thus preparedshallbesubmittedtothePrincipal.Thecompletioncertificateof internshipwillbeissuedonlyafter completingtheresearchproject.

14. The degree will be awarded after the satisfactory completion of internship and submission of project work, in ensuing convocation to be conducted by the University.

D. Y. PATIL EDUCATION SOCIETY

(DEEMED TO BE UNIVERSITY), KOLHAPUR

Declared Ested U/S 3 of UGC Act 1956
Accredited by NAAC with 'A++' Grade

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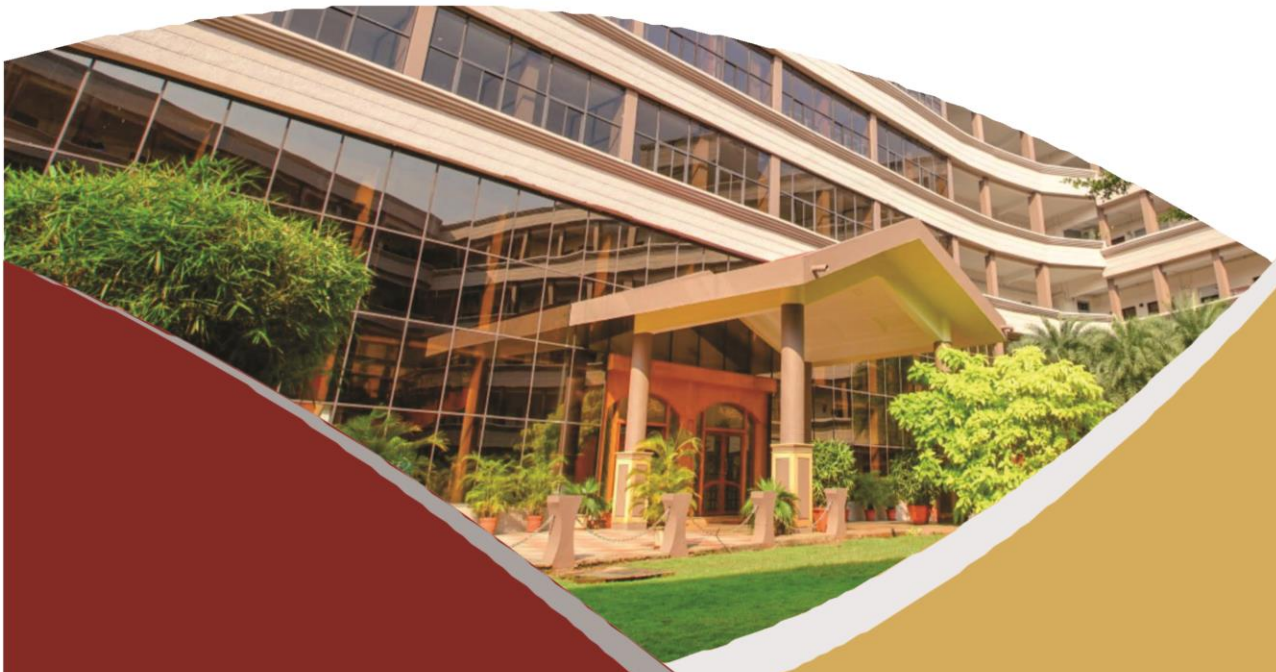

BACHELOR OF PHYSIOTHERAPY (B.P.TH)

D.Y.PATILEDUCATIONSOCIETY,KOLHAPUR(DEEMEDTOBEUNIVERSITY)

D.Y.PatilCollegeofPhysiotherapy

Syllabusfor

III-BachelorofPhysiotherapy

VISION

- To become a world class dynamic institution of education research & training to develop globally competitive, professional and socially responsible human resource.

MISSION

- To ensure globally relevant quality higher education and skill enhancement for providing required trained manpower to the nation & the world.
- To promote symbiotic relations with industry, academic and research institutions and community to meet the expectations of various stakeholders.
- To engage in interdisciplinary research and innovate for furtherance of knowledge, technology and growth.
- To put in place dynamic technocracy for effective use of emerging trends in curriculum development, and radogy, evaluation and system management.
- To provide an environment for holistic evolution of the learners as humane, socially responsible and conscious of sustainable ecosystem.

III-BachelorofPhysiotherapy

Program Code	ExamCode	Course Name	Subject Name	Sub/Course Code
16	1601	IstB.P.Th.	HumanAnatomy	160101
			HumanPhysiology	160102
			Biochemistry	160103
			FundamentalsofKinesiology&Kinesiotherapy	160104
			FundamentalsofElectrotherapy	160105
	1602	IIndB.P.Th.	Pathology&Microbiology	160201
			Pharmacology	160202
			Psychiatry&Psychology	160203
			Kinesiology	160204
			Kinesiotherapy	160205
			Electrotherapy	160206
	1603	IIIrdB.P.Th.	SurgeryI	160301
			SurgeryII	160302
			Medicine I	160303
			Medicine II	160304
			CommunityHealth&Sociology	160305
			FunctionalDiagnosisandPhysiotherapeuticSkills	160306
	1604	IVthB.P.Th.	MusculoskeletalPhysiotherapy	160401
			NeuroPhysiotherapy	160402
			Cardio-Vascular&RespiratoryPhysiotherapy	160403
			CommunityPhysiotherapy	160404

PROGRAMOUTCOME:

PO1:Abilitytoacquireknowledgeaboutnormal-abnormalbasicmedicalandhumanmovement sciences, understand relevant investigations, role of drugs related to variousmedicalconditions,surgicaltreatmentandapplicationofphysiotherapyinterventions.

PO2:Togainknowledgeaboutplanningandproblem-solvingabilitiestodelineatethecognitive,affective and psychomotor skills to perform as a competent physiotherapist who will beabletoevaluate,planandeffectivelyperformthephysiotherapeuticskills.

PO3: Demonstrate the ability to acquire good listening potential with effective interpersonalandintrapersonalcommunicationskills.

PO4:Extendtheacquiredknowledgetoconductresearchactivitiesandpublicationsthatcontributetotheup liftmentinfieldofphysiotherapyandbettermentofsociety.

PO5:Understandmoralvalue,professionalethicsandaccountabilitytowardspatientandcolleagues, develop good behaviors skills with confidentiality and humanitarian approachmaintainingtherespectandprivacyofpatient.

PO6:Develop leadership skills, time management, logical reasoning, values required for selfdirected and lifelong learning, soft skills for professional development and execute theirprofessionalroleinsocietyasaphysiotherapistatvariousacademicinstitutions,Hospital/Cli nics,Organizations,ResearchlaboratoriesandRehabilitationcenters.

PO7:Understandingaboutsociety'sneedsintermsofhealthandwellness,toimprovemulticulturalcompet encyamongprofessionalandgeneralpublic,promotingsocialpoliciesthat affect the demands of patients in terms of function, health and wellness, develop acharacterwithgoodmoralvalues,humanvalues,goodsocialbehavior,gratitude,honesty,ethics, safety,hygiene,responsibility,confidence,toleranceandcriticalthinking.

PO8:Abletocontributeinsustainabledevelopmenttoachievethenationalsustainabledevelopmentgoal,fu rthertherelationshipbetweentheenvironment,humanhealthand functioning and physiotherapy are considered and respected to mutually benefitpatient'shealth.Ensurehealthylife'sandpromotewellbeingforallatallages.

PO9:Demonstrate ability to acquire new knowledge skill and reflect upon their experience toenhancepersonal,professionalgrowthandapplytheinformationforpatientcare.

SURGERYI

CO1:

Abilitytofamiliarizewithprinciplesofgeneralsurgeryincludingvariousspecialtieslikecardiovascular,thoracic,neurology&plasticsurgery.

CO2:

Abilitytofamiliarizewithterminology&abbreviationsforefficient&effectivechartreviewing&documentation.

CO3:

Exploreaboutepidemiology,pathology,primary&secondaryclinicalcharacteristicswitheirmedical&surgicalmanagement.

CO4: Makeawarenessofgeneralaswellasspecialtysurgicalconditions.

CO5: Understandeffectsofsurgicaltrauma&anesthesia.

CO6:Ability to clinically evaluate & describe surgical management of various surgical conditionsincludinggeneralsurgicalaswellasneurosurgical,cardiovascular&thoracicsurgery, ENT&ophthalmicsurgery,plastic&reconstructivesurgery.

CO7:Ability to describe pre-operative evaluation, surgical indications, management & postoperativecare&complicationsrelatedtoabovementionedareas.

CO8: Abilitytoread&interpretefindingsofrelevantinvestigations.

SURGERYII

CO1:Abilitytoidentify&describetheclassification,causes,clinicalfeatures,headingoffractures&complicationsoffracturesofupper,lowervertebralcolumnthoraxandpelvis.

CO2:Abilitytoidentifyanddescribeprinciplesofgeneraldescription&managementoftraumaticdislocation&subluxationofshoulder,acromiodavicular,elbow,hip&kneejoint.

CO3:Able to interpret & read silent features of x-ray of spine &extrimities& correlate theradiologicalfindingswithclinicalfindings.

CO4:Ability to understand grades of injury, management of injuries of ligaments, bursal, fascia,muscles & tendons of upper and lower limb, whiplash of cervical spine, cervicolumbarspinecrushinjuriesofhand&foot.

CO5:Ability to identify & understand causes, classification physical clinical radiological featuresandcomplicationsofcongenital&ocquireddeformitiesofupper&lowerlimbalsounders

tandsprinciplesofmedical&surgicalmanagementofthesedeformities.

CO6:Able to discuss the etiology, path physiology, clinical manifestations and conservative orsurgicalmanagementofdegenerative&inflammatoryconditions.

CO7: Abletounderstandtheetiology,clinicalmanifestations&managementofmetabolictumors.

CO8:Able to identify & understands action logy, patho Physiology, clinical manifestations andconservativeandsurgicalmanagementofgeneralorthopaedicconditionslikecarpeltunnelsyndromeentrapmentnerveinjuries,camparmentsyndromeischemiccontracture,avasularnercosisofboneIadult&childrengangrene,backache.

CO9:Able to understand classification, causes, clinical manifestations, general description &principlesofgeneralmanagementofbegin&malignanttumors.

MEDICINEI

CO1:

Identify&describetheetiology,pathology&clinicalsymptomsandmanagementofthecardiovascular&respiratoryconditions.

CO2:

Identify&describetheetiology,potahology&clinicalsymptomsandmanagementofthegeneral medicine,theumatology&gerontology.

CO3:

Knowledgeofvariousdrugusedforeachmedicalconditionstounderstanditseffects&user duringtherapy.

CO4:

Understandskillofhistorytaking&clinicalexaminationofcardiovascular,respiratory,generalmedicine&gerontologyconditionsasapartofclinicalteaching.

CO5: Be able to acquire the skills of basic life support & describe the principles of managementatICU.

CO6:Understand relevant investigations which will help to know about the important medicalconditions.

CO7:

Acquiretheknowledgeinmedicinethatarerequiredtobepracticeincommunity&atalllevelsofhealthcaresystem.

MEDICINEII

CO1:

Studentsshouldabletoabilitydescribeappliedphysiologyanetiology,Pathophysiologysigns&symptonsandmanagementofvariousneurologicalandpaediatricconditions.

CO2:

Acquireskillsofhistorytakingandclinicalocaninationofneurological&CO3:paediatricconditionsasapartofclinicalteaching.

CO4:

Acquireknowledgeofvariousdrugsusedforeachmedicalconditiontounderstanditseffects anditsareduringtherapy.

CO5: Acquireknowledgeinbriefaboutinterdevelopmentofthefoctus.

CO6:

Studentshouldabletodescribenormaldevelopmentandgrowthofachildimportanceofimmunization breastfeeding&psychologicalasputofdevelopment.

CO7:Studentshouldabletodescribeneuromusculermusculoskeletalcardiovascularandrespiratory conditions related immunological conditions nutitional deficiencies infectiousdiscasesandgeneticallytransmittedconditions.

CO8:Acquire skill of clinical examination of a neonate / child with uspect to neurologicalmusculoskeletal&respiratoryfunction.

COMMUNITYHEALTH&SOCIOLOGY

CO1: Ability to understand role of physiotherapy in socio-cultural factors as determinals ofhealth&behaviour.

CO2: Identifyroleofsocialsecurity,medicalsocialworker&roleofNGOinrelationtodisabled.

CO3:

UnderstandtheroleofPhysiotherapyinsocialplanning&inimprovementofhealth&rehabilitation.

CO4:

Acquireknowledgeinpreventive&measuresthatarerequiredtobepracticedincommunity &atalllevelofhealthcaresystem.

CO5:

Illustrativeconceptsinflunceofformal&informalsocialfactorsorpersonality,socialization

inHospital&Rehabilitationsetting.

CO6:

Toidentifyroleofrural&urbancommunitiesinpublichealth&practicesinhomeremedialtreatment.

CO7: Tounderstandsociologyofbraindeath/organdonation.

FUNCTIONALDIAGNOSIS&PHYSIOTHERAPEUTICSKILLS

CO1: Abilitytoacquiresknowledgeontheclinicalreasoningoftheicfanditsuse.

CO2: Ability to acquire knowledge on asserment& examination of musculoskeletal system withitsdysfunction,arresmentofjointswithspecialtests,arreseementofpainofresponseoftheses ofttissuetotrauma.

CO3: Understand the basic in manual therapy, soft tissue mobilization skills for joints & softtissue,itsapplicationswithclinicalreasoning,indications&contraindications.

CO4:Abilitytoacquiresknowledgeonassessment&examinationofcardiovascular&pulmonarysystem withitsdrugfunction7assessmentforfitness&health.

CO5: Abilitytounderstandgeneralprinciplesofhumandevelopment&maturation.

CO6: Abilityunderstandassessingofneurotherapeuticskills&itsapplicationwithclinicalreasoning.

INDEX

PHYSIOTHERAPY

DEFINITIO N:

`**Physiotherapy**' is a branch of modern medical science which includes examination, assessment,interpretation, physical diagnosis, planning and execution of treatment and advice to any personfor the purpose of preventing, correcting, alleviating and limiting dysfunction, acute and chronicbodily malfunction including life saving measures via chest physiotherapy in the intensive careunit, curing physical disorders or disability, promoting physical fitness, facilitating healing and painrelief and treatment of physical and psychological disorders through modulating psychological andphysical response using physical agents, activities and devices including exercise, mobilization,manipulations,therapeuticultrasound,electricalandthermalagentsandelectrotherapyfordiagnosis,treatmentandprevention.

(DefinitionaspertheMaharashtraStateCouncilforOccupationaltherapy&Physiotherapy,2004)

`Physiotherapist' is a qualified professional who has acquired all the above mentioned knowledgeandskillsforentryintopracticeafterbeingawardedabachelordegreeinthesubjectof"Physiotherapy" from a recognised institute affiliated to the University conducting a fulltime coursenotlessthanfouryearsandsixmonthsofinternship.

PREAMBLE

PhysiotherapyorPhysicalTherapy(P.T.)isa**MovementScience**withanestablishedtheoreticalandscientificbaseandwidespreadclinicalapplicationsinthe**Prevention,Restoration&Rehabilitation,MaintenanceandPromotionofoptimalphysicalfunction.**Physiotherapists**diagnoseandmanagemovement dysfunction** and enhance physical and functional abilities. This physical dysfunctionmay be the sequelae of involvement of any of the systems like Musculoskeletal, Neurological,Cardiovascular,Respiratoryorotherbodysystems.

Thesepractitionerscontributetosocietyandtheprofessionthroughpractice,teaching,administration,andthediscoveryandapplicationofnewknowledgeaboutphysiotherapyexperiencesofsufficientexcellenceandbreadthbyresearchtoallowtheacquisitionandapplicationofessentialknowledge,skills,andbehaviorsasappliedtothepracticeofphysiotherapy.

Learning experiences are provided under the guidance and supervision of competent faculty, inboth, classroom as well as in clinic. The designed curriculum will prepare the entry-to-practicephysiotherapist (PT), to be an autonomous, effective, safe and compassionate professional, whopractices collaboratively in a variety of healthcare set ups such as neonatal to geriatric, fromcritical care to community fitness to sports training and is responsive to the current and futureneedsofthehealthcaresystem.

Vision:"PromoteexcellentPhysiotherapyeducationandtrainGeneralandSpecializedphysiotherapyprofessionals"

MISSION:

- ExcellentPhysiotherapyeducationandserviceresearchforcommunitydevelopment.
- PromotecommunityorientedPhysiotherapy.
- PromoteResearchandqualitymanagementinPhysiotherapy

ESSENTIALREQUIREMENTS

Thefollowing"essentialrequirements"specifythoseattributesthatthefacultyconsidernecessary for completing the professionaleducation enabling each graduate to subsequentlyenterclinicalpractice.Thepurposeofthiscurriculumistodelineatethecognitive,affectivean d psychomotor skills deemed essential for completion of this program and to perform as acompetent physiotherapist who will be able to evaluate, plan & execute physiotherapy treatmentindependently.

COGNITIVE LEARNING SKILLS: The student must demonstrate the ability to receive, interpret,remember,reproduceanduseinformationinthecognitive,psychomotor,andaffectivedomainsof learning to solve problems, evaluate work, and generate new ways of processing or categorizingsimilarinformationlistedincourseobjectives.

PSYCHOMOTORSKILLS: Thestudentmustdemonstratethefollowingskills.

1. **Locomotionability**:

   Get to lecture, laboratory and clinical locations, and move within rooms as needed forchanging groups, partners and work stations. Move quickly in an emergency situation toprotectthepatient(e.g.fromfalling).

2. **Manualtasks**:

   a. Maneuver another person's body parts to effectively perform evaluation techniques.Manipulate common tools used for screening tests of the cranial nerves, sensation,range of motion, blood pressure, e.g., cotton balls, safety pins, goniometers, Q-tips,sphygmomanometer.Safelyandeffectivelyguide,facilitate,inhibit,andresistmoveme nt and motor patterns through physical facilitation and inhibition techniques(includingabilitytogivetimelyurgentverbalfeedback).

   b. Manipulateanotherperson'sbodyintransfers,gait,positioningexercise,andmobilization techniques. Manipulate evaluation and treatment equipment safely andaccuratelyapplytopatients.Manipulatebolsters,pillows,plinths,mats,gaitassistive

devicesandothersupportsorchairstoaidinpositioning,movingortreatingapatienteffectivel y.

c. Competentlyperformandsupervisecardiopulmonaryresuscitation.

3. **Finemotor/handskills:**

1. Legiblyrecordthoughtsforwrittenassignments(includingdiagrams)andtests.Document evaluations, patient care notes,referrals, etc. in standard medical chartsin hospital/clinical settings in a timely manner and consistent with the acceptablenormsofclinicalsettings.
2. Safelyapplyandadjustthedialsorcontrolsoftherapeuticmodalities.
3. Safelyandeffectivelypositionhandsandapplymobilizationandtherapeutictechniques.

4. Visualacuityto:

a. Read written and illustrated material in the English language, in the form of lecturehandouts,textbooks,literatureandpatient'schart.

b. Observeactivedemonstrationsintheclassroom.

c. Visualizetrainingvideos,projectedslides/overheads,X-raypictures,andnoteswrittenonablackboard/whiteboard.

d. Receive visual information from patients, e.g., movement, posture, body mechanics,andgaitnecessaryforcomparisontonormalstandardsforpurposesofevaluationo fmovementdysfunctions.

e. Receive visual information from treatment environment, e.g., dials on modalities andmonitors,assistivedevices,furniture,flooring,structures,etc.

f. Receive visual clues as to the patient's tolerance of the intervention procedures.Thesemayincludefacialgrimaces,muscletwitching,withdrawaletc.

5. **Auditoryacuity**to:

a. Hearlecturesanddiscussioninanacademicandclinicalsetting.

b. Distinguishbetweennormalandabnormalbreathing,lungandheartsoundsusingastethosco pe.

6. **Communication**:

a. Effectivelycommunicateinformationandsafetyconcernswithotherstudents,teachers, patients, peers, staffand personnel byasking questions, givinginformation,

explainingconditionsandprocedures,orteachinghomeprograms.Theseallneedto be done in a timely manner and within the acceptable norms of academic andclinicalsettings.

b. Receiveand interpret writtencommunication in both academic and clinical settingsinatimelymanner.

c. Receive and send verbal communication in life threatening situations in a timelymannerwithintheacceptablenormsofclinicalsettings.

d. Physiotherapy education presents exceptional challenges in the volume and breadthof required reading and the necessity to impart information to others. Students mustbe able to communicate quickly, effectively and efficiently in oral and written Englishwithallmembersofthehealthcareteam.

7. **Self care**: Maintain general good health and self care in order not to jeopardize thehealthandsafetyofselfandindividualswithwhomoneinteractsintheacademicandclinica lsettings.

AFFECTIVELEARNINGSKILLS: Thestudentmustbeableto:

1. Demonstrate respect to all people, including students, teachers, patients and medicalpersonnel, without showing bias or preference on the grounds of age, race, gender,sexualpreference,disease,mentalstatus,lifestyle,opinionsorpersonalvalues.
2. Demonstrate appropriate affective behaviors and mental attitudes in order not tojeopardize the emotional, physical, mental, and behavioral safety of patients andotherindividualswithwhomoneinteractsintheacademicandclinicalsettingsandtobeinc ompliancewiththeethicalstandardsoftheprofession.

Acknowledge and respect individual values and opinions in order to foster harmoniousworkingrelationshipswithcolleagues,peers,andpatients.

PROFESSIONALDRESSCODESTANDARDS:

Itisimportanttoportrayaprofessionalimage.Aclinicianwithinappropriatedress,groomingor conduct can damage the patient's confidence in the quality of their care, sometimes evenresultinginadelayintherestorationofhealth.

Haircuts, hairstyling, and personal grooming need to be neat, conservative and inconspicuous.Groomingandstyleshouldbepracticalandallowone'sdutiestobeperformedwithoutemba rrassmentorinconvenience

DRESS:

Modestcasualwearisappropriateoncampusandinclass.

Clinical/LabDress:Apronsforallclinicalassignments,anyclassthatisheldinaclinicalfacilityandinanyclaswherepatientsarepresent.

FRAMEWORKOFTHECURRICULUM

COURSEDURATION:FouryearsandSixmonthsofInternship.

IB.P.Th.

a. Dealswiththebasicfoundationinmedicalaswellasphysiotherapysubjects.Thefoundationof human body structure & function & energy utilization is achieved by studying the subjectsHumanAnatomy,Physiology,andBiochemistry.
b. Students knowledge of Physics i.e. – Mechanics, Electricity, Water , Sound & Light is recalledto apply it on human body in understanding movements and the various physiotherapeuticmodalitiesunderthesubjectofFundamentalsofElectrotherapy&FundamentalsofKinesiology&Kinesiotherapy.

II B.P.Th.

a. Dealswithunderstandingofalteredphysiologybystudyingpathology&Microbiology.
b. The students get oriented to various Pharmacotherapeutic agents used along with theireffectsbystudyingPharmacology.
c. The students will study about normal and altered human mind & behavior by studyingPsychology&Psychiatry.Theywillalsolearnskillsrequiredforeffectivecommunicationwiththepatientsandcaregivers.
d. Students will acquire the knowledge of Biomechanics as applicable to human body in thecontextofKinetics&kinematicsofJoints,Movements&Dailyactivitiesundersubjectof Kinesiology and shall acquire knowledge and learn various physiotherapeutic skills onmodelsinsubjectofKinesiotherapy.
e. In the subject of Electrotherapeutics, students will acquire knowledge and learn application&usesofvariouselectrotherapeuticmodalitiesonmodels.

III B.P.Th.

a. Students acquire knowledge of all the clinical subjects like Orthopaedics, General Surgery,Medicine,Neurology,Paediatrics,Dermatology&Gynecology&Obstetrics,Community MedicineandSociology.

b. StudentswillacquireknowledgeabouttheprinciplesofInternationalClassificationofFunctioning(I .C.F.)anditsapplicabilityincontexttomovementdysfunctions.

c. Students will learn the physiotherapeutic evaluation skills including electro diagnosis onpatients to arrive at a Functional/ Physical Diagnosis in Neuromuscular, Cardiovascular &Respiratory dysfunction. They will also acquire knowledge of various specialized manualtherapyandneurodevelopmentaltechniquesandpracticetheseskillsonmodelsunderthesub jectoffunctionaldiagnosisandphysiotherapeuticskills.

IV B.P.Th.

a. Studentswillrevise,recallandintegratetheknowledgeofpreviousyearstoevaluate,functionallydia gnose,planandexecuteshortandlongtermmanagementofvariousmusculoskeletal,neurological& cardiovascular-respiratorydysfunctionsinhospitalandcommunitysettings.

b. Studentsalsoacquireknowledgepertainingtohealthpromotion&diseasepreventionthroughout lifespan in the community. They will also be able to analyse, prevent and treatproblemsassociatedwithvariousindustriesincommunityphysiotherapy.

c. Studentswillalsoacquireknowledgeaboutbiomechanicalprinciples&applicationofvarietyofaids &appliancesusedforambulation,protection&preventionbystudyingBioengineering.

d. Professional Practice and ethics as a subject will be studied in continuum from first year, sostudents will acquire the knowledge of ethical code of professional practice, as well as itsmoral& legal aspects. The principles of Hospital Administration, Management & Marketingwillbestudiedseparately.

e. Students will also acquire knowledge of Research Methodology and Biostatistics and applytheknowledgeinprojectworkincommunityphysiotherapy.

INTERNSHIP

a. A period of 6 months (26 weeks) of continuous clinical practice to enhance the clinicalreasoning, judgment, programme planning, intervention, evaluation of intervention, followupandreferralskillsofallthedysfunctionsandimpairmentslearntthroughoutthecurriculumoffouryears.

b. Thosecandidatesdeclaredtohavepassedthefinalyearexaminationinallsubjectsshallbeeligiblefori nternship.

c. InternshipshallbedoneinateachinghospitalrecognizedbytheUniversity.AdegreecertificateshallbeawardedONLYonsuccessfulcompletionofsixmonthsofinternship.

d. TheInternshipwillberotatoryandshallcoverclinicalbranchesconcernedwithPhysiotherapysuchas Orthopaedics,Cardiovascular&RespiratoryincludingICU,Neurology&NeurosurgeryPaediatrics, General Medicine, Surgery, Obstetrics and Gynecology both inpatient and outpatientservices.

e. SuccessfulCompletion:Thestudentmustmaintainalogbook.Oncompletionofeachposting, the same will have to be certified by the faculty in charge of the posting for bothattendance as well as work done. On completion of all the postings, the duly completedlogbook will be submitted to the Principal/Head of program to be considered as havingsuccessfullycompletedtheinternshipprogram.

IIIB.P.Th.

TRANSCRIPTHOURS-1400

Sr.No.	SUBJECTS	TeachingHrs
	PROFESSIONALPRACTICE	
1	Professionalpractice&Ethics	015
	MEDICALSCIENCES	
2	Surgery-I	055
3	Surgery-II	060
4	Medicine-I	055
5	Medicine-II	065
6	CommunityHealth&Sociology	060
7	Obstetrics&Gynecology	030
8	Dermatology	010
	PHYSIOTHERAPY	
9	FunctionalDiagnosis&PhysiotherapeuticSkills	460
10	Seminar(includingI.C.F.)	90
11	Supervisedclinicalpractice	500
	TOTAL	**1400**
	ElectiveCourseSystem	**30**

IIIB.P.Th.S

YLLABUS

TranscriptHours-1400

Sr. No.	SUBJECTS	Theory Hours	Laboratory /Clinical Hours	Total Hours
	PROFESSIONALPRACTICE			
1	ProfessionalPractice&Ethics*(CollegeExaminationinfinalyear)*	10	005	015
	MEDICALSCIENCES			
2	Surgery-I(Cardiovascular&ThoracicSurgery,GeneralSurgery&Plastic/ReconstructiveSurgery)	030	025	055
3	Surgery-II(Orthopaedics)	040	020	060
4	Medicine-I(CardiovascularRespiratoryMedicine,GeneralMedicine,Rheumatology&Gerontology)	045	010	055
5	Medicine-II(Neurology&Paediatrics)	045	020	065
6	CommunityHealth&Sociology	050	010	060
7	Obstetrics&Gynaecology*(CollegeExamination)*	020	010	030
8	Dermatology*(CollegeExamination)*	010	-	010
	PHYSIOTHERAPY			
9	FunctionalDiagnosis&PhysiotherapeuticSkills	135	325	460
10	Seminar(includingICF)	-	090	090
11	Supervisedclinicalpractice	-	500	500
	TOTAL	**385**	**1015**	**1400**

PROFESSIONALPRACTICEANDETHICS

(COLLEGEEXAMINATIONINFINALYEAR) TOTAL-

15HRSCOURSEDISCRIPTION:

This subject would be taught in continuum from first year to final year. An exam in theory wouldbeconductedonlyinfinalyear.Professionalandethicalpracticecurriculumcontentaddressesthe Knowledge, Skills and Behaviours required of the physiotherapist in arange of practicerelationships and roles. The course will discuss the role, responsibility, ethics administration issuesand accountability of the physical therapists.The course will also cover the history and change inthe profession, responsibilities of the professional to the profession, the public and to the healthcare team. This includes the application of professional and ethical reasoning and decision-makingstrategies,professionalcommunication.

OBJECTIVES:

Attheendofthecoursethestudentwillbecompliantinfollowingdomains:COGNITIVE:

Beabletounderstandthemoralvaluesandmeaningofethics.

Will acquire bedside manners and communication skills in relation with patients, peers, seniorsandotherprofessionals.

PSYCHOMOTOR:

a. Beabletodeveloppsychomotorskillsforphysiotherapist-patientrelationship.

b. Skill to evaluate and make decision for plan of management based on socio cultuturalvaluesandreferralpractice.

AFFECTIVE:

a) Be able to develop behavioral skills and humanitarian approach while communicatingwithpatients,relatives,societyatlargeandco-professionals

b) Beabletodevelopbedsidebehavior,respect&maintainpatients'confidentiality.

SYLLABUS

Sr. No.	Topics	Didactic Hours	Visits/SupervisionHours	Total Hours
1.	CollectingdataonpsychosocialfactorsinMedicine/Surgery /ReproductiveHealth/Paediatrics	04	05	15
2.	Interprofessionalcommunication.	03		
3.	Ethicsinclinicalpractice	03		
TOTAL		**10**	**05**	**15**

GENERAL SURGERY

3rd Year B.P.Th

(General Surgery, Cardiovascular & Thoracic Surgery & Plastic/Reconstructive Surgery)

(Didactic-35hrs+Clinical-20hrs) TOTAL=55HRS

COURSE DESCRIPTION:

This course intends to familiarize students with principles of General surgery including various specialties like cardiovascular, thoracic, neurology and plastic surgery. It also familiarizes the students with terminology and abbreviations for efficient and effective chart reviewing and documentation. It explores various conditions needing attention, focusing on epidemiology, pathology, as well as primary and secondary clinical characteristics and their surgical and medical management. The purpose of this course is to make physiotherapy students aware of various surgical conditions general surgery and specialty surgeries so these can be physically managed effectively both preas well as postoperatively.

Sr. No.	Topics	Didactic Hours	Clinical Hours	Total Hours
1.	**GENERAL SURGERY**	20	10	30
2.	**CARDIOVASCULAR AND THORACIC SURGERY**	10	5	15
3.	**PLASTIC SURGERY/RECONSTRUCTIVE SURGERY**	5	5	10
	TOTAL	**35**	**20**	**55**

OBJECTIVES:

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

1. Describe the effects of surgical trauma & Anaesthesia in general
2. Clinically evaluate & describe the surgical management in brief of
   a. General Surgery
   b. Neuro Surgery
   c. Cardiovascular and Thoracic Surgery
   d. ENT & Ophthalmic Surgery
   e. Plastic & Reconstructive Surgery
1. Describe pre-operative evaluation, surgical indications in various surgical approaches, management and post operative care in above mentioned areas with possible complications.
2. Be able to read & interpret findings of the relevant investigations

SYLLABUS

Sr. No.	Topic	Didactic Hours	Clinical Hours	Total Hours	Must Know	Desirable To Know	Nice To Know
1.	**GENERALSURGERY**	**20**	**10**	**30**			
	a.GENERAL:						
	i. Anaesthesiatypes,Effect,indicationsandcontraindicationsandcommonpostoperativecomplications				01		
	ii. HemorrhageandShock, classification,descriptionandtreatment				01		
	iii. Water&Electrolyteimbalance					01	
	iv. Inflammation – acute & chronic-signs, symptoms, complications&management				01		
	v. Wounds&Ulcers,Cellulitis– classification,healingprocess,management,bandaging,DressingsolutionsanditsusesanddebridementProcedure,handwashinganduniversalprecautions.				01		
	vi. Enumerate Common abdominal surgical incisions – classification,indications, opening – closure, advantages and disadvantages,complications(includingburstabdomenandfecalfistula),minimallyinvasive surgery.	**12**	**10**	**22**	01		
	vii. Mastectomyandoncosurgery–approach,complications&management				01		
	viii. Amputation–types,sites,complications&management				01		
	ix. Burns–causes,complications,classification&management				01		
	x. VaricoseveinsandPVD				01		
	xi. Hernias-surgery,precautionsandcomplications				01		
	xii. Transplantationapproach,riskproblemsrelatedtodonorandrecipient,precautions				01		
	b.NEUROSURGERY						
	i. HeadInjury–management				01		
	ii. Intracranial&Spinaltumors	**04**			01		
	iii. IntracranialAneurysmandAV malformation				01		
	iv. PostoperativeNeurosurgicalcare						01
	c.E.N.T.Surgery						
	i. Tracheostomy–indications,surgicalapproach&management	**03**			01		

	ii. SurgicalproceduresinVIIthcranialnervepalsy						01
	iii. Vertigo				01		
	d.OphthalmicSurgery						
	SurgeriesforIIIrd,IVth,VIthCranialNervepalsy	**01**				01	
2.	**CARDIOVASCULARANDTHORACICSURGERY**						
	a. Introduction, Cardiorespiratoryresuscitation,cardiopulmonarybypass,Specialinvestigationproceduresincardiac surgery,Basic techniques in cardiac surgery approach, incisions, Types ofoperation,Complicationsofcardiacsurgery,Lines,drainsandtubes.	**10**	**05**	**15**	02		
	b. Briefdescriptionofindications,surgery,complicationsforfollowingsurgery:						
	i. Surgeriesof thorax				01		
	ii. Surgeriesofthe lung				01		
	iii. Surgeriesofpleuraandpericardium				01		
	iv. Surgeryforcoronaryarterydisease				01		
	v. Valvularsurgeries				01		
	vi. SurgeryforCongenitalHeartDisease				01		
	vii. Peripheral arterial disorder, Burger's disease, Raynaud's diseaseandAneurysm				01		
	viii. Gangrene,Amputation,DVT					01	
3.	**PLASTICSURGERY/RECONSTRUCTIVESURGERY**						
	i. Skingrafts&flaps–Types,indicationswithspecialemphasistoburns,wounds	**05**	**05**	**10**	01		
	ii. Ulcers,complicationsandpostoperativecare					01	
	iii. Keloid&Hypertrophiedscarmanagement						
	iv. Tendontransfers,withspecialemphasistohand,foot&facial paralysis,&repairofFlexor&ExtensorTendonInjuries				01		
	v. Reconstructivesurgeryofperipheralnerves					01	
	vi. Micro vascular surgery-reimplantation and revascularization						

CLINICAL(10hrs)

1. Evaluation/presentationandrecordingofonecaseeachin:

a. Burns
b. Wound&ulcer
c. Headinjury
d. Peripheralvascularcondition
e. Postradicalmastectomy
f. Postthoracicsurgery
g. Postabdominalsurgery
h. Plasticsurgery

2. Auscultation&itsinterpretationwithspecialemphasistoReading&interpretationoftheX-raychest.

RECOMMENDEDTEXTBOOKS

1. ShortpracticeofsurgeryвЂ“BaileyandLove
2. TextbookofSurgeryвЂ“Das

SCHEMEOFUNIVERSITYEXAMINATION

THEORY 40MARKS+I.A.–10 MARKS *Thequestionpaperwillgiveappropriateweightagetoallthetopicsinthesyllabus.		**Marks** **50**
Section A– **M.C.Qs.**	Q-1MCQs [1x10]	**10**
Section B- **B.A.Q.**	Q-2-AnsweranyTHREEoutofFOUR [5 x2]	**10**
S.A.Q.	Q-3-AnsweranyTWOoutofTHREE [2 x5]	**10**
L.A.Q.	Q-4. Answer any ONE out of TWO [1x 10]	**10**
TotalMarks		**40**

MCQs : 10	**BAQs: 10**	**SAQs: 10**	**LAQs: 10**
Must Know (MK) – 05 Desirable to Know (DK)– 03 Nice to Know (NK) – 02	MK – 02 DK – 01 NK – 02	MK – 02 DK – 01 NK – 00	MK – 02 DK – 00 NK – 00

INTERNALASSESSMENT:

1. OneexaminationofTotal40marks(Theoryonly)
2. InternalAssessmenttobecalculatedoutof10marks
3. InternalassessmentasperUniversitypattern.

ORTHOPEDICS

3rdYearB.P.Th

(Didactic-40hrs+Clinical-20hrs)**TOTAL=60HRS**

COURSEDESCRIPTION:

Thiscourseintendstofamiliarizestudentswithprinciplesoforthopaedicsurgeryalongwithfamiliarizatio nwithterminologyandabbreviationsforefficientandeffectivechartreviewinganddocumentation.Itals oexploresvariousorthopaedicconditionsneedingattention,focusingon epidemiology, pathology, as well as primary and secondary clinical characteristics and theirsurgical and medical management. The purpose of this course is to make physiotherapy studentsaware of various orthopaedic surgical conditions so these can be physically managed effectivelybothpreaswellaspostoperatively.

Sr. No.	Topics	Didactic Hours	Clinical Hours	Total Hours
1	**FRACTURES**	6	3	9
2	**DISLOCATIONS&SUBLUXATIONS**	4	2	6
3	**SOFTTISSUEANDTRAUMATICINJURIES**	4	2	6
4	**DEFORMITIESANDANOMALIES**	11	3	14
5	**DEGENERATIVEANDINFLAMMATORYCONDITIONS**	6	3	9
6	**MANAGEMENTOFMETABOLICDISORDERS**	2	2	4
7	**GENERALORTHOPAEDICDISORDERS**	5	3	8
8	**TUMORS**	2	2	4
	TOTAL	**40**	**20**	**60**

OBJECTIVES:

Attheendofthecourse,thecandidatewill–

a) Beabletodiscussthe,aetiology,Pathophysiology,clinicalmanifestations&conservative/surgi calmanagementofvarioustraumatic&coldcasesoftheMusculoskeletalConditions.

b) Gaintheskillofclinicalexamination;applyspecialtests&interpretationofthepreoperativeoldc ases&allthepost-operativecases.

c) Beabletoread&interpretsalientfeaturesoftheX-rayoftheSpine&Extremitiesandcorrelatetheradiologicalfindingswiththeclinicalfindings.

d) BeabletointerpretPathological/BiochemicalstudiespertainingtoOrthopaedicconditions.

SYLLABUS

Sr.No.	Topic	Didactic Hours	clinical Hours	Total Hours
1.	**FRACTURES**	**06**	**03**	**09**
	a. Definition,Classification,Causes,Clinicalfeatures,healingof fractures&Complications.			
	b. Principlesofgeneralmanagementof:			
	i. FractureoftheUpper Extremity			
	ii. FractureoftheLower Extremity			
	iii. Fractureofthevertebral column,thoraxand pelvis			
	iv. Emergencycareandfirst aid			
2.	**DISLOCATIONS&SUBLUXATIONS**	**04**	**02**	**06**
	i. Shoulderjoint: - Definition,Generaldescription,Principlesofgeneraldescription and management of traumatic dislocation and subluxation.			
	ii. Acromioclavicularjoint: - Definition,Generaldescription,Principlesofgeneraldescription and management of traumatic dislocation and subluxation.			
	iii. Elbowjoint: - Definition,Generaldescription,Principlesofgeneraldescription and management of traumatic dislocation and subluxation.			
	iv. Hipjoint: - Definition,Generaldescription,Principlesofgeneraldescription and management of traumatic dislocation and subluxation.			
	v. Kneejoint: - Definition,Generaldescription,Principlesofgeneraldescription and management of traumatic dislocation and subluxation.			
3.	**SOFTTISSUEANDTRAUMATICINJURIES**	**04**	**02**	**06**
	i. Ligaments & BursaFascia: - Introduction,Anatomy&physiologygeneraldescription,grade ofinjuryandmanagement ofinjuries			
	ii. Muscles&Tendons: - Introduction,Anatomy&physiologygeneraldescription,grade ofinjuryandmanagement ofinjuries			
	iii. Musclesandtendonsinjuriesofupperandlowerlimb: - Introduction,Anatomy&physiologygeneraldescription,grade ofinjuryandmanagement ofinjuries			
	iv. Cervico lumbar injuries,Whiplashofthecervical spine, v. Crushinjuriesofhand&foot			
4.	**DEFORMITIESANDANOMALIES**	**11**	**03**	**14**
	i. Definition, Causes,Classification,Congenitalandacquireddeformities Physicalandclinicalandradiologicalfeatures, Complications			
	ii. Principlesofmedicalandsurgicalmanagementofthedeformities.			

	iii. Generaldescriptionoffollowingdeformities: a. Deformitiesofthe spine: i. Scoliosis ii. Kyphosis				
	iii. Lordosis iv. Flatback v. Torticollis				
	b. Deformitiesofthelower limb:				
	i. C.D.H.,coxa Vara,coxa valgum,anteversion,Retroversion				
	ii. Genuvalgum,Genuvarum,Genurecurvatum,C.D.K. iii. Talipes calcaneus equinus,varus&valgus				
	iv. Pescavus,Pesplanus v. Halluxvalgus&varus,Halluxrigidusandhammertoe				
	c. DeformitiesofShoulder&Upper limb i. Sprengel'sshoulder,Cubitus varus,Cubitusvalgus				
	ii. Dupuytren's contracture				
5.	**DEGENERATIVEANDINFLAMMATORYCONDITIONS**	**06**	**03**	**09**	
	i. Osteo-orthosis/Arthritis ii. Rheumatoid arthritis iii. Psoriatic arthritis				
	iv. Spondylosis v. Spondylolysis and listhesis vi. Ankylosing spondylitis				
	vii. Tuberculous arthritis viii. Pyogenicarthritis ix. Gouty arthritis				
	x. Hemophilic arthritis xi. Neuropathicarthritis xii. Juvenile arthritis				
6.	**MANAGEMENTOFMETABOLICDISORDERS**	**02**	**02**	**04**	
	i. Osteoporosis				
	ii. Osteomalacia&Rickets				
7.	**GENERALORTHOPAEDICDISORDERS**	**05**	**03**	**08**	
	i. Carpeltunnelsyndrome/Entrapmentnerveinjuries				
	ii. Compartmentsyndrome,Ischemiccontracture				
	iii. Avascularnecrosisofboneinadultandchildren				
	iv. Gangrene				
	v. Backache/P.I.D.				
8.	**TUMORS**	**02**	**02**	**04**	
	i. Classification,Principlesofgeneralmanagement				
	ii. Generaldescriptionofbenignandmalignanttumorsofmusculoskeletalsystem				

CLINICAL(20HRS)

1. Independentclinicalorthopaedicevaluationpresentation&recordingof:

a. Oneacutesofttissuelesion(includingnerveinjury)

b. Twocasesofdegenerativearthritisofextremityjoint(OneeachinUpperExtremityandOneLowerExtremity)

c. Twocasesofspine(oneP.I.D.,onetraumatic)

d. Onepostoperativecaseoffracturesofextremitieswithfixation/replacementknee/hip

e. Oneparaplegia/quadriplegia

RECMMENDEDTEXTBOOKS

1. OutlineofFractures–Adams
2. OutlineofOrthopedics--Adams
3. Apley'ssystemsoforthopedicsandfracturesbyLouisSolomon,9thedition

SCHEMEOFUNIVERSITYEXAMINATION

THEORY 40MARKS+I.A.–10 MARKS *Thequestionpaperwillgiveappropriateweightagetoallthetopicsinthesyllabus.		**Marks** **50**
SectionA. **MCQs**	Q-1-MCQs [1 x10]	**10**
SectionB- **B.A.Q**	Q-2-Answerall of the following [5 x2]	**10**
S.A.Q	Q-3.-AnsweranyTWO out of THREE [2 x5] BasedonDegenerativeandinflammatoryconditions/ Managementofmetabolic/Disorders/General orthopedicdisorders/Tumors	**10**
L.A.Q	Q-3-AnsweranyONE outof TWO [1 x 10] Basedonfractures/Dislocations&subluxations/Softtissueand traumatic Injuries/Deformitiesandanomalies	**10**
TotalMarks		**40**

MCQs : 10	**BAQs: 10**	**SAQs: 10**	**LAQs: 10**
Must Know (MK) – 05 Desirable to Know (DK)– 03 Nice to Know (NK) – 02	MK – 02 DK – 01 NK – 02	MK – 02 DK – 01 NK – 00	MK – 02 DK – 00 NK – 00

INTERNALASSESSMENT:

1. OneexaminationofTotal40marks(Theoryonly)
2. InternalAssessmenttobecalculatedoutof10marks
3. InternalassessmentasperUniversitypattern

GENERAL MEDICINE

3rd Year B.P.Th

(Cardiovascular Respiratory Medicine, General Medicine & Gerontology)

(Didactic-45hrs+Clinical-10hrs)**TOTAL-55HRS**

COURSE DESCRIPTION:

This course intends to familiarize students with medical terminology & abbreviations for efficient & effective chart reviewing & documentation. It also explores selected systemic diseases, focusing on epidemiology, pathology, histology, etiology as well as primary & secondary clinical characteristics & their management. Discusses & integrates subsequent medical management of General, Rheumatology, Gerontology, Cardio-vascular & Respiratory systems, to formulate appropriate intervention, indications, precautions & contraindications.

Sr. No.	Topics	Didactic Hours	Clinical Hours	Total Hours
1	CARDIO-VASCULAR & RESPIRATORY MEDICINE	30	05	35
2	GENERAL MEDICINE, RHEUMATOLOGY & GERONTOLOGY	15	05	20
	TOTAL	45	10	55

OBJECTIVES:

At the end of the course, the candidate will:

1. Be able to describe Etiology, Pathophysiology, Signs & Symptoms & Management of the various Endocrinal, Metabolic, Geriatric & Nutrition Deficiency conditions.
2. Be able to describe Etiology, Pathophysiology, Signs & Symptoms, Clinical Evaluation & Management of the various Rheumatologic Cardiovascular & Respiratory Conditions.
3. Acquire skill of history taking and clinical examination of Musculoskeletal, Respiratory, Cardio-vascular & Neurological System as a part of clinical teaching.
4. Be able to interpret auscultation findings with special emphasis to pulmonary system.
5. Study Chest X-ray, Blood gas analysis, P.F.T. findings & Haematological studies, for Cardiovascular, Respiratory

,Neurological&Rheumatologicalconditions.

6. BeabletodescribetheprinciplesofManagementattheIntensiveCareUnit.
7. BeabletoacquiretheskillsofBasicLifeSupport.
8. Acquireknowledgeofvariousdrugsusedforeachmedicalconditiontounderstanditseffectsand itsuseduringtherapy.

Sr.No.	Topic	Didactic Hours	clinical Hours	Tot Hou
1.	**CARDIO-VASCULAR&RESPIRATORYMEDICINE:**	**30**	**05**	**35**
	a.Cardio-vascular diseases	**11**	**02**	**13**
	i.Hypertension–systemic	**01**		
	ii. CardiacConditions- a) I.H.D.(Angina,Myocardialinfarction) b) R.H.D.	**04**		
	c) InfectiveEndocarditis d) Cardiomyopathy			
	e) HeartFailure			
	iii. ValvularHeartDisease a) Congenital b) Acquired	**02**		
	v. congenital heart disease	**01**		
	vi. Investigations a) BasicsofE.C.G.[Normal&Abnormal(Ischemia,Infarction&Arrhythmias)	**03**		
	b) Observationofconductionofstresstestonpatient 2DEcho(EjectionFraction&WallmotionAbnormality)			
	b.DiseasesoftheRespiratorySystem:	**19**	**03**	**22**
	i.CommonInfectiousdiseases: - a. Tuberculosis: aetiology, signs &symptoms,clinicalfeatures,causesandmanagement	**05**		
	b. Pneumonia: aetiology, signs &symptoms,clinicalfeatures,causesandmanagement			
	c. Lung Abscess: aetiology, signs &symptoms,clinicalfeatures,causesandmanagement			
	d. Bronchiectasis: aetiology, signs &symptoms,clinicalfeatures,causesandmanagement			
	e. Covid -19: aetiology, signs &symptoms,clinicalfeatures,causesandmanagement			
	ii. DiseasesofPleura: - a. PleuralEffusion b. Pneumothorax	**02**		
	c. Hydropneumothorax d. Empyema.			
	iii. Interstitial Lung Diseases (ILD)&Occupationallungdiseases: - a. Silicosis, b. Asbestosis c. Pneumoconiosis	**02**		

	d. Brucellosis e. Farmer'sLung.			
	iv. Chronic ObstructiveAirwayDiseases: a. C.O.P.D.withCorPulmonale b. PulmonaryHypertension	**03**		
	c. BronchialAsthma d. CysticFibrosis			
	v. IntensiveCare Unit a) Infrastructure b) Instrumentation.	**03**		
	c) MechanicalVentilation(settings& monitoring) d) Assessment,monitoring&managementofpatientinI.C.U.			
	vi.BasicLifeSupport: Introduction&Demonstration	**02**		
	vii. Investigation:Normal&Abnormal a. ChestX-ray b. BloodGasAnalysis	**02**		
	c. Pulmonary Function Test(Observationofconductionon patient)			
2.	**GENERALMEDICINE,RHEUMATOLOGY&GERENTOLOGY:**	**15**	**05**	**20**
	a. **GeneralMedicine**			
	i. DisordersofEndocrinesystem(Diabetes): - a. Introduction, b. Pathophysiology, **c.** Types,			
	d. Roleofphysicalactivity, e. Complications of diabetes (autonomic neuropathy, myopathy, weakness) f. Medications	**07**	**02**	**09**
	ii. Thyroid,Pituitary&Adrenalconditions			
	iii. Cushing'ssyndrome			
	iv. Obesity			
	v. Nutrition Deficiency Disease (Rickets, Vit. E, Vit. D, Vit. B ,micronutrients, (Zn,Se)			
	vi. Intoxication(Drugabuse;Alcohol,smoking,cocainedependence)			
	b. **Rheumatological Conditions**			
	i. Rheumatoid Arthritis **ii.** S LE			
	iii. SSA iv. Gout	**05**	**02**	**07**
	v. Polymyositis vi. Fibromyalgia			

	vii. Ankylosing Spondylitis			
	c. **Geriatric Conditions: -**	**03**	**01**	**04**
	i. Aging Process (physiological changes due to aging)			
	ii. CVS & RS Complications iii. Osteoporosis			

RECOMMENDEDTEXTBOOKS

1. API-TextbookofMedicine,5th edition
2. Medicine--P.J.Mehta

RECOMMENDEDREFERENCEBOOK

1. Principles&PracticeofMedicine--David

CLINICAL-10HR

1. Historytaking,Evaluation–GeneralExamination&Systemicexamination (Inspection,Palpation,Percussion&Auscultation)
2. PresentationandrecordingofTwocasesEachin:
   a. Musculardisorders
   b. RespiratoryConditions
   c. CardioVascularConditions
   d. Degenerative/RheumatologicalCondition
   e. Obesity
   f. Nutritionaldisorders
   g. DiabetesMellitus&Metabolicbonedisorders.

SCHEMEOFUNIVERSITYEXAMINATION

THEORY 40MARKS+I.A.–10 MARKS *Thequestionpaperwillgiveappropriateweightagetoallthetopicsinthesyllabus.		**Marks** **50**
SectionA.MCQs	Q-1-MCQs [1x10]	**10**
SectionB-B.A.Q	Q-2.-Answerall the following [5 x2]	**10**
S.A.Q.	Q-3. AnsweranyTWOoutofTHREE [2 x5]	**10**
L.A.Q.	Q-4. Answer any ONE out of TWO [1 x10]	**10**
TotalMarks		**40**

INTERNALASSESSMENT:

1. OneexaminationofTotal40marks(Theoryonly)
2. InternalAssessmenttobecalculatedoutof10marks
3. InternalassessmentasperUniversitypattern

MCQs : 10	**BAQs: 10**	**SAQs: 10**	**LAQs: 10**
Must Know (MK) – 05 Desirable to Know (DK)– 03 Nice to Know (NK) – 02	MK – 02 DK – 01 NK – 02	MK – 02 DK – 01 NK – 00	MK – 02 DK – 00 NK – 00

(Didactic–45hrs+Clinical–20hrs)

TOTAL – 65HRS

NEUROLOGY & PEDIATRICS 3rd YearB.P.Th

Thiscourseintendstofamiliarizestudentswithmedicalterminology&abbreviationsforefficient & effective chart reviewing & documentation, It also explores select systemic diseases,focusing on epidemiology, etiology, pathology, histology as well as primary& secondary clinicalcharacteristics& their management. It discusses & integratessubsequent medical managementofNeurological&Paediatricconditionstoformulateappropriateintervention,indications, precautions&contraindications.

Sr. No.	Topics	Didactic Hours	Clinical Hours	Total Hours
1	**NEUROLOGY**	25	10	**35**
2	**PAEDIATRICS**	20	10	**30**
		45	20	**65**

OBJECTIVES:

Attheendofthecourse,thecandidatewill:

1. BeabletodescribeAetiology,Pathophysiology,signs&Symptoms&Managementofthevarious Neurological&Pediatricsconditions.
2. AcquireskillofhistorytakingandclinicalexaminationofNeurological&Pediatricsconditionsasa partofclinicalteaching.
3. Acquireknowledgeofvariousdrugsusedforeachmedicalconditiontounderstanditseffectsand itsuseduringtherapy.
4. Acquireknowledgeinbriefaboutintra-uterinedevelopmentofthefoetus.
5. Beabletodescribenormaldevelopment&growthofachild,importanceofImmunization,breast -feeding&psychologicalaspectofdevelopment.
6. Beabletodescribeneuromuscular,musculoskeletal,cardio-vascular&respiratoryconditionsrelatedtoimmunologicalconditions,nutritionaldeficiencies,i nfectiousdiseases,&geneticallytransmittedconditions.
7. Acquire skill of clinical examination of a neonate / child with respect to neurological,Musculoskeletal&respiratoryfunction.

SYLLABUS

Sr.No.	Topic
A.	**NEUROLOGY**
	a. Introduction to Nervous System i. Applied anatomy ii. Applied physiology
	b. Cerebro Vascular Accidents i. Thrombosis, Embolism, Hemorrhage ii. Level of Lesion & symptoms
	iii. Cerebro Vascular Accidents: - Management
	c. Extra Pyramidal lesions – Basal Ganglia i. Parkinsonism
	ii. Athetosis, Chorea, Dystonia
	d. Differential diagnosis of muscle wasting: - i. Approach to neuropathies
	ii. Myopathies and neuromuscular junction disorders
	e. Disorders of Anterior Horn cell with differential diagnosis: - i. MotorNeuronDisease ii. S.M.A., iii. Syringomyelia, iv. PeronealMuscularAtrophy, v. Poliomyelitis.
	f. MultipleSclerosis
	g. Infectionsofthenervoussystem: i. Encephalitis, ii. Herpes, iii. Meningitis,
	i. Neurosyphilis, ii. H.I.V.infection, iii. TabesDorsalis
	h. Tetanus
	i. Epilepsy
	j. Alzheimer'sDisease,Dementia
	k. Disordersofcerebellarfunction
	l. a . Disordersofcranialnerves
	b. Disorders of SpecialSenses

	m. Disorders of Spinal Cord: - i. Syndromes ii. Bladderdysfunction iii. Autonomicdysfunction
B.	**PAEDIATRICS**
	a.Normalintra-uterinedevelopmentoffoetuswithspecialreferencetoCentralNervousSystem,NeuromuscularSystem,CardiovascularF
	b.Normaldevelopment&growth
	c.Immunizationandbreast-feeding
	d.Sepsis, Prematurity, Asphyxia Hyper bilirubinemia and birthinjuries
	a.CerebralPalsy-MedicalManagementincludingearlyintervention
	f.Developmentaldisordersassociatedwithspinalcord:SpinalDysraphism,SpinaBifida,Meningocele,Myelomeningoc
	g.Commoninfections a) C.N.S.&PeripheralNervousSystem
	b) Typhoid,Rubella,Mumps,Measles,Diphtheria,Chickengunia, Malaria
	h.Epilepsy
	i.MentalRetardationandDown'sSyndrome
	j.Geneticallytransmittedneuro-musculardisorders
	k.MalnutritionandVitamindeficiencyconditions
	l.JuvenileR.A.&otherRheumatologicconditionsofMusculoskeletalsystem
	m. Common diseases of the Respiratory system: Asthma, Bronchitis,Bronchiectasis,T.B.,Pneumonia,Lungcollaps
	n.Respiratorydistressinneonate
	o.Rheumatic&CongenitalHeartdisease

CLINICAL(10HRS)

1. Historytakingandgeneralexaminationinneonateandchild
2. Examinationofneonateandneonatalreflexes.
3. Examinationofthenervoussystem
4. Examinationofrespiratory system
5. Examinationofcardiovascularsystem
6. ExaminationofMusculoskeletalsystem

7. Ventilatorycareinneonateandchild.

RECOMMONDEDTEXTBOOKS:

1. EssentialsofPediatrics–O.P.Ghai-InterPrintpublications
2. ClinicalPediatrics–MeherbanSingh

SCHEME OF UNIVERSITY EXAMINATION

Theory (NEUROLOGY **15 marks** + PEDIATRICS **25 marks = 40 marks** + I.A.:10 marks**)**		**Marks**
Section A	Question:- 1 MCQ (1×10) (05 on **NEUROLOGY** & 05 **PEDIATRICS)**	10
Section B	Question:- 2 BAQ (2×5) (Based on **NEUROLOGY)**	10
	Question:- 3 SAQ (any 2 out of 3) (5×2) (based on **PEDIATRICS)**	10
Section C	Question:- 4 LAQ (any 1out of 2) (10×1) (based on **NEUROLOGY)**	10
	Internal Assessment	10
	Total	**50**

PEDIATRICS:

MCQs : 05	**SAQs: 10**
MK – 03 DK – 01 NK – 01	MK – 02 DK – 01 NK – 00

NEUROLOGY:

MCQs : 05	**BAQs: 10**	**LAQs: 10**
MK – 03 DK – 02 NK – 00	MK – 03 DK – 01 NK – 01	MK – 02 DK – 00 NK – 00

INTERNAL ASSESSMENT:

1. OneexaminationofTotal40marks(Theoryonly)
2. InternalAssessmenttobecalculatedoutof10marks
3. InternalassessmentasperUniversitypattern.

COMMUNITYHEALTH&SOCIOLOGY

TOTAL60HRS

3rdYearB.P.Th

(Didactic-30Hours+Visits-10Hours) **Total40hrs**

COURSEDESCRIPTION

The course is organized to introduce the concept of health care and management issues in HealthServices.Itwillhelptheminassumingaleadershiproleintheirprofessionandassumetheresponsibility of guidance. It will help them assume wider responsibilities at all levels of healthservices. It will help them in improving their performance through better understanding of thehealthservicesatallthelevelsofcommunity.

OBJECTIVES:

Attheendofthecourse,thecandidateshallbeabletounderstandthecontentsgiveninthesyllabus.

SYLLABUS

Sr. No.	Topic	Didactic Hours	Practical Hours	Total Hours	Must Know	Desirable To Know	Nice To Know
1.	**GENERAL CONCEPTS &DETERMINANTS OFHEALTH& DISEASES:**	**04**	**-**	**04**			
	a. National&InternationalDefinitionofHealth,RoleofSocio-Economic&CulturalEnvironmentinHealth&Disease.	**01**			01		
	b. Epidemiology– Definition&scope,useswithrelevance tophysiotherapy	**01**			01		
	c. EnvironmentalHygieneincludingman&hissurrounding, Occupational&Industrialhygiene,Village&TownSanitation,BacteriologyofWater, Milk,&FoodHygiene.	**02**			02		
2.	**NATIONALPUBLICHEALTHADMINISTRATION**	**01**	**-**	**01**		01	
3.	**HEALTHCAREDELIVERYSYSTEM:**						

	a. HealthcareDeliverySystemofIndia b. NationalHealthProgrammes	**02**	**-**	**02**	01		
	c. RoleofW.H.O. d. MillenniumDevelopmentGoalsforAll				01		
4.	**PRIMARYHEALTHCARE:**						
	a. Definition b. Principles, c. Elements&itsapplication	**01**	**-**	**01**	01		
5.	**EPIDEMIOLOGYOFSOCIO-ECONOMICAL&CULTURAL ISSUES-** relatedtomorbidityinrelationtothefollowingvulnerablegroups	**06**	**-**	**06**			
	a.Women: i. Pregnantandlactatingwomen,maternalhealth (ANC, PNC, INC) ii. Perimenopausal women's'health:physical&psychological	**01**	**-**		01		
	b.Infants:(LowBirthWeight,Breastfeeding,Complimentaryfeeding,IYCN, IMNCI, Vaccinepreventablediseases,Immunizationprogrammes,Infantandchildhoodmortality)	**02**	**-**		02		
	b.Children:Childhealth,Growthmonitoringunderfiveclinics,ICDS,PEM	**02**	**-**		02		
	d.Schoolagedpopulationhealth: Earlydetectionandpreventionofdisabilities,behaviouralproblems	**01**	**-**			01	
6.	**DEMOGRAPHY AND OBJECTIVES OF NATIONAL FAMILY WELFARE PROGRAMMES ANDNATIONALPOPULATIONPOLICY**	**02**	**-**	**02**		02	

7.	**COMMUNICABLEDISEASES**	**03**	**-**	**03**			
	Anover-view[includingprevention&control]: - i. Tuberculosis ii. H.I.V. iii. Leprosy, iv. encephalitis.				02		
	v. Vector bornediseases– Malaria/Filariasis/Dengue/ Chikungunya/Japanese					01	
8.	**NON-COMMUNICABLE DISEASES:**	**02**	**-**	**02**			
	i. DiabetesMellitus,Hypertension,CoronaryHeartDisease/ Obesity.				01		
	ii. Blindness/Accidents /Stroke/Cancer.					01	
9.	**NUTRITIONALDISEASES:**	**04**	**-**	**04**			
	i. Malnutrition,Nutrionaldisordersand Nationalnutritionprogrammes,				02		
	ii. Osteomalacia,Rickets				01		
	iii. NeuropathiesduetoVitamin-deficiency, Skeletal Deformities					01	
10.	**MENTALHEALTH:**	**02**	**-**	**02**			
	a. Socio-economical&culturalaspects					01	
	b. Substanceabuseandaddiction– tobacco,alcoholand others						01
11.	**OCCUPATIONALHEALTH:**	**01**	**-**	**01**			
	Occupationaldiseases&hazards-definition,scope,prevention&legislations,Occupationallungdiseases&Physicalinjuries/pains.				01		
12.	**GERIATRICHEALTH:**	**01**	**-**	**01**			
	a. Physical,social,economicalaspects b. Osteoporosis,Malnutrition,Alzheimer'sdisease,Parkinson'sdisease					01	
13.	**HOSPITALWASTEMANAGEMEN**	**01**	**-**	**01**			

	T:						
	UniversalSafetyPrecautions,Immunizationofhealthcareprovidersincludingtheir vaccination.				01		

RECOMMONDEDTEXTBOOKS

1. Park'sTextbookofPreventive&SocialMedicine-K.Park
2. TextbookofPreventive&SocialMedicine-P.K.Mahajan&M.C.Gupta
3. EssentialofCommunityMedicine–BarideandKulkarni

B-SOCIOLOGY

Total20hrs

COURSEDESCRIPTION:

This course covers the basic knowledge and concepts of sociology to with the aim to help themunderstand the impact of group, culture and environment on the behavior and health of thepatients. Make them realize the importance of the relationship of the physical therapist and thepatientandtheenvironmentaroundthem.

OBJECTIVES:

At the end of the course, the candidate shall be able to understand the contents given in thesyllabus.

SYLLABUS

Sr. No.	Topic	Didactic Hours	Practical Hours	Total Hours	Must Know	Desirable To Know	Nice to Know
1.	**INTRODUCTION:**	**01**	**-**	**01**			
	Definition&RelevancewithPhysiotherapyandsocialfactorsaffectingHealthstatus,DecisionMaking intakingtreatment.				01		
2.	**SOCIALIZATION:**	**01**	**-**	**01**			
	Definition,Influence,ofSocialFactors,onPersonality,SocializationintheHospital&Rehabilitationofthe patients.				01		
3.	**SOCIALGROUPS:**	**01**	**-**	**01**			
	Concepts,Influenceofformal&informalgroupsofHealth&Diseases,RoleofPrimary&SecondaryGroupsinthe Hospital&RehabilitationSetting.					01	
4.	**FAMILY:**	**01**	**-**	**01**			
	Influenceonhumanpersonality,Roleoffamilyinhealthanddisease				01		
5.	**COMMUNITYROLE:**	**01**	**-**	**01**			
	Rural& Urbancommunitiesin PublicHealth, Roleof community in determiningBeliefs,Practices&HomeRemedies inTreatment.				01		
6.	**CULTURE:**	**01**	**-**	**01**			
	Component'simpactonhumanbehavior,Roleofcommunityindeterminingbeliefs,practicesandhealthseekingbehavior andhomeremedies				01		

7.	**SOCIALCHANGEFACTORS:**	**01**	**-**	**01**			
	HumanAdaptation,Stress,Deviance, HealthProgrammeRoleofSocialPlanningintheimprovementofHealth&in Rehabilitation.						01
8.	**SOCIALCONTROL:**	**01**	**-**	**01**			
	Definition, Role of norms, Folkways, Customs, Morals, Religion, Law&othermeansofsocialcontrolsin the regulationofHumanBehavior,Social Deviance&Disease				01		
9.	**POPULATIONGROUPS:**	**05**	**-**	**05**			
	a. Children:Streetchildren,Childlabour,Juvenile delinquency					01	
	b. Women's:Victimsofdomesticviolenceandaddiction, C.S.W.,physicallyand/ormentally challenged				02		
	c. RoleofNGOs,Socialsupport systems				02		
10.	**SocialSecurity&SocialLegislationinrelationtotheDisabled**	**01**	**-**	**01**		01	
11.	**RoleofaMedicalSocialWorker**	**01**	**-**	**01**	01		
12.	**SociologyofBrainDeathand/orOrgandonation:**	**01**	**-**	**01**			01
13.	**SOCIALPROBLEMS:**	**04**	**-**	**04**			
	i. Populationexplosion,Poverty,Dowry				02		
	ii. Illiteracy-Causes,prevention&Controlmeasures.					02	

RECOMMENDEDTEXTBOOKS

1. AnIntroductiontoSociology–Sachdeva&Bhushan
2. IndianSocialProblems-Madan,Vol-I-Madras

SCHEMEOFUNIVERSITYEXAMINATION(THEORYONLY)

THEORY 80MARKS+I.A.–20 MARKS *Thequestionpaperwillgiveappropriateweightagetoallthetopicsinthesyllabus.		**Marks** **100**
SectionA-	Q.1MCQs • Questionsbasedon**COMMUNITYHEALTH& SOCIOLOGY (10 EACH)** [20 x 1]	**20**
SectionB-BAQ	Q-2 SAQ– Answer all of the following questions: [10 x2] Questionsbasedon**COMMUNITYHEALTH& SOCIOLOGY (05 EACH)**	**20**
SAQ	Q-3. Answer any FOUR out of FIVE: [4 x5] Questions based on **COMMUNITY HEALTH (3 QUESTIONS)& SOCIOLOGY(2 QUESTIONS)**	**20**
LAQ	Q-4. Answer any TWO out of THREE: [10 x2] Questions based on **COMMUNITY HEALTH (2 QUESTIONS)& SOCIOLOGY(1 QUESTIONS)**	**20**
TotalMarks		**80**

MCQs : 20	**BAQs: 20**	**SAQs: 20**	**LAQs: 20**
MK – 12 DK – 06 NK – 02	MK – 06 DK – 03 NK – 01	MK – 03 DK – 01 NK – 01	MK – 03 DK – 00 NK – 00

INTERNALASSESSMENT:

1. **Twoexams–Terminalandpreliminaryexaminationof80markseachTOTAL-160marks**
2. **InternalAssessmenttobecalculatedoutof20marks.**
3. **InternalassessmentasperUniversitypattern.**

OBSTETRICS & GYNAECOLOGY

(UNIVERSITY EXAMINATION)

3rdYearB.P.Th

(Didactic-20hrs+Clinical–10hrs)**TOTAL30HRS**

COURSEDESCRIPTION:

Thiscourseintendstoprovideintroductiontowomen`shealthwhichincludesproblemsrelatedto pregnancy, osteoporosis, and other disorders specific to women. Topics will focus on medicalterminology, clinical examination, evaluation, comparing contemporary, traditional interventionsand the impact of evolving technology in this area. It also emphasises on evaluation & medicaltreatmentofpelvicfloordysfunctions.

Sr. No.	Topics	Didactic Hours	Practical/Lab Hours	Total Hours
1	**PHYSIOLOGYOFPUBERTY&MENSTRUATION**	2		2
2	**PHYSIOLOGYOFPREGNANCY**	3		3
3	**PHYSIOLOGYOFLABOUR**	4		4
4	**POSTNATALPERIOD**	2	5	7
5	**INFERTILITY**	1		1
6	**URO-GENITALDYSFUNCTION**	3	1	4
7	**GYNAECOLOGICALSURGERIES**	2	1	3
8	**PRE,PERI&POSTMENOPAUSE**	2	1	3
9	**PELVICINFLAMMATORYDISEASES**	1	2	3
	TOTAL	**20**	**10**	**30**

OBJECTIVES:

Attheendofthecourse,studentwillbeabletodescribe:

a. Normal&abnormalphysiologicalevents,complicationsandmanagementduringPuberty.
b. Normalandabnormalphysiologicalevents,complicationsandmanagementofpregnancy(Pregnancy,Labour,Puerperium)
c. Normalandabnormalphysiologicalevents,complicationsandmanagementofmenopause.
d. Normalandabnormalphysiologicalevents,complicationsandmanagementofuro-genitaldysfunction.(Antenatal,Postnatal,duringmenopause)
e. Thestudentwillbeabletoacquirethecognitiveskillofclinicalexaminationofthepelvicfloor.

Sr. No.	Topic	Didactic Hours	Clinical Hours	Total Hours	Must Know	Desirable To Know	Nice To Know
1.	**PHYSIOLOGYOFPUBERTY&MENSTRUATION**:Abnormalities& commonproblemsofMenstruation	**02**	**-**	**02**	02		
2.	**PHYSIOLOGYOFPREGNANCY:**	**03**	**-**	**03**			
	a. Developmentofthefoetus,Normal/Abnormal/multiplegestations,				01		
	b. CommonComplicationsduringpregnancy:						
	i. Anaemia, ii. P IH iii. Eclampsia				01		
	iv. Diabetes, **v.** Hepatitis, vi. TORCHinfectionorHIV				01		
3.	**PHYSIOLOGYOFLABOUR**	**04**	**-**	**04**			
	i. Normal– EventsofIst,IInd&IIrdStagesoflabour				01		
	ii. Complicationsduringlabour&management					01	
	iii. Caesareansection-elective/emergency&postoperativecare				02		
4.	**POSTNATALPERIOD**	**02**	**05**	**07**			
	i. Puerperium&Lactation ii. Complicationsofrepeatedchildbearingwithsmallgaps					01	
	iii. Methodsofcontraception						01
5.	**INFERTILITY**	**01**	**-**	**01**			
	i. Managementwithemphasison PCOS/PCOD						01
6.	**URO-GENITALDYSFUNCTION**	**03**	**01**	**04**			
	i. Uterineprolapse– Classification&Management(Conservative/Surgical)				02		
	ii. Cystocele,Rectocele,Enterocoele,Urethrocele					01	

7.	**GYNAECOLOGICALSURGERIES**(Pre-andpost-surgicalmanagement)	**02**	**02**	**04**	02		
8.	**PRE,PERI&POSTMENOPAUSE**	**02**	**01**	**03**			
	i. Physiology ii. Complications&				01		
	iii. Management				01		
9.	**PELVICINFLAMMATORYDISEAS ES**withspecialemphasisto backacheduetoGynaecological/Obstetri calconditions	**01**	**01**	**02**		01	

CLINICAL(10hrs)

1. **Evaluation&presentation**ofOnecaseEachin:
   a. Uro-genitaldysfunction
   b. Antenatalcare
   c. Postnatalcare
   d. Followingnormallabour
   e. FollowingCaesareansection
   f. PelvicInflammatoryDiseases
2. **Observation**–OneNormal&OneCaesareandelivery&OneHysterectomy/RepairoftheUro-GenitalProlapse

RECOMMENDEDTEXTBOOKS

1. TextbookofGynaecology–Datta–NewCentralBookAgency
2. TextbookofObstetrics--Datta–NewCentralBookAgency

SCHEMEOFCOLLEGEEXAMINATION(THEORYONLY)

THEORY 40MARKS+I.A.–10 MARKS *Thequestionpaperwillgiveappropriateweightagetoallthetopicsinthesyllabus.		Marks **50**
Section-A	Q-1MCQs [10X1]	**10**
Section-B-BAQ	Q-2Answer all the following Question [5 x 2]	**10**
SAQ	Q-3. Answer any TWO out of THREE [2 X 5]	**10**
LAQ	Q-4. Answer any ONE out of TWO [1x 10]	**10**
TotalMarks		**40**

MCQs : 20	**BAQs: 20**	**SAQs: 20**	**LAQs: 20**
MK – 12 DK – 06 NK – 02	MK – 06 DK – 03 NK – 01	MK – 03 DK – 01 NK – 01	MK – 03 DK – 00 NK – 00

DERMATOLOGY

(COLLEGE EXAMINATION)

3rd Year B. P. Th

Total: 10 HRS

OBJECTIVES:

At the end of the course, the student will be able to describe the Patho physiology, Signs &Symptoms,ClinicalFeatures,Examination&ManagementofCommonSkinConditionslikeLeprosy,Psoriasis, Bacterial & Fungal Infections of the skin, connective tissue disorder, hand eczema, drugreaction,cutaneousmanifestationofHIV,&SexuallyTransmittedDiseases

SYLLABUS

Sr.No.	Topic	Didactic Hours	Total Hours	Must Know	Desirable To Know	Nice To Know
1.	IntroductiontoDermatology,basicskinlesions&Historytaking	**01**	**01**	01		
2.	i. Skininfections(PartI)– Scabies/Pediculosis/Bacterialinfections	**02**	**02**		01	
	ii. Skininfection(PartII)Viral/Fungal/CutaneousT.B.				01	
3.	Connectivetissuedisorder-Scleroderma,S.L.E.,Dermatomyositis,Morphia	**01**	**01**	01		
4.	a. Handeczema,Psoriasis,Psoriaticarthritis,Reiter'sSyndrome b. Cutaneoushyperplasia-Keloid,Hypertrophicscar,Corn,Callosity	**01**	**01**	01		
5.	Leprosy&Deformity	**02**	**02**	02		
6.	a. CutaneousManifestationofHIV b. Hyperhidrosis	**01**	**01**	01		
7.	i. Drug reaction	**02**	**02**		01	
	ii. UrticariaGenodermatosis-Epidermolysis bullosa iii. SexuallyTransmittedskinlesionsPUVATreatment					01

RECOMMENDEDTEXTBOOK

1. Textbookofdermatology–Dr.Khopkar

SCHEMEOFCOLLEGEEXAMINATION(THEORYONLY)

THEORY 25marks[ThereshallbenoLAQinthispaper] *Thequestionpaperwillgiveappropriateweightagetoallthetopicsinthesyllabus.		Marks **25**
SectionA-	Q-1. MCQs–basedonMUSTKNOWarea [10X1]	**10**
Section-B-	Q-2. SAQ-AnsweranyTHREEoutofFOUR [3x5]	**15**
TotalMarks		**25**

FUNCTIONALDIAGNOSIS&PHYSIOTHERAPEUTICSKILLS

3rdYearB.P.Th

COURSEDESCRIPTION:

1. Functional Diagnosis & Physiotherapeutic Skills is a stepping stone to introduce studentstoactualconceptsofPTassessmentandlatertothetreatmentconcepts
2. FunctionalDiagnosisfocusesontheassessmentofallthebodysystemsi.e.Musculoskeletal, Neurological and Cardiovascular-Respiratory in order to study the various impairmentsand their impact on activity and participation of the individual taking into considerationthecontextualfactorsaswell.Italsoemphasizesontheclinicalreasoningoftheun derlyingcomponentsofauniversalevaluationtool(ICF)forabetterunderstandingofthepatient inaholisticmanner.Thestudentisalsosubjectedtolearnbasicsofmanipulative, cardiovascular-respiratory and neuro-therapeutic skills on models so thathe/shewillbeabletoapplytheseprincipleseventuallyonpatients.
3. The student will also gain a sound knowledge of electro-diagnosis, which is an integralpartofFunctionalDiagnosis.

Sr. No.	Topic	Didactic Hours	Practical /LaboratorySkillsHours	Total Hours
1.	**SECTION-I**INTERNATIONALCLASSIFICATIONOFFUNCTION,DISABILITY&HEALTH(ICF)	**05**	**-**	**005**
2.	**SECTION-II** MUSCULOSKELETALEVALUATION & MANIPULATIVESKILLS	**40**	**140**	**180**
3.	**SECTION–III**CARDIOVASCULARRESPIRATORYEVALUATION&RELATEDSKILLS	**40**	**055**	**095**
4.	**SECTION–IV**NEUROTHERAPEUTICEVALUATION&ELECTRODIAGNOSIS	**50**	**130**	**180**
TOTAL		**135**	**325**	**460**

OBJECTIVES:

COGNITIVE:

Attheendofthecourse,studentwillbeableto:

1. UnderstandtheuseofICF.
2. Acquiretheknowledgeofhumangrowthanddevelopmentfromnewlifetobirthandadulthood

3. Understandstructureandfunctionofnerveandmuscleasabaseforunderstandingtheelectro-diagnosticassessment.
4. UnderstandtheuseofappropriatetoolsorinstrumentsofassessmentinMusculoskeletal,NeurologicalandCardio-vascularconditions.
5. Understandthetheoreticalbasisandprinciplesofmanipulativeskills,neurotherapeuticskillsandskillsofcardiopulmonarycareandresuscitation
6. Documentresultsofassessmenttoevaluatethepatientfromtimetotime.

PSYCHOMOTOR:

Studentwillbeableto:

1. Performassessmentofmeasuresofbodystructuresandfunctionsrelatedtotissuemechanics.
2. Performassessmentofmeasuresofbodystructuresandfunctionsrelatedtomotorcontrolaffectingactivityandparticipation,qualityoflifeandindependence.
3. Performtheskillofelectro-diagnosis(SDCurve)andobserveskillsofEMGandNCVstudies,tounderstandthedocumentationoffindingofthesestudies.
4. Interpretationandanalysisofassessmentandfindings.
5. Demonstrate skills of manual therapy musculoskeletal, neurotherapeutics andcardiovascularandrespiratoryskillsonmodels(Laboratorywork).

AFFECTIVE:

Studentwillbeableto:

1. Selectappropriateassessmenttechniquestofacilitatesafety,sensitivepracticesinpatientcomfortandeffectiveness.
2. Demonstrate safe, respectful and effective performance of physical therapy handlingtechniques taking into account patient's clinical condition, need for privacy, resourcesavailableandtheenvironment.
3. Follow the principles of appropriate handling technique that is draping, hand placement,bodypartpositioning,manualtechniques,liftingandtransfertechniques.
4. Communicate with patients and their families/caregivers regarding the need and uses ofvariousassessmenttechniques.

SYLLABUS

Sr.No.	Topic	Didactic Hours	Practical Hours	Total Hours	Must Know	Desirable To Know	Nice To Know
1.	**SECTIONI:**	**05**	**-**	**05**			
	FunctionalDiagnosisusingInternationalClassification ofFunction,Disability&Health(I.C.F.)				02		
	ICF: - Applicablefor all theSectionsmentionedbelow				03		
2.	**SECTIONII:** **MUSCULOSKELETALEVALUATIONANDMANIPULATIVESKILLS** **(**Didactic-40+Practical140=**180Hours)**						
	a.AssessmentofMusculoskeletalSystem:	**03**	**02**	**05**			
	i. Softtissueflexibility ii. Jointmobility iii. Musclestrength&Endurance	01		01	01		
	iv. Trickmovements v. Sensations vi. Limblength	01	01	02	02		
	vii. Abnormalposture viii. Gaitdeviationsduetomusculoskeletaldysfunction	01	01	02	03		
	b.AssessmentofJointswithspecialtests:	**10**	**08**	**18**			
	i. **CervicalSpine**:Foraminalcompression,Distraction,Shoulderdepression,vertebralartery,Dizzinesstests.	01	01	02	02		
	ii. **Shoulder**:Yergason's,Speed's,Drop-Arm,Supraspinatus,Impingement,Anterior&PosteriorApprehension,Allen,Adson.	01	01	02	02		
	iii. **Elbow**:Cozen's,Miller's,Tinel'ssign	01	01	03	03		
	iv. **Forearm,Wrist&Hand**:Phalen's,Bunnel-Littler,Froment'ssign	01					
	v. **LumbarSpine**:Schober's,SLR,ProneKneeBending,Slump.	01	01	02	02		

	vi. **SacroIliacjoint**:Faber-Patrick's,Gaenslen,Gillet,March	01	01	02	02		
	vii. **Hip:**Nelaton'sline,Bryant'strangle,Thomas,Ober's,Tripodsign,Trendelenburg sign,	01	01	02	02		
	viii. **Knee:** Tests for collateral & cruciate ligaments (valgus, varus,Lachman,Sag,Drawer's,McMurray's,Fluctuation,Patellartap,Q-angle,Clarke)	02	01	03	03		
	ix. **Ankle&Foot**:AnteriorDrawer,TalarTilt,Homan's&Moses(forD.V.T.)	01	01	02	02		
	c.Responseofsofttissuestotrauma:	**02**	**-**	**02**			
	i. Triggerpoints ii. Spasm iii. LigamentSprains iv. MuscleStrains	02		02	02		
	d.BasicsinManualTherapyand ApplicationswithClinicalReasoning:	**05**	**05**	**10**			
	i. AssessmentofArticularandextra articularsofttissuestatus: - a) Contractiletissues b) Noncontractiletissues	03	02	05	05		
	i. Examinationofjointintegrity: - a) Accessorymovement b) Endfeel	02	03	05	05		
	e.ExaminationofmusculoskeletalDysfunction:	**06**	**10**	**16**			
	i. Subjectiveexamination	01	01	03	03		
	ii. Objectiveexamination		01				
	iii. Specialtests	02	02	04	04		
	iv. FunctionalDiagnosisusingICF	03	06	09	09		
	f.AssessmentofPain:	**04**	**05**	**09**			
	i. Typesofpain:Somatic,Somaticreferred,Neurogenic,Visceral	02	-				
	ii. SubjectiveAssessment: a) Location,duration,progression,distribution,quality,diurnal variations,modifying factors. b) Severity,natureofpain,tissueirritability		02	04	04		
	iii.ObjectiveMeasurement&Documentation- a) VisualAnalogueScale (V.A.S). b) NumericalRatingScale (N.R.S.)	01	01	02	02		

	c) McGill's modified questionnaire (including Bodycharts)	01	02	03	03		
	g.Basicprinciples,indications,contraindicationsofmobilizationskillsfor joints and Soft tissues:	**10**	**110**	**120**			
	i. Maitland	02	20	52	52		
	ii. Mulligan	01	10	11	11		
	iii. Kaltenborn	01	10	06	06		
	iv. Mckenzie	01	20	11	11		
	v. Cyriax	01	-	06	06		
	vi. Myofascial Release Technique	02	10	12	12		
	vii. Muscle Energy Technique	01	20	11	11		
	viii. Neural Tissue Mobilization (Neuro Dynamic Testing)	01	20	11	11		
Practice of Manual Therapy in Kaltenborn, Maitland's, M.E.T. & Neural Mobilisation on extremities on Models only							
3.	**SECTIONIII: CARDIOVASCULARRESPIRATORYEVALUATION&RELATEDSKILLS** **(**Didactic-40+Practical55=**95Hour)**						
	a. **Assessment of Cardio Vascular & Pulmonary System:**	**25**	**25**	**50**			
	i. Vitalparameters	Identificationof abnormalbreath sounds,measuremen t ofchestexpansion, patternofbreathing,Vital parameters,Gradesof			05		
	ii. Chestexpansion				05		
	iii. Symmetryofchestmovement				05		
	iv. BreathHoldingTest				05		
	v. BreathSounds				05		
	vi. RateofPerceivedExertion (R.P.E.)				05		

	vii. EnergySystems&ExercisePhysiology- a. Physiologicalresponsetoimmobilityandactivity. b. Aerobic&Anaerobicmetabolisms c. EvaluationofFunctionalCapacityusingsubmaximaltests(ExerciseTolerance–SixMinutes' Walktest) d. Theoreticalbasesofdifferentprotocolsformaximalexercisetesting(e.g.:BruceProtocol,ModifiedBruceProtocol,Balke)	Dyspnoea, Rate ofPerceivedExertion,			05		
	viii. Interpretationofreports–A.B.G.,P.F.T.,P.E.F.R.,E.C.G.-(Normal&VariationsduetoIschemia&Infarction),X-rayChest, BiochemicalReports				05		
	ix. AnkleBrachialIndex	Ankle BrachialIndex, Exercise ToleranceTesting–6Minutes'WalkTest			05		
	x. TestsforPeripheralArterial&Venouscirculation.				05		
	b.ExaminationofCardiovascularRespiratoryDysfunction:	**05**	**05**	**10**			
	i. Subjectiveexamination				03		
	ii. Objectiveexamination				02		
	iii. Specialtests:ExerciseToleranceTesting–6Minutes' WalkTest,BreathHoldingTest,P.E.F.R.				03		
	iv. FunctionalDiagnosisusingI.C.F.					02	
	c.Assessmentof Fitness&Health:	**10**	**25**	**35**			
	i. Screeningforriskfactors				07		
	ii. Bodycomposition-B.M.I.,useofskinfoldcalipers,Girthmeasurement				08		
	iii. Physicalfitness:Flexibility,Strength,Endurance,Agility				08		
	iv. PhysicalActivityReadinessQuestionnaire						03

	v. Screeningforhealthandfitnessinchildhood,adulthoodandgeriatricgroup					03	
	vi. Qualityoflife						01
	vii. Principles&componentsofexerciseprescriptionforhealthy				05		
4.	**SECTIONIV:** **NEUROTHERAPEUTICEVALUATION&ELECTRODIAGNOSIS** **(**Didactic-50+Practical130=**180Hours)**						
	a.GeneralprinciplesofHumandevelopment&maturation	**04**	**08**	**12**			
	i. Aspects a) Physical b) motor c) Sensory d) Cognitive&Perceptive e) Emotional f) Social				03		
	ii.Factorsinfluencinghumandevelopment&growth: a) Biological b) Environmentalinherited				03		
	iii.Principlesofmaturationingeneral&anatomicaldirectionalpattern– a) Cephelo–caudal b) Proximo–distal c) Centero–lateral d) Masstospecificpattern e) Grosstofinemotordevelopment f) Reflexmaturationtests				03		
	iv.Developmentinspecificfields– Oromotordevelopment,sensorydevelopment,neurodevelopmentofhandfunction.				03		
	b. Basics in Neuro Therapeutics Skills & Applications with Clinicalreasoning.	**20**	**55**	**75**			
	i. Principles,Technique&IndicationsforApplicationof a) Bobath	TherapeuticSkillsofN.D. T.,P.N.F., Bobath, Rood'sTechnique			12		
	b) NeuroDevelopmentalTechnique				13		

	c) Rood's Technique	&Brunnstrom, M.R.P.onmodelsonly			12		
	d) P.N.F.				14		
	e) Brunnstrom,				12		
	f) Techniques of Motor Relearning Program(M.R.P.)				12		
	c. Assessment of Movement Dysfunction: -	**10**	**25**	**35**			
	i. Higher functions				02		
	ii. Cranial nerves				03		
	iii. Sensations, sensory organization & body image				02		
	iv. Joint mobility				02		
	v. Tone				02		
	vi. Reflexes-Superficial & Deep				02		
	vii. Voluntary control				02		
	viii. Muscle Strength				02		
	ix. Co-ordination				02		
	x. Balance				02		
	xi. Endurance				02		
	xii. Trick movements				02		
	xiii. Limb Length				02		
	xiv. Posture deviations				02		
	xv. Gaitdeviationsduetoneurologicaldysfunction				02		
	xvi. FunctionalDiagnosisusingI.C.F.				02		
	xvii. InterpretationofElectrodiagnosticfindings,routineBiochemicalinvestigations					02	
	d.Electrodiagnosis:	**10**	**30**	**40**			
	i. Physiologyofrestingmembranepotential,actionpotential, PropagationofActionPotential	Test for S.D.C. &Faradic/GalvanicTest				02	
	ii. Physiologyofmusclecontraction				02		
	iii. Motorunit&Recruitmentpatternofmotor unit–Sizeprinciple					02	

	iv. Therapeuticcurrent–asatoolforelectrodiagnosis. a) Electrophysiologyofmuscle&nerve				04		
	b) FaradicGalvanicTest,StrengthDuration				07		
	c) Curve-testsshouldbecarriedoutonrelevant patients,				07		
	d) TestforSensory&PainThreshold/						04
	e) PainTolerance–techniqueonly						04
	v. Electro-Myography a)DefinitionInstrumentation– BasiccomponentslikeC.R.O.,Filter,Amplifier&Preamplifier,andTypesofElectrodes					03	
	b)Normal&AbnormalE.M.G.pattern i. Atrest ii. onminimalcontraction iii. onmaximalcontraction					02	
	c)NerveConductionStudies i. Principles&Technique ii. F- wave iii. H-reflex					02	
	e.SCALES:	**3**	**15**	**18**			
	BergBalance,ModifiedAshworth, F.I.M.,BarthelIndex,G.C.S.				09		
	D.G.I.,M.M.S.,S.T.R.E.A.M.&A.S.I. A					09	

DOCUMENTATION:	
A	Documentation&Interpretationoffollowinginvestigations: i. Electrodiagnosis:2each a) S.D.C. b) FaradicGalvanicTest c) E.M.G.&N.C.Studies ii. CardioVascular&Pulmonary:(1each)–A.B.G.,P.F.T.,E.C.G.,X-rayChest,ExerciseToleranceTest. iii. NeurologicalScales(1each)–ModifiedAshworth,Berg'sBalance,D.G.I.,Glasgow iv. Coma,BarthelIndex,F.I.M.
B	CasepresentationwithFunctionaldiagnosis: i. Total12cases ii. Threecaseseachin– a) Musculoskeletal b) Neurological c) Cardiovascular&Respiratory(IncludingGeneralMedical&SurgicalCases) d) General&CommunityHealth(IncludingFitness&Health,Women&ChildHealth,OccupationHealth)
TomaintaintheRecord/Journalofthetermwork&togeteachassignmentdulysingedbyrespectiveHeadof the Dept.	

RECOMMENDEDTEXTBOOKS

1. OrthopaedicPhysicalExamination–Magee
2. ClinicalElectroTherapy–Nelson–Currier---Appleton&Langepublication
3. ClinicalElectromyography–Mishra
4. TherapeuticExercises-Colby&Kisner
5. PhysicalRehabilitation,Assessmentandtreatment-SusanBO'sSullivan
6. NeurologicalExamination-JohnPatten

RECOMMENDEDREFERENCEBOOKS

1. Maitland'sbookonManualtherapy,
2. MobilisationofExtremities–Kaltenborn
3. ClinicalElectromyography–Kimura
4. OrthopaedicPhysicaltherapy–Donnatelli
5. NAGS,SNAGSandMWMS-BrianMulligan
6. Exercise&Heart–Wenger
7. ExercisePhysiology–WilliamDMc'Ardle
8. FacilitationtechniquesbasedonNDTprinciples-LoisBlyAllisonWhiteside
9. MovementtherapyinHemiplegia-Brunnstrom
10. CashtextbookofPhysiotherapyinneurologicalconditions–PatriciaDownie
11. PhysicalDysfunction–TromblyScoot
12. InfantMotorDevelopment-JanPiek
13. Neurology&NeurosurgeryIllustrated(3rdedition)-Bone&Callander
14. Neuro-developmentalTherapy–JanettHowle

SCHEMEOFUNIVERSITYEXAMINATION

THEORY 80MARKS+I.A.–20 MARKS *Thequestionpaperwillgiveappropriateweightagetoallthetopicsinthesyllabus.		**Marks** **100**
SectionA-MCQ	Q-1-MCQs–basedon**MUSTKNOW**area [20 x1] Section–iInternationalClassificationOfFunction,Disability&Health(ICF)-1marksSection–iiMusculoskeletalEvaluation&ManipulativeSkills–7Marks Section–IiiCardioVascularRespiratoryEvaluation&RelatedSkills–5marksSection–IvNeurotherapeuticEvaluation&ElectroDiagnosis–7marks	**20**
SectionB-BAQ	Q2. Answer all of the following. (10 Questions) [10 x2]	**20**
SAQ	Q-3- Short Answer Questions (any FOUR out of FIVE) (4 x5) Section–I International Classification Of Function, Disability & Health (ICF)-1 Questions Section–ii MusculoskeletalEvaluation&ManipulativeSkills–2Questions Section–iiiCardioVascularRespiratoryEvaluation&RelatedSkills–1Questions Section–ivNeurotherapeuticEvaluation&ElectroDiagnosis–1Questions	**20**
LAQ	**Q.4 Long Answer Question (LAQ) (Answer any 2 out of 3) (2x10)=20marks** b. Based on topics – Simulated traumatic case/ simulated non-traumatic case on musculoskeletal evaluation and manipulative skills on ICF pattern. c. Based on topics–Simulated case on Neurological evaluation on ICF pattern (Adult/Pediatric) d. Based on topics–Simulated case on Cardio Vascular Respiratory evaluation on ICF pattern.	**20**
Total Marks		**80**

MCQs : 20	**BAQs: 20**	**SAQs: 20**	**LAQs: 20**
MK – 12 DK – 06 NK – 02	MK – 06 DK – 03 NK – 01	MK – 03 DK – 01 NK – 01	MK – 03 DK – 00 NK – 00

PRACTICAL 80MARKS+I.A.–20 MARKS		**Marks** **100**
LONGCASE	[Timemaximum30minutesforstudentsforevaluation] 1. Psychomotor&affective: · SkillofHistorytaking [05marks] · Skillofclinicalexamination [15marks] · Skillofobjectivediagnosticprocedure[10marks] 2. Cognitive: · AbilitytojustifybasesforfunctionaldiagnosisbyI.C.F. [15marks][Tobeevaluatedincognitive,psychomotorandaffectivedomains.]	**45**

SHORT CASE	TwoShortcaseson 1. Mobilization Technique: Kaltenborn, Maitland, M.E.T. or Neural Mobilisation(OnModels) [10marks] 2. Neuro Therapeutic Skills: N.D.T. / P.N.F. / Rood's / Brunnstrom\ Motor Re-learningProgramme(MRP)(OnModels) [10marks] **OR** ElectroDiagnosis:S.D.Curve/FaradicGalvanicTest(OnPatient) [10marks] **OR** ExerciseToleranceTest:SixMinutesWalkTest(OnModel) [10marks]	**20**
SPOTS	5spots-(5x2Marks=10Marks)3minutesforeachspot a) Xray(onsection2/3/4) b) PulmonaryFunctionTest c) Bloodgasanalysis d) E.C.G. e) E.M.G./N.C.studies	**10**
JOURNAL	Documentations-Assessment,Evaluation,DiagnosiswithI.C.F.	**5**
TotalMarks		**80**

INTERNALASSESSMENT:

1. Two exams – Terminal and preliminary examination (Theory & Practical) of 80 marks eachTOTAL-160marks
2. InternalAssessmenttobecalculatedoutof20marks
3. In Practicals of Terminal & Preliminary examinations Spots will be of 15 marks instead of10marks(3marksX5),NomarkswillbeallottedforthejournalinTerminal&Preliminaryexaminations
4. InternalassessmentasperUniversitypattern.Electivecoursesystem(Totalhours30)

Mustchooseanyoneoutoffourofthefollowing:

1. ICFforMusculoskeletalconditions
2. ICFforNeurologicalConditions
3. ICFforCardio-PulmonarySubject
4. ICFforPostNatal&GeriatricConditions

SCHEMEOFEXAMINATIONSATAGLANCE

IIIB.P.Th.

SUBJECTS	UNIVERSITYEXAMINATIONS						COLLEGELEVEL EXAMS (Theoryonly)
	Theory			Clinical/Practical			
	University	I.A.	Total	University	I.A.	Total	
Surgery-I (GeneralSurgery+Cardiovascular & Thoracic Surgery + Plastic/ReconstructiveSurgery)	40	10	50	---	---	---	---
Surgery-II (Orthopedics)	40	10	50	---	---	---	---
Medicine-I (CardiovascularRespiratoryMedicine +GeneralMedicine+Gerontology)	40	10	50	---	---	---	---
Medicine-II (Neurology&Pediatrics)	40	10	50	---	---	---	---
Gynecology&Obstetrics	40	10	50	---	---	---	---
Community Health &Sociology	80	20	100	---	---	---	---
FunctionalDiagnosisand PhysiotherapeuticSkills	80	20	100	80	20	100	---
Dermatology	---	---	---	---	---	---	25
Total	**360**	**90**	**450**	**80**	**20**	**100**	**25**

STANDARD OF PASSING
B.P.Th

1. A Candidate must have minimum of 75 % attendance in theory and 80 % attendance in practical (irrespective of the kind of absence) of each course (subject) for appearing in the University examination.

2. For the subjects with practical, there will bethree heads of passing i.e. Theory, Practical, and Internal Assessment.For the subjects without practical there will be two heads of Passing i.e.Theory and Internal Assessment.

3. The candidate should secure minimum 50% marks in each of the theory and practical papers separately.The candidate will be held eligible to appear in the University examination only when he/she secureminimum 35% marks in Internal Assessment.

4. A Candidate should secure at least 50% marks in college exams in subject where there is no University exam.

5. If the candidate fails either in Theory or in Practical Examination of a subject he/she will have to reappear for both theory and practical /clinical examination.

6. **Grace Marks -**If a candidate fails by five or less marks in aggregate of all subjectsin the University examination;grace marks up to five will be given to the candidate by the University before the declaration of result.

7. **Supplementary Examination-**If a candidate fails in any number of course (subject)in the University examinationhe/shecan appear for those subjects onlyin Supplementary Examination, whichwill be held within **3 to 6weeks** from the date of declaration of the results of the University examination for every professional year, so that the candidates, who pass, can join the main batch for progression. Candidatewill be required to appear in the supplementary examination in that subject/ subjects while attending classes of next year.If the candidate fails in three or more subjects in supplementary examination, his/her session will be shifted by one year. If the candidate passes in all subjects or gets ATKT(for those who fail in two or less subjects)in Supplementary Examinationthen he/she is eligible to continue with the next

academic year.

8. The candidate should have passed all subjects of previous years before appearing to 4th Year B.P.Th. University Examination.

9. First class with Distinction –75% and above marks in any subject or overall aggregate. First class - 60% to 74.99% and above in the aggregate of marks of all subjects. Second Class – 55% to 59.99% or 55% in the aggregate of marks of all subjects. Pass class – 50% to 54.99% in the aggregate of marks of all subjects.

10. Themaximumperiodtocompletethe B.P.Th. successfullyshouldnotexceednineyears.

11. **Internship:** There shall be compulsory six months rotatory structured Internship afterpassing finalB.P.Th. examination. Internship should be done in teaching hospital/hospitalsof the university. No candidateshallbeawardeddegreecertificatewithoutsuccessfullycompletingsixmonths internship.

12. **ResearchProjectwork:**Each Internhavetotakeupa short research projectwork duringinternshipperiod. The protocol approval shall be obtained bytheeach internin the final year of B.P.Th. however the ethical approval should be obtained latest by the second month of internship program.Data shall be collected in the next three months after the approval by the ethics committee.Completed project shall be submitted by the end of 6thmonth.

13. **Structure of the Research Project:** The written text of the project shall beofminimum50pages excluding references, tables, and questionnairesandotherannexure.It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") Times new Roman, 12 fontand hard bound properly. The intern shall provide plagiarism declaration in his/her project. The guide and head of the institution shall certify the written text of the project. Three copies of project work thus preparedshallbesubmittedtothePrincipal.Thecompletioncertificateof internshipwillbeissuedonlyafter completingtheresearchproject.

14. The degree will be awarded after the satisfactory completion of internship and submission of project work, in ensuing convocation to be conducted by the University.

D. Y. PATIL EDUCATION SOCIETY
(DEEMED TO BE UNIVERSITY), KOLHAPUR
Declared Ested U/S 3 of UGC Act 1956
Accredited by NAAC with 'A++' Grade

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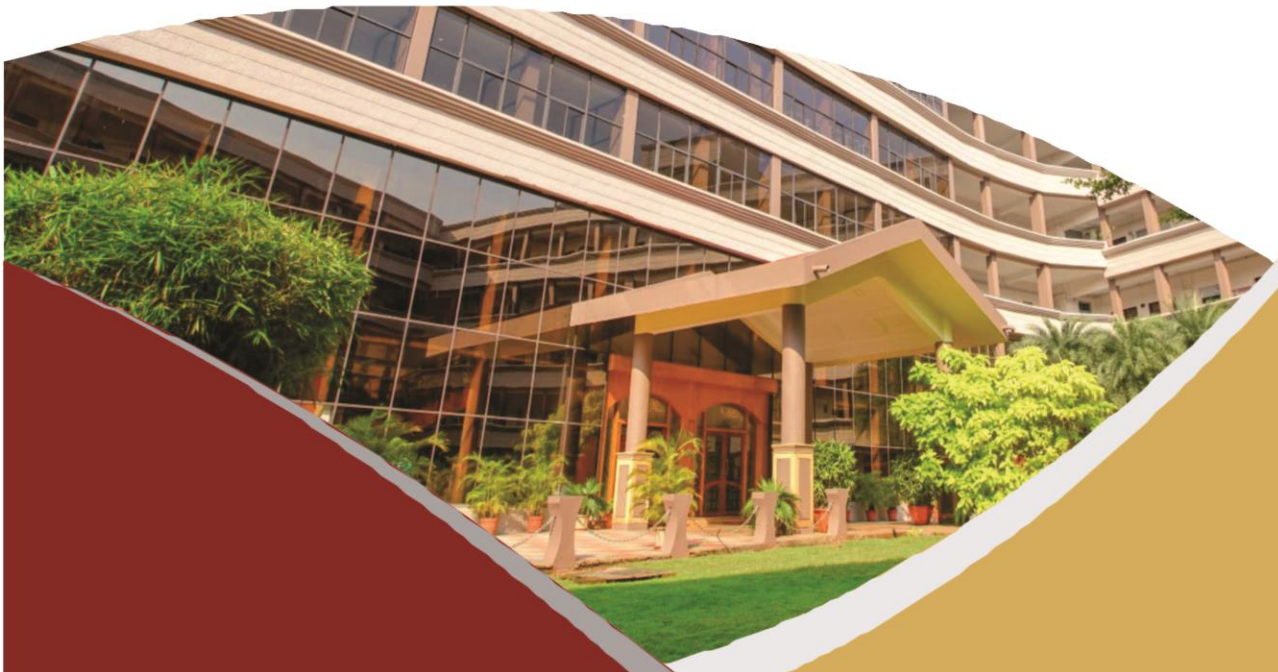

BACHELOR OF PHYSIOTHERAPY (B.P.TH)

D. Y. PATIL EDUCATION SOCIETY, KOLHAPUR (DEEMED TO BE UNIVERSITY)

D. Y. Patil College of Physiotherapy
Syllabus for
IV - Bachelor of Physiotherapy

VISION

- To become a world class dynamic institution of education research & training to develop globally competitive, professional and socially responsible human resource.

MISSION

- To ensure globally relevant quality higher education and skill enhancement for providing required trained manpower to the nation & the world.
- To promote symbiotic relations with industry, academic and research institutions and community to meet the expectations of various stakeholders.
- To engage in interdisciplinary research and innovate for furtherance of knowledge, technology and growth.
- To put in place dynamic technocracy for effective use of emerging trends in curriculum development, and radogy, evaluation and system management.
- To provide an environment for holistic evolution of the learners as humane, socially responsible and conscious of sustainable ecosystem.

IV - Bachelor of Physiotherapy

Program Code	Exam Code	Course Name	Subject Name	Sub/Course Code
16	1601	Ist B.P.Th.	Human Anatomy	160101
			Human Physiology	160102
			Biochemistry	160103
			Fundamentals of Kinesiology & Kinesiotherapy	160104
			Fundamentals of Electrotherapy	160105
	1602	IInd B.P.Th.	Pathology & Microbiology	160201
			Pharmacology	160202
			Psychiatry & Psychology	160203
			Kinesiology	160204
			Kinesiotherapy	160205
			Electrotherapy	160206
	1603	IIIrd B.P.Th.	Surgery I	160301
			Surgery II	160302
			Medicine I	160303
			Medicine II	160304
			Community Health & Sociology	160305
			Functional Diagnosis and Physiotherapeutic Skills	160306
	1604	IVth	Musculoskeletal Physiotherapy	160401
			Neuro Physiotherapy	16040

		B.P.Th.		2
			Cardio-Vascular & Respiratory Physiotherapy	160403
			Community Physiotherapy	160404

PROGRAM OUTCOME

PO1: Ability to acquire knowledge about normal- abnormal basic medical and human movementsciences,understandrelevantinvestigations,roleofdrugsrelatedtovarious medicalconditions,surgicaltreatmentandapplicationofphysiotherapyinterventions.

PO2:To gain knowledge about planning and problem solving abilities to delineate the cognitive, affective and psychomotor skills to perform as a competent physiotherapist who will be able to evaluate, plan and effectively perform the physiotherapeutic skills.

PO3: Demonstrate the ability to acquire good listening potential with effective interpersonal and intra personal communicationskills.

PO4: Extend the acquired knowledge to conduct research activities and publications that contribute to the upliGment in field of physiotherapy and betterment of society.

PO5: Understand moral value, professional ethics and accountability towards patient and colleagues,developgoodbehaviorsskillswithconfidentialityandhumanitarianapproach maintainingtherespectandprivacyofpatient.

PO6: Develop leadership skills, time management, logical reasoning, values required for self directed and lifelong learning, soG skills for professional development and execute their professionalroleinsocietyasaphysiotherapistatvariousacademicinstitutions,Hospital/ Clinics,Organizations,ResearchlaboratoriesandRehabilitationcenters.

PO7: Understanding about society's needs in terms of health and wellness, to improve multiculturalcompetencyamongprofessionalandgeneralpublic,promotingsocialpolicies thataffectthedemandsofpatientsintermsoffunction,healthandwellness,developa characterwithgoodmoralvalues,humanvalues,goodsocialbehavior,gratitude,honesty, ethics,safety,hygiene,responsibility,confidence,toleranceandcriticalthinking.

PO8: Able to contribute in sustainable development to achieve the national sustainable development goal, further the relationship between the environment, human health and functioning and physiotherapy are considered and respected to mutually benefit patient'shealth.Ensurehealthylife'sandpromotewellbeingforallatallages.

PO9: Demonstrate ability to acquire new knowledge skill and reflect upon their experience to enhance personal, professional growth and apply the information for patient care.

MUSCULOSKELETAL PHYSIOTHERAPY

CO1: Ability to indentify evaluate analyze preimaly & secondary musculoskeletal dysfunction based on biomechanical kinesio logical & patho physiological principle.

CO2: Correlate the same with radiological electrophysical biochemical haematological investigation as applicable & arrive at the appropriate physiotherapy dangerous with skilfull evaluation of structure & fraction clinical.

CO3: Understand the pharmaco therapeutics its interaction with physiotherapeutic measures & modify physiotherapeuticintervention.

CO4: Acquire ethical skills by demonstrating safe respectful & effective performance of physical handling techs taking into account the patients clinical conditions the need for privacy the physiotherapist the resources available & the environment.

CO5:The students will be able to plan & prescribe short along term physiotherapy treatment by selectingappropriatemodesofevaluation&interventionincaseofvariousorthopaedic surgeriesupperlimbtrumeslowerlimb&spinetraumapre&postoperativeamputation bone-jointinfection&bonetumoursfarreliefofpainfunctionalindependence.

CO6: Ability to apply the rotical basis of physiological effects indication contraindications and best available evidence on the effectiveness efficacy &safe application guideline or a full range of physiotherapeutic strategies & interview including appropriate modes of soGtissue and joint. Mobilisation electrotherapy therapeutic exercise and appropriate

ergonomics advice that can be employed to manage problems of the individuals structures functions activities & participation capacity & performance levels associated withmusculoskeletalsystemforreliefofpain&preventionrestoration&rehabilitation measures for workplace in community.

CO7: Able to prescribe & train for appropriate orthosis prosthesis & walking aids based on musculoskeletal dysfunction.

NEUROSCIENCES PHYSIOTHERAPY

CO1: Acquire the knowledge of identification & analysis of movement dysfunction caused by neuro-musculskeltal disorder in terms of biomechanical & biophysical basis.

CO2: Understand the co-relation of routine electro-physiological radiological & biochemical investigations & formulate appropriate functional diagnosis using the model of Who-International classification functions (ICF) with clinical resolving.

CO3: Acquire the knowledge of planning of realistic short and long term goalron the basic of prognosis of disorders of neuro-muscular system & prescribe appropriate & evidence based neuro therapeutic intervention by taking preccutions of saGy measures.

CO4: Understand infection control principles best practices & appropriatenurotherapeutic techniques for the adults or paediatric clients with neurological conditions.

CO5:Be able to develop psychomotor skills for timely implementation of appropriates outcome me asue for assessment select therapeutic techniques to ensure holistic approach &for reduction long term morbidity.

CO6: Select & implement appropriate neuro-therapeutic approaches electrotherapeutic modalities joint & soG tissue mobilizations & ergonomic advise for conditions neuro-musculoskeletalsystemcontextualfactorstoenhancefunctionalskills&socialintegration.

CO7: Be able to develop behavioural skills and humanitarian approach while communicating with patients, relative's society & co-professionals, to promote individual &community health.

CARDIO RESPIRATORY PHYSIOTHERAPY

CO1: To study of applied anatomy & physiology of Cardiovascular & respiratory system along with pathological changes & pathmechanics.

CO2: Physical assessment with relevant testes & measures for determining impairments & differential diagnosis related to patients with disorders of cardio-vascular & respiratory system.

CO3: Ability to understand investigation & clinical application of investigation along with exercise testing

CO4: Ability to understand knowledge of bioenergetics, total energy expenditure adaptation to exercisepreventionofcomplicationsofbednestAneobic&anaerobictraining&Principles of exercisePrescriptions

CO5: To demonstrate physiotherapeutic skills & branched hygiene techniques in different cardiorespiratoryconditionsalongwithapplicationofICFmodel.

CO6: To study physiotherapy management in medical and surgical cardio respiratory disease alongwithcardiorespiratory&pulmonaryrehabilitation.

CO7: To study basic evaluation and management of cardio respiratory conditions in ICU along with basic life support**.**

COMMUNITY PHYSIOTHERAPY

CO1: Explainroleofphysiotherapyinhealthpromotionincommunityandwomen'shealth.
CO2: Demonstrateevaluationandtrainingofgeriatricpopulation.
CO3: Articulatetheneedofphysiotherapyinaindustrialsetupandexplain Ergonomicassessment.
CO4: Acquire the knowledge in preventive and curative measures that are required to be practiced in Community and at all levels of health caresystem.
CO5: Identifytherolesocialsecurity,roleofmedicalsocialworkerandtheroleofNGO's
CO6: Understandtheroleofsocialplanningintheofhealth&inrehabilitation.

IV B.P.Th.

SYLLABUS

Transcript Hrs – 1465

Sr. No.	Subjects	Theory Hours	Practical / Clinical Hours	Total Hours
	PROFESSIONAL PRACTICE			
1	Professional Practice & Ethics *(College Examination)*	015	--	015
2	Administration, Management & Marketing *(College Examination)*	020	--	020
	PHYSIOTHERAPY			
3	Musculoskeletal Physiotherapy	060	140	200
4	Neuro Physiotherapy	065	135	200
5	Cardiovascular-Respiratory Physiotherapy (Including Critical Care)	060	140	200
6	Community Physiotherapy	085	115	200
7	Principles of Bio-engineering *(College Examination)*	030	-	030
8	Research Methodology & Biostatistics *(College Examination)*	040	-	040
9	Seminar (including I.C.F.)	-	060	060
10	Supervised clinical practice - During each clinical assignment, the student shall evaluate, functionally diagnose, plan & practice clinical skills on patients in consultation with the qualified physiotherapist staff	-	500	500
TOTAL		**375**	**1090**	**1465**

PROFESSIONAL PRACTICE AND ETHICS

(COLLEGE EXAMINATION)

Total - 60Hrs (I to IV year)

COURSE DESCRIPTION :

Thissubjectwillbetaughtincontinuumfromfirstyeartofinalyear.Anexaminationwillbeconducted only in final year. Professional and ethical practice curriculum content addresses the Knowledge, SkillsandBehavioursrequiredbythephysiotherapistinarangeofpracticerelationshipsandroles. The course will discuss the role, responsibility, ethics administration issuesand accountability

of the physical therapists. The course will also cover the history and change in the profession, responsibilities of the professional to the profession, the public and to the health care team. This includes the application of professional and ethical reasoning and decision-making strategies and professional communication.

Sr. No.	Topics	I B.P.Th.	II B.P.Th.	III B.P.Th.	IV B.P.Th.	Total Hours
1	PROFESSIONAL ISSUES & ETHICS	15 hrs	15 hrs	15 hrs	15 hrs	60

OBJECTIVES :

At the end of the course, the student will be compliant in following domains:

COGNITIVE :

The student will

1. Beabletounderstandthemoralvaluesandmeaningofethics.
2. Be able to learn and apply ethical code of conduct in fields of clinical practice, learning, teaching, research and physiotherapist-patientrelationship.
3. Acquirebedsidemannersandcommunicationskillsinrelationwithpatients,peers, seniors and other professionals.
4. Will acquire the knowledge of the basics in Managerial & Management skills, & use of information technology in professionalPractice.

PSYCHOMOTOR :

The student will be able to:

1. Develop psychomotor skills for physiotherapist-patientrelationship.
2. Develop the skill to evaluate and make decisions for plan of management based on sociocultutural values and referralpractice.

AFFECTIVE:

The student will be able to:

1. Developbehavioralskillsandhumanitarianapproachwhilecommunicatingwithpatients, relatives, society andco-professionals
2. Develop bedside behavior, respect & maintain patients'confidentiality.

SYLLABUS

Sr No.	Topics	Didactic Hours (40 hrs)	Visits/ Supervision Hours (20 hrs)	Total Hours (60 hrs)	Must Know	Nice To Know	Desirable to know
I B.P.Th.	1. Introduction to the history of Physiotherapy.	2			2		
	2. Orientation to the curriculum, clinical areas and geographical location.	3			3		
	3. Concept of morality and ethics	3	5	15	8		
	4. Concept of professionalism and Professional dress code	2			2		
II B.P.Th.	1. Ethical code of conduct	3			3		
	2. Communication skills						
	a. Physiotherapist –Patient Relationship	1	10	15	11		
	b. INTERVIEWING -Types of interview, Skills of Interviewing	1				1	

III B.P.Th.	1. Collecting data on psychosocial factors in Medicine, Surgery, Reproductive Health, Paediatrics	4			4		
	2. Inter professional communication.	3				3	
	3. Ethics in clinical practice	3	5	15	8		
IV B.P.Th.	1. Roles of Physiotherapist as patient manager, Consultant,Critical inquirer,Educator,Administrator	5			5		
	2. Laws and regulations	2				2	
	3. Professional development, competence and expertise	2			2		
	4. Professional bodies	2			2		
	5. Ethics in Research	1	---	15	1		
	6. Ethics in Teaching	2			2		
	7. Role of W.C.P.T. & Council	1			1		
TOTAL		**40**	**20**	**60**			

RECOMMENDED REFERENCE LITERATURE

1. Rules&RegulationofIndianAssociationofPhysiotherapists
2. W.C.P.T.ethics (from theirwebsite)
3. GazetteofMaharashtraCouncilforOccupationaltherapists&Physiotherapists

SCHEME OF COLLEGE EXAMINATION

THEORY ONLY [There shall be no LAQ in this paper] * The question paper will give appropriate weightage to all the topics in the syllabus.		**Marks** 50
Section A-Q-1	MCQs – based on **MUSTKNOW**area [20X1]	20
Section-B-Q-2 & Q3	SAQ-toAnsweranyTHREEoutofFOUR [3 x5]	15
	SAQ – to Answer any THREE out of FOUR [3 x 5]	15
Total Marks		**50**
Passing in the examination is Mandatory Grades: A+ = 75% & above, A = 66 to 74.5%, B + = 55 to 65 %, B = 50 to 54.5%, C = less than50%.		

ADMINISTRATION, MANAGEMENT & MARKETING

(COLLEGE EXAMINATION)

Total – 20 HRS

COURSE DESCRIPTION :

This curriculum content addresses the Knowledge, Skills and Behaviours required of the physiotherapist in a range of practice relationships and roles. The course will discuss the role, responsibility, administration issues of the physiotherapists. The course will also coverresponsibilities of the professional to the profession, the public and to the health care team. This includes the application of professional and ethical reasoning and decision-making strategies, professional communication,reflectivepracticestrategiesandpersonalmanagementissues(stress,work-life balance).Factorsthatinfluenceindividualpracticeareaddressed,includingtheavailabilityand accessibility of local health care resources as well as the ethical, legal and regulatory requirements of practicing the physiotherapy profession in a given jurisdiction.

OBJECTIVES:

At the end of the course the student will be compliant in following domains:

COGNITIVE:

The student will:

a. Learn the management basics in fields of clinical practice, teaching, research and physiotherapy practice in thecommunity.
b. Acquirecommunicationskillsinrelationwithpatients,peers,seniorsandother professionals & the community.
c. Acquire the knowledge of the basics in Managerial & Management skills, & use of Information technology in professionalPractice

PSYCHOMOTOR:

The student will be able to:

a. Develop psychomotor skills for physiotherapypractice.
b. Develop skill to evaluate and make decision for plan of management based on socio cultural values and referralpractice.

AFFECTIVE:

The student will be able to:
Developbehavioralskillsandhumanitarianapproachwhilecommunicatingwithpatients,relatives, society at large and co-professionals.

SYLLABUS

Sr. No.	Topics	Didactic Hours (20 Hrs)	Must Know	Nice to Know	Desirable to Know
1.	Management studies related to–local health care organization Management & structure, planning delivery with quality assurance & funding of service delivery information technology career Development in Physiotherapy.	05	5		
2.	Administration-principles-based on the Goal & functions-at large hospital set up / domiciliary services/ private clinic/academics	03	3		
3.	Methods of maintaining records	02	2		
4.	Budget-planning	03	3		
5.	Performance analysis--physical structure / reporting system [man power / status / functions / quantity & quality of services/turn over-cost benefit revenue contribution	03		3	
6.	Setting up Therapeutic gymnasium, Fitness clinics, Cardiac and Pulmonary Rehab centers etc.	02	2		
7.	Time management	02	2		
TOTAL		**20**			

RECOMMENDED REFERENCE BOOK

1. Administration for Physiotherapists-Pai
2. Principles of Hospital Administration-Sakharkar

SCHEME OF COLLEGE EXAMINATION

THEORY 50MARKS [There shall be no LAQ in this paper] * The question paper will give appropriate weightage to all the topics in the syllabus.		**Marks** 50
Section A-Q-1	MCQs – based on MUSTKNOWarea [20x1]	20
Section-B-Q-2 & Q3	SAQ-toAnsweranyTHREEoutofFOUR [3 x5]	15
	SAQ – to Answer any THREE out of FOUR [3 x 5]	15

Total Marks	**50**
Passing in the exam is Mandatory Grades: A+ = 75% & above, A = 66 to 74.5%, B + = 55 to 65 %, B = 50 to 54.5%, C = less than 50%.	

MUSCULOSKELETAL PHYSIOTHERAPY

(Didactic - 60 hours + Practical-140 hours) **TOTAL: 200 HOURS**

COURSE DESCRIPTION :

This course includes a study of applied anatomy and physiology of the musculo-skeletal system alongwithpathologicalchangesandpatho-mechanicsofthesystem.Itdiscussesrelevanttestsand measuresfordeterminingimpairmentanddifferentiatingthediagnosisbasedonthespecificity andsensitivityoftheassessmentinstrumentsasrelatedtopatientswithdisordersofthemusculo-skeletal system.

Musculo-skeletal Physiotherapy focuses on maximizing functional independence and well-being. Thecourseusesapatient-centeredmodelofcarewithmulti-systemassessment,evidencebased interventions and a significant patient education component to promote ahealthy, active lifestyle and community-based living.

The candidate will have a sound understanding of theory, scientific evidence and best practices in the areas of the Musculo-skeletal System including Movement Sciences, Psychosocial Sciences and Physiotherapy.

Sr. No.	Topics	Didactic Hours	Clinical Hours
	Must Know		
1.	Use of ICF model in physiotherapy management of health condition of musculoskeletal system	02	00
2.	Outcome measures – and Evidence Based Practice	02	00
3.	Biomechanical / Physiological basis of physiotherapy intervention skills	04	05
4.	Physiotherapy interventions with goal setting for dysfunctions due to musculoskeletal health conditions secondary to conservative or surgical management of:		
	Manifestations of trauma and their complications	22	50
	Degenerative Arthritis	07	45
	Inflammatory conditions	04	05
	Infectious Diseases of bones & joints	02	05
	Metabolic & Hormonal Disorders	02	05
	Congenital & Acquired Deformities	06	10
	Peripheral Nerve Injuries & Plexus Injuries	03	05
	Tumours of bone, Vascular disorders and Traumatic Amputations	06	10
TOTAL		60	140

OBJECTIVES:

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

COGNITIVE:

a) Identify,evaluate,analyze&discussprimaryandsecondarymusculo-skeletaldysfunction, basedonbiomechanical,kinesiological&patho-physiologicalprinciples.

b) Correlate the same with radiological, electrophysiological, biochemical/ haematological investigations as applicable & arrive at the appropriate Physiotherapy diagnosis with skillfulevaluationofstructureandfunctionwithclinicalreasoning.

c) Understand the pharmaco-therapeutics, its interaction with physiotherapeutic measures and modify physiotherapeutic interventionappropriately.

d) Apply knowledge of psychosocial factors (personal and environmental factors in the context of disability associated with the musculo-skeletal system or multiple body systems)forbehavioralandlifestylemodificationanduseappropriatetrainingandcoping strategies.

PSYCHOMOTOR:

a) Apply theoretical basis of physiological effects, indications, contraindications; and best availableevidenceontheeffectiveness,efficacyandsafeapplicationguidelinesforafull rangeofphysiotherapeuticstrategiesandinterventions,includingappropriatemodesof soG tissue & joint mobilization, electrotherapy, therapeutic exercise, andappropriate ergonomicadvisethatcanbeemployedtomanageproblemsoftheindividual'sstructures, functions, activities and participation, capacity and performance levels associated with themusculo-skeletalsystem,forreliefofpain&prevention,restorationandrehabilitation measuresformaximumpossiblefunctionalindependenceathome,workplaceandin community.

b) Prescribe and train for appropriate orthoses, prostheses and walking aids based on musculoskeletaldysfunction.

AFFECTIVE:

Acquire ethical skills by demonstrating safe, respectful and effective performance of physical handling techniques taking into account the patient's clinical condition, the need for privacy, the physiotherapist, the resources available and the environment

SYLLABUS

Sr. No	TOPICS	Didactic Hours	Practical Hours	Total Hours	Must know	Desirable to know	Nice to know
1	Use of ICF model (Bio, Psycho and Social) to plan Short term and Long-term goals in physiotherapy management of health condition of musculoskeletal system a. Identification of short term and long term goals based on i) Capacity and Performance related to activities and participation to enhance functioning ii) Personal and Environment factors -facilitators and barriers that affect disablement and functioning b. Documentation of disability and functioning c. Red flags- Recognizing signs and symptom	02	-	02	02		
2	Introduction to functional scales as outcome measures–Generic and Disease specific.	01	-	01		01	
	Evidence base practice in musculoskeletal health conditions- levels of evidence, clinical application	01	-	01		01	
3	Biomechanical/Physiological basis of following modes physiotherapy interventions implemented during all three stages of tissue healing-						
	a. Electrotherapeutic modes for pain- acute and chronic pain syndromes, swelling, wound healing, re- education	01	00	01	01		
	b. Therapeutic exercise to alleviate pain, increase mobility, muscle performance (strength) endurance, motor control, muscle length, posture and gait training	02	00	02	02		
	c. Taping techniques for pain relief, support and posture correction i. Principles ii. Indications /Contraindications iii. Types of tapes and terminologies used iv. Techniques	01	05	06	06		
4	The following topics are applicable to all conditions related to musculoskeletal dysfunction throughout lifespan in acute care setting, hospital, chronic	-	-	-	-	-	-

	conditions at home and in community on the basis of: 1. Evaluation, interpretation of investigations and appropriate clinical reasoning for Functional diagnosis (ICF). 2. Evidence-based analysis of tools and techniques, (including Quality of Life questionnaires), and planning, prescription & implementation of short term & long term goals of Physiotherapy with appropriate documentation of the same. 3. Applicationofappropriateelectrotherapeuticmodesforreliefofacute&chronicpain,welling and for wound healing, muscle/ movement re-education etc. with clinical reasoning. 4. Application of appropriate exercise therapeutic modes for improving joint mobility, muscle strength & endurance and motor control. 5. Applicationofadvancedtherapeuticmodesofmanualmobilizationtechniques(non- thrust techniques to be applied on extremities only), Friction Massage, Myofascial release, Muscle Energy Techniques and Neuro Dynamic Techniques on patients. 6. Application of appropriate therapeutic exercise using therapeutic gymnasium tools as and when indicated, for relief of pain, enhancing structural stability, strength &endurance, and functional maintenance &/ or restoration including posture correction and gait training including preventive measures. 7. Prescription of appropriate orthotic & prosthetic devices. 8. Various taping techniques for support & pain relief; principles, indications, contra-indications, types of tapes used & relevant terminology. 9. Appropriate Home Program & Ergonomic advise for preventive measures & functional efficiency at home, work place and during recreation. Advice to Parents &Care Givers.						
5	Physiotherapy interventions with goal setting for dysfunctions due to impairments of Pain,Mobility,Muscleperformance(Strength),Endurance,MotorControl,Musclelength, Posture and Movement Balance and Gait for common health						

	conditions secondary to conservative or surgical management of the following regions, with appropriate consideration of red flags:						
	1**. Manifestations of trauma and their complications:**	16	40	56			
	a. Bones – fractures & fracture-dislocations of extremities & spine and their complications & management	08	20		20		
	b. Soft tissues injuries of extremities & spine and their complications & Management, contused lacerated wounds (CLWs) Burns complications and management, Crush injuries and its conservative and post surgical management.	08	20		20		
	2. Degenerative Arthritis a. Osteoarthritis of knee b. Peri-arthritis of shoulder c. Spinal degenerative conditions like Sponylosis, Spondylysis, Spondylolisthesis, and Spinal Canal Stenosis.	07	45	52	52		
	3. Inflammatory conditions a Rheumatoid, Gouty, Septic arthritis b Spondylo-arthropathies e.g. Ankylosing Spondylitis. c Cellulites and its complications. d Post incisional inflammation and infection. e Myositis ossificans and traumatic. f Avascular necrosis	04	05	09	09		
	4. Infectious Diseases of bones & joints of extremities &spine a Tuberculosis b. Osteomyelitis	02	05	07			
	5. Metabolic & Hormonal Disorders a. Osteoporosis b. Osteomalacia	02	05	07	07		
	6. Congenital & Acquired Deformities of extremities & spine a. CTEV c. DDH b. Kyphosis d. Scoliosis e. Genu valgus / varus f. Cubitus varus / valgus g. Coxa vara /valga etc. h. Deformities of the foot	06	10	16	16		
	7.Peripheral Nerve Injuries & Plexus Injuries- complications & management	03	05	08	08		
	8. Soft tissue injuries during sports and as a result of Over-use: conservative and operative management	04	05	09	09		

	9**. Musculo-skeletal complications in Cerebral Palsy & Poliomyelitis and reconstructive surgeries.**	02	05	07	07		
	10. Tumours of bone tissue.	01		01		01	
	11. **Vascular disorders affecting musculoskeletal system-** V.I.C., C.R.P.S., Compartment syndrome	01	02	03		03	
	12. Traumatic Amputation Types Complications and management inclusive of prosthetic prescription &training	04	08	12	12		

CLINICAL:

SUPERVISED CLINICAL PRACTICE:
During this supervised clinical practice, student should be able to successfully execute the competencies in assessment, Functional diagnosis on ICF basis, plan of care and therapeutic interventions relating to musculo-skeletal dysfunctions. Student should become familiarwith performance of these skills in all settings (inpatient and outpatient) as well as on all types of conditions (surgical, non-surgical, paediatric and geriatric). Student should learn to perform theseskillsobjectivelyunderthesupervisionoftrainedphysicaltherapists.Studentisrequiredto keepaperformancerecordofalllistedcompetenciesduringtheclinicalpracticeandsuccessfully performonrealpatientsduringthefinalevaluationofthecourse.
CLINICAL COMPETENCIES:
COMPETENCY IN ASSESMENT AND CLINICAL REASONING: Student should be able to apply the ICF framework in selecting measurement tools to ensure a holisticapproachtoevaluationofbodystructureandfunction,activities,participation;andselect andadministerassessment/evaluationtoolsandtechniquessuitableforthepatient'sproblems and condition(s) based on the best available evidence and interpret the information obtained demonstratingevidence-baseddecision-makingandsafehandlingtechniquesuchas: **1.** Risk factor screening (Red flags &Yellow flags). **2.** Assessment of Musculo-skeletal dysfunction. **3.** Interpretation of Radiological, Electrophysiological, Haematological and Biochemical investigations. **4.** Aerobic fitness and Functional performance testing as appropriate **5.** Identificationandquantificationofenvironmentalandhomebarriersandfacilitators **6.** Identification and analysis of body mechanics during self-care, home management, work, community, tasks, or leisure activities. **7.** Identificationandanalysisofergonomicperformanceduringwork(job/school/play): **8.** AssessmentofQualityofLifethroughuseofappropriatequestionnaireandgenericordisease-specific scales (nice to know) **9.** Identificationandprioritizationofimpairmentsinbodyfunctionsandstructures,andactivity limitations and participation restrictions to determine specific body function and structure, andactivitiesandparticipationtowardswhichtheinterventionwillbedirected **10.** State the evidence (patient/clienthistory,labdiagnostics,testsandmeasuresandscientific literature) to support a clinical decision. **11.** Determine the predicted level of optimal functioning and the time required to achieve that level. **12.** Recognize barriers that may impact the achievement of optimal functioning within a predicted time frame and ways to overcome them when possible.

B. COMPETENCY IN DEVELOPING PLAN OFCARE:

Student should be able to:

1. Identify patient goals and expectations.
2. Design a Plan of Care with measurable functional goals(short-term and long-term) that are prioritized and time bound.
3. Consultpatientand/orcaregiverstodevelopamutualagreementregardingtheplanofcare.
4. Identifyindications/additionalneedsforconsultationwithotherprofessionals&appropriate referrals.
5. Selecttheinterventionsthataresafe,realisticandmeetthespecifiedfunctionalgoalsand outcomes in the plan of care: (a) identify precautions and contraindications, (b) provide evidence for patient-centered interventions that are identified and selected, (c) define the specificityoftheintervention(time,intensity,duration,andfrequency).
6. Measureandmonitorpatientresponsetointerventionandmodifyelementsoftheplanof careandgoalsinresponsetochangingpatient/clientstatus,asneeded.
7. Establishcriteriafordischargebasedonpatientgoalsandcurrentfunctioninganddisability.

C.

COMPETENCYINPHYSIOTHERAPEUTICINTERVENTION: Importantinfluence sonMusculo skeletal physiotherapy management choices may include but not limitedto:

1. Diversesettingsofcareincludingcritical,acute,longterm,rehabilitation,andcommunitycare;
2. Lifespan issues ranging from the neonatal stage to those associated withaging;

1. Life style modification for diseases and forprevention
2. Skillofapplicationofphysicalandelectricalagentsforreliefofacute&chronicpainand swelling.
3. Facilitation,re-educationandtrainingofmusclestrength,endurance&motorcontrol,posture and gait through skillful use of various therapeutic exercise techniques with appropriate therapeutic gymnasiumequipment.
4. Skillofapplicationoftherapeuticmodesofimprovingjointmobilityandsoftissueflexibility likejointmobilizationtechniquesandsoftissuetechniqueslikeMuscleEnergyTechniques, Myofascial Release, Friction Massage, Neuro Dynamic Techniquesetc.
5. Functional training in self care, home, work (job, school and play), community and leisure activities

DOCUMENTATION

Presentation&Documentationof8Cases(4traumas,4cold)forpatientmanagementusingICF model asfollowing:

(Assessment, Evaluation, Diagnosis, Prognosis, Intervention, Outcome)

1. SoftTissue lesion
2. Fractures of upper Limb (Including HandInjury),
3. Fractures of lowerlimb,
4. Fractures of spine with/without Neurologicalcondition
5. Degenerative/Inflammatoryarthritisofperipheralskeletaljoint
6. Degenerative /inflammatory arthritis ofSpine
7. Musculoskeletal condition of Hand &Foot

Amputation

RECOMMENDED TEXT BOOKS

1. Therapeutic Exercise -O'Sullivan
2. Orthopaedic Physical Therapy- Donatelli
3. Cash's Textbook of Orthopedics & Rheumatology forPhysiotherapists
4. Tidy's Physical Therapy
5. ManualMobilizationofExtremityJoints–Kaltenborn
6. Therapeutic Exercise: Foundations and Techniques - Kolby & Carolyn Kisner Physical Rehabilitation - SusanO'sullivan

RECOMMENDED REFERENCE BOOKS

1. ManualTherapy:Nags,Snags,MWMs,etc-6thEditionBrianRMulligan
2. Maitland's Peripheral Manipulation EllyHengeveld
3. Neural tissue mobilization –Butler

4 Brukner&Khan'sClinicalSportsMedicine-PeterBrukner,KarimKhan(McgrawMedical)
5 TherapeuticExercise:MovingTowardFunction-CarrieM.Hall,LoriTheinBrody
6 ManualMobilizationofExtremityJoints–Kaltenborn
7 Neural Tissue Mobilization -Butler
8 Taping Techniques –Rose MacDonald
9 Clinical Orthopaedicrehabilitation-Broadsman

SCHEME OF UNIVERSITY EXAMINATION

THEORY 80 MARKS + I.A. – 20 MARKS * The question paper will give appropriate weightage to all the topics in the syllabus.		**Marks** **100**
Section A – M.C.Qs.	Q.1 -MCQs [20 x1=20]	**20**
Section B- B.A.Q.	Q.2 - Answer all of the following. (10 Questions) [10 x 2 =20]	**20**
S.A.Q.	Q. 3- Answer any 4 out of 5. [4 x 5 =20]	**20**
L.A.Q.	Q. 4 - Answer any 2 out of 3 [2 x 10 =20]	**20**
	Structured question based on ICF model with goal setting and physiotherapeutic intervention LAQ should give break up of 10 marks e.g.(2+3+5)	
	Q-4. – a. Based on traumatic conditions of upper limb or lower limb **OR** b. Based on non-traumatic conditions of upper limb or lower limb **OR** c. Based on traumatic or non-traumatic conditions of spine	
Total Marks		**80**

MCQs : 20	**BAQs: 20**	**SAQs: 20**	**LAQs: 20**
MK – 12 DK – 06 NK – 02	MK – 06 DK – 03 NK – 01	MK – 03 DK – 01 NK – 01	MK – 03 DK – 00 NK – 00

PRACTICAL 80 MARKS + I.A. – 20 MARKS		**Marks** **100**
LONG CASE	a. Subjective and Physical Examination -10marks b. Evaluation and Physical therapy diagnosis(ICF)–10marks c. Plan of care - Goal setting – 10marks d. Demonstration of any one important test and treatment intervention on patient –15marks [Student will be evaluated in cognitive, psychomotor and affective domains.]	**45**
SHORT CASE	One Short case on: Demonstrations of two physiotherapy intervention skills for effective patient management 2 x 10marks	**20**
SPOTS	5 spots - (5 x2 Marks= 10 Marks) 3 minutes for each spot X– ray of extremities and spine, Orthoses, Prostheses, Metal Implant	**15**
JOURNAL	Documentations- Assessment, Evaluation, Diagnosis, Prognosis, Intervention of Case along with ICF	**5**
Total Marks		**80**

INTERNAL ASSESSMENT:

1. Two examinations – Terminal and preliminary examination (Theory & Practical) of 80 marks each TOTAL - 160marks
2. Internal Assessment to be calculatedout of 20 marks.
3. InPracticalsofTerminal&Preliminaryexaminations,Spotswillbeof15marksinstead of 10 marks (3 marks X 5)
4. Internal assessment (Theory) as perUniversity pattern.

NEUROPHYSIOTHERAPY

(Didactic 60 hrs + Clinical 140 hrs) TOTAL 200 HRS

COURSE DESCRIPTION:

This course includes a study of applied anatomy and physiology of the neuromuscular system alongwiththepathologicalchangesandpatho-mechanicsofthesystem.Itdiscussesrelevant testsandmeasuresfordeterminingimpairmentanddifferentiatingthediagnosisbasedonthe specificityandsensitivityoftheassessmentinstrumentsasrelatedtopatientswithdisordersof the neuromuscular system.

Neurophysiotherapy curriculum emphasizes the selection and use of measurement tools and management techniques based on the best available evidence. Physiotherapy strategies for assessment and treatment address structural & functional impairments and activitylimitations ofindividualsandpopulation(bothadults&paediatric)inthecontextoftheirpersonalneeds/ goalsincludingparticipationrestrictionsandtheenvironmenttheylivein.Thepermanenceof many neurological impairments mandates that, where possible, emphasis is placed on prognosis and criterion – referenced outcomes to establish realistic goals.

The therapeutic approach is patient and family focused with a bio psychosocial emphasis that embraces inter professional collaboration and requires ongoing communication, education and negotiation with the client, family, care giver and healthcare team.

Sr. No.	Topics	Didactic Hours	Practical Hours	Total Hours
1.	**APPLICATION OF ICF MODEL**	**02**		**002**
2.	**THEORETICAL BASIS OF MOTOR CONTROL AND LEARNING**	**02**		**002**
3.	**ADAPTIVE SYSTEM : PLASTICITY AND RECOVERY**	**01**		**001**
	GENERAL METHODS OF STRENGTH TRAINING,FITNESS AND PROMOTION OF SKILL ACQUISITION	**04**		**004**
4.	**QUALITY OF LIFE SCALES AND INDEPENDENCE MEASURE**	**02**		**002**
5.	**PHYSIOTHERAPY MANAGEMENT**			
	A. ADULT	**37**	**095**	**132**
	B. PAEDIATRIC	**17**	**040**	**057**
TOTAL		**65**	**135**	**200**

OBJECTIVES:

At the end of the course, student will

COGNITIVE:

a. Be able to identify and analyze movement dysfunction due to neuromuscular skeletal disorders in terms of biomechanical and biophysical basis, correlate the same with the health condition, routine electrophysiological, radiological and biochemical investigations, andarriveatappropriatephysicaltherapydiagnosisusingWHO-ICFwithclinicalreasoning.
b. Be able to plan realistic goals based on the knowledge of prognosis of thedisease of the nervous system and prescribe appropriate, safe evidence based physiotherapy interventions with clinical reasoning.
c. Understandinfectioncontrolprinciples,bestpracticesandtechniquesapplicabletoa range of setting where clients with neurological conditions would receive physiotherapy services.
d. Knowdeterminacyofhealth(environmental,nutritional,self-management/behavioral factors) and chronic disease management principles related to neurological health.

PSYCHOMOTOR:

1. Beabletodeveloppsychomotorskillstoimplementtimelyandappropriatephysiotherapy assessmenttools/techniquestoensureaholisticapproachtopatientevaluationinorder to prioritize patient'sproblems.
2. Be able to select timely physiotherapeutic interventions to reduce morbidity and physiotherapy management strategies, suitable for the patients' problems and indicator conditionsbasedonthebestavailableevidence.
3. Implement appropriate neuro-physiotherapeutic approaches, electrotherapeutic modalities, joint and soGtissue mobilizations and ergonomic advice for neuromuscular skeletal systems, contextual factors to enhance performance of activities andparticipation in society.

AFFECTIVE:

Be able to develop behavioral skills and humanitarian approach while communicating with patients, relatives, society and co-professionals, to promote individual and community health.

SYLLABUS

SYLLABUS

Sr. No.	Topics	Didactic Hours	Practical Hours	Total Hours	Must know	Desirable to know	Nice to know
1.	Features of ICF model (bio, psycho and social) to plan efficient, effective and cost-contained short term and long term goals to enhance functioning in a patient with health condition of nervous system. a. Clinical utility of bi-directional relationships among the ICF model'sdomain b. Environment and Personal factors- Facilitators and Barriers that affect disablement and functioning c. Capacity and Performance related Activities and Participation to enhance Functioning d. Set patient specific goals and expected out come with clinical reasoning e. Documentation of disability and functioning Red flags-recognizing signs and symptoms	2	--	2	2		
2.	Theoretical basis of motor control and learning to understand various neuro physiotherapeutic approaches.	2	--	2	2		
3.	a. Plasticity of the intact brain i. motorlearning ii. training iii. plasticity Plasticity following brain lesion · nature of spontaneous recovery · effect of environment behavior and recovery · adaptation of motor performance · muscle adaptation	1	--	1	1		
	b. Strength training and physical conditioning in neuro rehabilitation to optimize functional performance	2	--	2	2		
	c. Skill acquisition in restoration of functional performance · information, instruction, demonstration · feedback · practice	2	-	2	2		

4	Quality of Life scales & Independence Measures	2	--	2	2		
5	The following topics are applicable to all conditions related to Neuromuscular dysfunction throughout life's pan in acute care setting, hospital, chronic conditions at home and in community on the basis of: 1 Evaluation, interpretation of investigations and appropriate clinical reasoning for Functional diagnosis (I.C.F.) 2 Evidence basedanalysisoftoolsandtechniques,(includingQualityofLifequestionnaires),and planning,prescription&implementationofshortterm&long termgoalsofPhysiotherapywith appropriate documentation of the same. 3. Manifestationofmovementdysfunctionfollowingdiseaseor traumaofthecentralorperipheral nervoussystem. a. Bed mobility b. lying tositting c. standing up and sittingdown d. walking e. balance f. reaching g. manipulation 4. Selecting appropriate assessment/evaluation tools and techniques suitable for the patients health condition and key indicators and interpret information obtained demonstrating evidence based decision making-use of biomechanical measures, generic scales/instruments tomeasure arousal,cognition,sensation,tone,strength,locomotionandbalance,upperextremityfunction, anxietyanddepression,qualityoflifeandindependence,Self assessmentandselfefficacyscales and common disease specific scales. · GCS · Mini Mental State Examination · Ashworth scale · Gait-D.G.I. · Balance- BBS, Functional Arm Reach Test. · T.U.G. · Barthel A.D.L .index · SF –36 · Disease specific measures–S.T.R.E.A.M., Brunnstrom,						

	Fugl–Meyer assessment .A.S.I.A. Scale, U.P.D.R.S., E.D.S.S.						
6	**PHYSIOTHERAPY MANAGEMENT – ADULT** Planning of short term and long term goals in accordance with ICF for all the conditions in neurosciences by doing detail assessment and appropriate outcome measures and planning evidence based treatment program-for key indicator conditions						
	a. Stroke – cerebral circulation, types of stroke and manifestations, assessment and management	08	10	18	10	08	
	b. Acquired brain injury; trauma and pathology (S.O.L.)	03	05	08	08		
	c. Spinal cord disorders – traumatic and non–traumatic, management including bladder training	04	08	12	12		
	d. Peripheral neuropathies–traumatic & non traumatic • upper limb & lower limb • brachial plexus • nerve root lesions • metabolic &endocrine	06	08	14	14		
	e. Vestibular disorders – central and peripheral	02	05	07		07	
	f. VII th cranial nerve	01	04	05		05	
	g. Demyelinating diseases - Multiple Sclerosis & G.B. syndrome	02	05	07		07	
	h. Extrapyramidal diseases, with emphasis on Parkinson's disease	03	15	18	18		
	i. Anterior Horn Cell diseases – heredity and acquired e.g. M.N.D., P.M.A., S.M.A., Poliomyelitis	02	05	07		05	02
	j. Myopathies	02	10	12		10	02
	k. Disorders of A.N.S. – Horner's syndrome, Hypo/Hypertension, Autonomic Dysreflexia	01	05	06		05	01
	l. Psychosomatic pain & paralysis	01	05	06		06	
7	Treatment programme includes: 1. Application of appropriate electro therapeutic modes for relief of pain and functional re-education with clinical reasoning. 2. Application of skills as Neurotherapeutic approaches (Brunnstrom,Roods,Bobath,N.D.T., M.R.P., mental						

	imagery, Constraint induced movement therapy, learning transfers), co ordination and balancing exercise by using techniques based on Neurophysiological principles. 3 Tools and adaptive equipments used for neuro-rehabilitation like Vestibular balls Tilt boards, Bolsters, Wedges, Graded Benches, Therapeutic mats etc. 4 Application of transfer and functional re-education exercise, postural exercise and gait training. 5 Bladder and bowel training 6 Developing a philosophy for caring 7. Prescriptionforappropriateorthoticdevicesandfabricationof temporarysplints 8 Living techniques, wheel chair modifications, adaptive devices Ergonomic advice for prevention/rehabilitation for the patients as well as for parents/care givers education about handling of patients.						
8	**PHYSIOTHERAPY MANAGEMENT – PAEDIATRIC** Knowledge of developmental neurology, plasticity in development, Etiology, Pathophysiology of common neuropaediatric conditions, impairment, clinical reasoning, goal setting & P.T. management. More emphasis should be given on physiotherapy management skills.						
	1. Cerebral palsy -etiology and type -assessment -differential diagnosis -management	08	10	18			
	2. Down's syndrome	01	05	06	06		
	3.Neuraltubedefects:SpinaBifidaand Hydrocephalus	02	10	12	12		
	4. Brachial plexus injuries	01	02	03		03	
	5. Infectious disorders	01	01	02	02		
	6. Post Poliomyelitis Residual Paralysis	01	01	02			02
	7. D.M.D. & other Myopathies	01	05	06		06	
	8. S.M.A. / H.S.M.N.	01	01	02			01
	9. Pediatric extra pyramidal disorders	01	05	06		06	

CLINICAL

SUPERVISED CLINICAL PRACTICE:

Duringthesupervisedclinicalpractice,studentshouldbeabletosuccessfullyexecutethecopetencies inassessment,physicaldiagnosisonICFbasis,planofcareandtherapeuticinterventionsrelating to neuromuscular dysfunctions. Student should become familiar with performance of these skillsinallsettings(inpatientandoutpatient)aswellasonalltypesofconditions(surgical,non-surgical,pediatricandgeriatric).Studentshouldlearntoobjectivelyperformtheseskillsunderthe

supervision of trained physical therapists. Student is required to keep a performance record of all listedcompetenciesduringtheclinicalpracticeandsuccessfullyperformonrealpatientsduringthe final evaluation of thecourse.

CLINICAL COMPETENCIES:

A] OMPETENCYINASSESMENTAND CLINICALREASONING:

Student should be able to apply the ICF framework in selecting measurement tools to ensure a holistic approach to evaluation of body structure and function, activities , participation;and select and administer assessment/evaluation tools and techniques suitable for the patient's problemsandcondition(s)basedonthebestavailableevidenceandinterprettheinformation obtaineddemonstratingevidence-baseddecision-makingandsafehandlingtechniquesuchas:

1. Risk factor screening (Red flags &Yellowflags).
2. Assessment of Neuromusculardysfunction.
3. InterpretationofRadiological,Electrophysiological,HematologicalandBiochemicalinvestigations.
4. Identificationandquantificationofenvironmentalandhomebarriersandfacilitators
5. Identification and analysis of body mechanics during self-care, home management, work, community, tasks, or leisureactivities.
6. Identificationandanalysisofergonomicperformanceduringwork(job/school/play):
7. AssessmentofQualityofLifethroughuseofappropriatequestionnaireandgenericordisease- specific scales (nice toknow)
8. Identification and prioritization of impairments in body functions and structures, and activity limitationsandparticipationrestrictionstodeterminespecificbodyfunctionandstructure,and activitiesandparticipationtowardswhichtheinterventionwillbedirected
9. State the evidence (patient/client history, lab diagnostics, tests and measures and scientific literature) to support a clinicaldecision.
10. Determinethepredictedlevelofoptimalfunctioningandthetimerequiredtoachievethatlevel.
11. Recognizebarriersthatmayimpactheachievementofoptimalfunctioningwithinapredicted time frame and ways to overcome them when possible.

B] COMPETENCY IN DEVELOPING PLAN OFCARE:

Student should be able to:

1. Identify patient goals andexpectations.
2. DesignaPlanofCarewithmeasurable,prioritizedandtimeboundfunctionalgoals(short-term andlong-term)
3. Consultpatientand/orcaregiverstodevelopamutualagreementregardingtheplanofcare.
4. Identifyindications/additionalneedsforconsultationwithotherprofessionals&appropriate referrals.
5. Select the interventions that are safe, realistic and meet the specified functional goals and outcomesintheplanofcare:-(a)identifyprecautionsandcontraindications,(b)provideevidence for patient-centered interventions that are identified and selected, (c) define the specificity of the intervention (time, intensity, duration, andfrequency).
6. Measureandmonitorpatientresponsetointerventionandmodifyelementsoftheplanofcare and goals in response to changing patient/client status, asneeded.
7. Establishcriteriafordischargebasedonpatientgoalsandcurrentfunctioninganddisability.

C] COMPETENCY IN PHYSIOTHERAPEUTICINTERVENTION:

Importantinfluencesonneuromuscularphysiotherapymanagementchoicesmayincludebut not limitedto:

1. Diversesettingsofcareincludingcritical,acute,longterm,rehabilitation,andcommunitycare;
2. Lifespan issues ranging from the neonatal stage to those associated withaging
3. Life style modification for diseases and forprevention.
4. Skillofapplicationofphysicalandelectricalagentsforreliefofacute&chronicpainandswelling.
5. Facilitation,re-educationandtrainingofmusclestrength,endurance&motorcontrol,postureand gaitthroughskillfuluseofvarioustherapeuticexercisetechniqueswithappropriatetherapeutic gymnasiumequipment.
6. SkillofapplicationofNeurotherapeuticmodesofimprovingneuromuscularstrength,endurance, movement control,coordination.
7. Functionaltraininginselfcare,home,work(job,schoolandplay),communityandleisureactivities

CLINICAL SKILLS:

Learningoffacilitatoryandinhibitory Neurotherapeutictechniquesrelatedtoadultandpaediatric neurologicalconditions

- Sensory testing – SensoryRe-education
- MMT / voluntary control – musclere-education
- Useofappropriateelectricalmodalitiesformusclereeducation/painrelief

- Management oftone
- Postural assessment & posturalcorrection
- Transfertraining
- Functionalre-education
- Gait assessment- gaittraining
- Co-ordination testing &training
- Strategies for balancetraining
- Fitness training for patients having neurologicalproblems.
- Use of outcome measures & quality of lifequestionnaire.

Presentation & documentation of 8 cases for patient management using ICF model as following:

(Assessment, Evaluation, Diagnosis, Prognosis, Intervention, Outcome)

1) U.M.N.lesion–**4**cases:Stroke/S.C.I./Traumaticbraininjury/Degenerativedisorders/ Demyelinating disordersetc...
2) L.M.N. lesion – **2** cases: Peripheral nerve injuries / Brachial plexus injury / G.B.S.etc.
3) Pediatric neuro-**2** cases: C.P. / Myopathies / Meningoceoleetc.

RECOMMENDED TEXT BOOKS:

1. Cash's Text book for Physio Therapist in Neurological disorders-Jaypeebros.
2. ProprioceptiveNeuromuscularFacilitation–HermanKabat
3. PracticalPhysicalTherapy–MargaretHollis
4. Therapeutic exercise –O'Sullivan
5. "Right in the middle" – PatriciaDavis
6. Stroke rehabilitation – MargaretJohnstone
7. Paediatric Physiotherapy –Roberta Shepherd

RECOMMENDED REFERENCE BOOKS:

1. Neurologicalrehabilitation–DarcyUmphred
2. Paediatric physical therapy – Stephen Tecklin
3. Brain's disorders of Nervoussystem
4. Paediatric Physiotherapy – SophieLevitt
5. NeurologicalRehabilitation-OptimisingMotorPerformance–CarrandShepherd

SCHEME OF UNIVERSITY EXAMINATION

THEORY 80 MARKS + I.A. – 20 MARKS * The question paper will give appropriate weightage to all the topics in the syllabus.		**Marks** **100**
Section A – M.C.Qs.	Q.1 -MCQs [20 x1=20]	**20**
Section B- B.A.Q.	Q.2 - Answer all of the following. (10 Questions) [10 x 2 =20]	**20**
S.A.Q.	Q. 3- Answer any 4 out of 5. [4 x 5 =20]	**20**
L.A.Q.	Q. 4 - Answer any 2 out of 3 [2 x 10 =20]	**20**
	Structured question based on ICF model with goal setting and physiotherapeutic intervention LAQ should give break up of 10 marks e.g.(2+3+5)	
	Q-4. – a. Based on Adult Neurological Conditions - (U.M.N) **OR** b. Based on Adult Neurological Conditions (L.M.N.) or Progressive Neuro-Muscular conditions. **OR** c. Based on Pediatric Neurological conditions (U.M.N/L.M.N./Progressive Neuro Muscular conditions)	
Total Marks		**80**

MCQs : 20	**BAQs: 20**	**SAQs: 20**	**LAQs: 20**
MK – 12 DK – 06 NK – 02	MK – 06 DK – 03 NK – 01	MK – 03 DK – 01 NK – 01	MK – 03 DK – 00 NK – 00

PRACTICAL 80 MARKS + I.A. – 20 MARKS		**Marks** **100**
LONG CASE	a. SubjectiveandPhysicalExamination - 10marks b. EvaluationandPhysicaltherapydiagnosis(ICF) – 10marks c. Planofcare–Goalsetting – 10marks d. Demonstrationofanyoneimportanttestandtreatmentintervention onpatient – 15marks [To be evaluated in cognitive, psychomotor and affective domains.]	**45**
SHORT CASE	One Short case on : Demonstrations of two physiotherapy intervention skills for effective patient management 2 x 10 marks	**20**
SPOTS	5 spots – (5 x2 Marks= 10 Marks) 3 minutes for each spot E.M.G./N.C. Studies / Orthoses/ Prostheses & Neurological assessment, Scales	**10**
JOURNAL	Documentations- Assessment, Evaluation, Diagnosis, Prognosis, Intervention of Case along with I.C.F.	**5**
Total Marks		**80**

INTERNAL ASSESSMENT:

1. Twoexams–Terminalandpreliminaryexamination(Theory&Practical)of80markseach TOTAL – 160marks
2. Internal Assessment to be calculatedout of 20 marks.
3. In Practicals of Terminal & Preliminary examinations, Spots will be of 15 marks instead of 10 marks (3 marks X5)
4. Internal assessment (Theory) asper University pattern.

CARDIO-VASCULAR & RESPIRATORY PHYSIOTHERAPY

(INCLUDING CRITICAL CARE)
Didactic–60HRS + Clinical 140HRS) TOTAL 200 HRS

COURSE DESCRIPTION:

This course includes a study of applied anatomy and physiology of the Cardiovascular and Respiratory system along with pathological changes and patho-mechanics of the system. It discussesrelevanttestsandmeasuresfordeterminingimpairmentanddifferentiatingthediagnosis basedonthespecificityandsensitivityoftheassessmentinstrumentsasrelatedtopatientswith disorders of the Cardiovascular and Respiratory system.

Cardiovascular and Respiratory Physiotherapy focuses on maximizing functional independence andwell-being.Thiscourseusesapatient-centeredmodelofcarewithmulti-systemassessment, evidencebasedinterventionsandasignificantpatienteducationcomponenttopromotehealthy active lifestyle and community-based living. The candidate will have a sound understanding of theory,scientificevidenceandbestpracticesintheareasoftheCardiovascularandRespiratory SystemincludingcriticalcarePsychosocialSciences,MovementSciencesandPhysiotherapy.

Sr. No.	Topics	Didactic Hours	Practical/Lab Hours	Total Hours
1	**REVIEW OF BASIC APPLIED ANATOMY & PHYSIOLOGY**	3		3
2	**INVESTIGATION AND EXERCISE TESTING**	4	10	14
3	**EXERCISE PHYSIOLOGY**	5	10	15
4	**PHYSIOTHERAPY SKILLS**	8	34	42
5	**APPLICATION OF ICF MODEL**	2		2
6	**PHYSIOTHERAPY MANAGEMENT**	20	53	73
7	**CARDIAC REHABILITATION**	4	10	14
8	**PULMONARY REHABILITATION**	2	5	7
9	**ICU EVALUATION & MANAGEMENT**	8	12	20
10	**INTRODUCTION TO FUNCTIONAL SCALES**	2	1	3
11	**BASIC LIFE SUPPORT (C.P.C.R.)**	2	5	7
	TOTAL	**60**	**140**	**200**

OBJETIVES:

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

COGNITIVE:

a. Identifyandanalyzecardio-vascular&pulmonarydysfunctionintermsofbio-mechanical, and Bio-physical basis and correlate the same with the Health condition, routine electrophysiological,radiological,andbiochemicalinvestigationsandarriveatappropriate PhysicaltherapydiagnosisusingWHO-ICFtool(Disability,Functioningandcontextual factors) with clinical reasoning.

b. Plan, prescribe appropriate, safe physiotherapy interventions with clinical reasoning forandpreventionofimpairments,activitylimitations,participationrestrictionsand environmental barriers related to cardio-vascular & pulmonary dysfunction in acute care settings,athome,workplace,insociety&inleisureactivities.

PSYCHOMOTOR:

a. Utilise skills such as executing exercise tests, PFT, Ankle brachial index, arterial &venous insufficiencytests

b. Utilisepsychomotorskillstoimplementappropriatebronchialhygienetherapy,therapeutic exercise, electrotherapeutic modalities, CPCR, Intensive (critical) care, joint and soGtissue obilizations, offering ergonomic & energy conservation advice for patients with cardio-vascular & pulmonarydysfunction.

c. Utilise the knowledge about contextual factors to enhance capacity and performance of activities and participation insociety

d. Utilise the skill to deliver cardiac, pulmonary &vascular rehabilitation

AFFECTIVE:

a. Developbehavioralskillsandhumanitarianapproachwhilecommunicatingwithpatients, relatives,societyatlargeandco-professionals

b. Develop bed side behavior, respect & maintain patients'confidentiality

SYLLABUS

Sr. No.	Topics	Didactic Hours (60)	Practical/ Lab Hours (140)	Total Hours (200)	Must know	Desirable to know	Nice to know
1	**REVIEW OF BASIC APPLIED ANATOMY & PHYSIOLOGY**	**3**		**3**		**03**	
	a. Pulmonary Anatomy &Physiology b. Cardiac anatomy &Physiology c. Cardiac and Respiratory Pharmacology d. Biomechanics of Thorax(Revision)						
2	**INVESTIGATION AND EXERCISE TESTING**	**4**	**10**	**14**			
	a Investigation & Clinical Implication–X-ray, PFT,ABG, ECG, ABI, claudication time, pulses, auscultation, postural hypotension				05		
	b Stress testing				05		
	i.6 Minute Walk test & Harward Step test Skill & Interpretation				02		
	ii.Shuttle Walk Test & Modified Bruce Protocol (should be interpretation only)				02		
3	**EXERCISE PHYSIOLOGY**	**5**	**10**	**15**			
	a. Nutrition(Bioenergetics)					02	
	b. Total energy expenditure (MET) sources					03	
	c. Acute and chronic adaptation to exercise				05		
	d. Complication of bed rest/Immobilization & prevention				03		
	e. Aerobic & Anaerobic Training,				02		
4	**PHYSIOTHERAPY SKILLS**	**8**	**34**				
	a. Bronchial Hygiene Therapy- Postural Drainage, Forced Expiratory Technique, ACBT, Autogenic Drainage				03		
	b. Adjunct Therapy – Flutter & PEP Therapy				03		
	c. Therapeutic positioning to improve ventilation & perfusion matching,				03		
	d. Therapeutic positioning to alleviate dyspnoea				02		
	e. Nebulisation & Humidification,				03		

	f. Lung Expansion Therapy				03		
	g. Neurophysiologic facilitation of respiration				03		
	h. Electrotherapeutic modalities for pain, swelling, & wound healing.				03		
	i. Therapeutic exercise program to alleviate pain, to achieve mobility, to correct posture and improve peripheral circulation.				03		
	i. Therapeutic exercise program to strengthen respiratory muscles				03		
	j Deliver Ergonomic advice, energy conservation advice, Home exercise Program, & modifications of contextual factors				03		
	k .Applied Yoga in Cardio-respiratory conditions				02		
5	**APPLICATION OF ICF MODEL**	**2**	**-**	**2**		**02**	
	a To plan effective Short term and long term goals to enhance functioning of Cardiovascular & Respiratory Dysfunction b Set patient specific goals and expected out come within time frame with clinical reasoning c Documentation						
6	**PHYSIOTHERAPY MANAGEMENT** in : **(MUST TO KNOW)**	**20**	**53**	**73**			
	a. Medical & Surgical Cardiovascular Diseases i. Hypertension ii. I.H.D. , Myocardial Infarction iii. Valvular Heart Disease iv. Congenital v. Acquired vi. Thrombosis, Phlebitis and Phlebothrombosis vii. Varicose Veins and ulcers viii. Other Arterial disorders	4	5	9	09		
	b. Obstructive & Restrictive Respiratory disorders i. Bronchitis ii. Emphysema iii. Bronchial Asthma iv. Cystic Fibrosis v. Occupational lung diseases vi. Interstitial Lung Diseases	2	10	12	12		
	c. General Respiratory Infection i. Tuberculosis ii. Pneumonia iii. Lung Abscess iv. Bronchiectasis v. Pneumothorax	2	10	12	12		

	vi. Hydropneumothorax vii. Atelectasis viii. Pleuritis ix. Pleural Effusion x. Empyema & other Pleural Disorders						
	d. Neonatal & Paediatric Respiratory Infection i. ARDS ii. Meconium aspiration iii. Pneumonitis iv. Pneumonia v. Childhood Asthma vi. Cystic fibrosis and chronic lung disease	2	4	6	06		
	e. Pulmonary Surgeries Traumatic and Surgical conditions of Chest, Lung, Pleura and Mediastinum	2	4	6	06		
	f. General abdominal & Oncological Surgeries i. Pre and Post Operative care ii. Complication & Management.	2	5	7	07		
	Q-- Burns (Head Face neck & thoracic, inhalation burns) Acute care Management Only	1	5	6	06		
	Q-- Diabetic & Vascular Ulcers/ Amputations (Stump care only)	2	4	6	06		
	i. Metabolic Syndrome i. Diabetes (Mellitus & Insipidus) ii. Obesity	2	4	6	06		
	j. Musculoskeletal dysfunction i. Flail chest ii. Scoliosis iii. Kyphosis	1	2	3	03		
7	**CARDIAC REHABILITATION (A.H.A./A.C.S.M. guidelines)**	**4**	**10**	**14**	**14**		
	a. Definition, b. Indications, Contraindications c. Phases(I,II,III,& IV) d. Outcome Measures						
8	**PULMONARY REHABILITATION (A.A.C.V.P.R. /A.T.S. guidelines)**	**2**	**5**	**7**	**07**		
	a. Definition, b. Indications c. Contraindications d. Components of management e. Outcome measures						
9	**I.C.U. EVALUATION & MANAGEMENT**	**8**	**12**	**20**	**20**		

	a. Basic evaluation b. Principles of ICU Monitoring c. Mechanical Ventilator modes d. Suctioning & Humidification e. Therapeutic intervention in i. Tetanus, Head Injury, ii. Pulmonary Oedema, iii. Multiple Organ Failure, iv. Neuromuscular Disease, v. Smoke Inhalation, vi. Poisoning, vii. Aspiration near Drowning, viii. A.R.D.S. ix. Shock x. Guillan Barre Syndrome xi. Spinal Cord Injury & Other Acute respiratory Disorders						
10	**INTRODUCTION TO FUNCTIONAL SCALES**	**2**	**1**	**3**			**03**
	a. Generic and disease specific b. Patient's perception of his disability and functioning and correlating the same with therapist evaluation						
11	**BASIC LIFE SUPPORT (C.P.C.R.) (MUST TO KNOW)**	**2**	**5**	**7**	**07**		

5	**APPLICATION OF ICF MODEL**	**2**	**-**	**2**
	a To plan effective Short term and long term goals to enhance functioningofCardiovascular&RespiratoryDysfunction b Setpatientspecificgoalsandexpectedoutcomewithintime frame with clinical reasoning c Documentation			
6	**PHYSIOTHERAPY MANAGEMENT** in :	**20**	**53**	**73**
	a. Medical & Surgical Cardiovascular Diseases i. Hypertension ii. I.H.D. , MyocardialInfarction iii. Valvular HeartDisease iv. Congenital v. Acquired vi. Thrombosis, Phlebitis andPhlebothrombosis vii. Varicose Veins andulcers viii. Other Arterialdisorders	4	5	9
	b. Obstructive & Restrictive Respiratory disorders i. Bronchitis ii. Emphysema iii. BronchialAsthma iv. CysticFibrosis v. Occupational lungdiseases vi. Interstitial LungDiseases	2	10	12
	c. General Respiratory Infection i. Tuberculosis ii. Pneumonia iii. LungAbscess iv. Bronchiectasis v. Pneumothorax vi. Hydropneumothorax vii. Atelectasis viii. Pleuritis ix. PleuralEffusion x. Empyema & other PleuralDisorders	2	10	12
	d. Neonatal & Paediatric Respiratory Infection i. ARDS ii. Meconiumaspiration iii. Pneumonitis iv. Pneumonia v. ChildhoodAsthma vi. Cystic fibrosis and chronic lungdisease	2	4	6

	E Pulmonary Surgeries Traumatic and Surgical conditions of Chest, Lung, Pleura and Mediastinum	2	4	6
	f. General abdominal & Oncological Surgeries i. Pre and Post Operativecare ii. Complication &Management.	2	5	7
	Q-- Burns (Head Face neck & thoracic, inhalation burns) Acute care Management Only	1	5	6
	Q-- Diabetic & Vascular Ulcers/ Amputations (Stump care only)	2	4	6
	i. Metabolic Syndrome i. Diabetes (Mellitus &Insipidus) ii. Obesity	2	4	6
	j. Musculoskeletal dysfunction i. Flailchest ii. Scoliosis iii. Kyphosis	1	2	3
7	**CARDIAC REHABILITATION (A.H.A./A.C.S.M. guidelines)**	**4**	**10**	**14**
	a. Definition, b. Indications,Contraindications c. Phases(I,II,III,& IV) d. OutcomeMeasures			
8	**PULMONARY REHABILITATION (A.A.C.V.P.R. /A.T.S. guidelines)**	**2**	**5**	**7**
	a. Definition, b. Indications c. Contraindications d. Components ofmanagement e. Outcomemeasures			
9	**I.C.U. EVALUATION & MANAGEMENT**	**8**	**12**	**20**

	a. Basicevaluation b. Principles of ICUMonitoring c. Mechanical Ventilatormodes d. Suctioning &Humidification e. Therapeutic interventionin i. Tetanus, HeadInjury, ii. Pulmonary Oedema, iii. Multiple OrganFailure, iv. NeuromuscularDisease, v. SmokeInhalation, vi. Poisoning, vii. Aspiration near Drowning, viii. A.R.D.S. ix. Shock x. Guillan Barre Syndrome xi. Spinal Cord Injury & Other Acute respiratory Disorders			
10	**INTRODUCTION TO FUNCTIONAL SCALES**	**2**	**1**	**3**
	a. Generic and diseasespecific b. Patient's perception of his disability and functioning and correlatingthesamewiththerapistevaluation			
11	**BASIC LIFE SUPPORT (C.P.C.R.)**	**2**	**5**	**7**

S. No.	**PRACTICAL**
1	Positioning,breathingcontrolstrategies(e.g.PursedLipBreathing,SustainedMaximal Inspiration,deepbreathing),ventilatormuscletraining.Relaxationtraining,positioning, earlymobilization.
2	Airway clearance techniques, Suctioning, use of mechanical assistive devices (e.g. Positive Expiratory Pressure, Flutter, Vest, etc.), postural drainage and percussions, coughing maneuvers, medication delivery e.g. Nebulization ,oxygen
3	PhysicalhandlingTechniques(e.g.positioninganddonning,doffing,fittingandadjusting Stockings for vascular disorders, bandaging , dressing, taping, splints and orthotics pertaining to cardiovascular and pulmonaryimpairments)
4	PNF for breathing facilitation and inhibition.
5	Ability to use a variety of exercise/movement equipment (e.g. treadmill, heart rate monitor, Oximeter, pressure biofeedback unit, free weights, balance boards, theraballs, etc)
6	Prescription and education: aerobic, endurance and interval exercise training, resistance (strength, Endurance and power) training, flexibility training. Formulating cardiac, pulmonary rehabilitation programme
7	Developskillstomonitorcomplianceoftheclientinexecutingrehabilitationprogram& identifying comorbid & contextual factors affectingit.
8	Familiarity and skill of use of various monitoring and treatment equipments in ICU.

9	Use of physical and electrical agents for pain relief and wound care
10	Skill of administering basic life support

CLINICAL COMPETENCIES:

A) COMPETENCYINASSESMENTAND CLINICALREASONING:

Student should be able to apply the ICF framework in selecting measurement tools to ensure aholisticapproachtoevaluationofbodystructureandfunction,activities,participation;and select and administer assessment/evaluation tools and techniques suitable for the patient's problemsandcondition(s)basedonthebestavailableevidenceandinterprettheinformation obtaineddemonstratingevidence-baseddecision-makingandsafehandlingtechniquesuchas:

1. Risk factor screening (Red flags &Yellowflags).
2. Assessment of Cardiovascular &Respiratorydysfunction.
3. InterpretationofRadiological,HaematologicalandBiochemicalinvestigations.
4. AerobicfitnessandFunctionalperformancetestingasappropriate
5. Identificationandquantificationofenvironmentalandhomebarriersandfacilitators
6. Identification and analysis of body mechanics during self-care, home management, work, community, tasks, or leisureactivities.
7. Identificationandanalysisofergonomicperformanceduringwork(job/school/play)
8. AssessmentofQualityofLifethroughuseofappropriatequestionnaireandgenericordisease-specific scales (nice toknow)
9. Identificationandprioritizationofimpairmentsinbodyfunctionsandstructures,andactivity limitations and participation restrictions to determine specific body function and structure, andactivitiesandparticipationtowardswhichtheinterventionwillbedirected.
10. Statetheevidence(patient/clienthistory,labdiagnostics,testsandmeasuresandscientific literature) to support a clinicaldecision.
11. Determinethepredictedlevelofoptimalfunctioningandthetimerequiredtoachievethat level.
12. Recognize barriers that may influence the achievement of optimal functioning within a predicted period and devise ways to overcome them whenpossible

B) COMPETENCY IN DEVELOPING PLAN OFCARE:

Student should be able to:

1. Identify patient goals andexpectations.
2. DesignaPlanofCarewithmeasurable,prioritizedandtimeboundfunctionalgoals(short- term andlong-term)
3. Consultpatientand/orcaregiverstodevelopamutualagreementregardingtheplanofcare.
4. Identify indications/ additional needs for consultation with other professionals & appropriate referrals.
5. Selecttheinterventionsthataresafe,realisticandmeetthespecifiedfunctionalgoalsand outcomesintheplanofcare:(a)identifyprecautionsandcontraindications,(b)provide evidence for identified and selected patient-centered interventions that are identified and selected,(c)definethespecificityoftheintervention(time,intensity,duration,andfrequency).

6. Measure and monitor patient response to intervention and modify elements of the planof careandgoalsinresponsetochangingpatient/clientstatus,asneeded.
7. Establishcriteriafordischargebasedonpatientgoalsandcurrentfunctioninganddisability.

C) COMPETENCY IN PHYSIOTHERAPEUTICINTERVENTION:

Important influences on Cardiovascular & Respiratory physiotherapy management choices may include but not limited to:

1 Diversesettingsofcareincludingcritical,acute,longterm,rehabilitation,andcommunitycare

2 Lifespan issues ranging from the neonatal stage to those associated withaging;

3 Life style modification for diseases and forprevention.

4 Skill of application of physical and electrical agents for relief of acute & chronic pain and swelling.

5 Facilitation,re-educationandtrainingofmusclestrength,endurance&motorcontrol,posture and gait through skilful use of various therapeutic exercise techniques with appropriate therapeutic gymnasiumequipment.

Skillofapplicationoftherapeuticmodesofimprovingcardiovascular&respiratoryperformance.
Functionaltraininginselfcare,home,work(job,schoolandplay),communityandleisureactivities

DOCUMENTATION :

Presentation & Documentation of 8 cases for patient management using ICF Model as following:

(Assessment, Evaluation, Diagnosis, Prognosis, Intervention, Outcome)

1. Medical Respiratorycondition
2. Paediatric respiratorycondition
3. Thoracic Surgicalcondition
4. Cardiac Medical condition
5. Cardiac Surgicalcondition
6. Peripheral vasculardisorders
7. Burns of Head, Neck & Face (Acute phaseonly)
8. Abdominal surgicalcondition

RECOMMENDED TEXT BOOKS

1. Cash's Textbook for Physiotherapists in Chest, Heart &Vascular diseases
2. Cash'stextbookinGeneralMedicine&SurgicalconditionsforPhysiotherapists
3. ChestPhysicaltherapy&pulmonaryrehabilitation–DonnaFrownFilter
4. Brompton's hospitalguide
5. Physiotherapyinrespiratoryandcardiacproblem–PryorandPrasad
6. PhysiotherapyinCardio–Vascularrehabilitation–Webber
7. ChestphysiotherapyinintensivecareColinMackenzie
8. Mechanical ventilation – AshfaqHasan
9. Management of Mechanical ventilation –Pierce

RECOMMENDED REFERENCE BOOKS

1. Exercise & the Heart– Wenger
2. ECG – P.J.Mehta
3. CardiopulmonaryPhysicalTherapy–IrwinScott
4. Fundamental of respiratory care– Egan's
5. Essentialofcardiopulmonaryphysicaltherapy–HillgassAndSodosky
6. Exercise physiology, energy, nutrition and human performance –M'cardle
7. Exercise testing and prescription - Skinner
8. Exercise in health anddisease-Pollock
9.

SCHEME OF UNIVERSITY EXAMINATION

THEORY **80 MARKS + I.A. – 20 MARKS** *** The question paper will give appropriate weightage to all the topics in the syllabus.**		**Marks 100**
Section A – M.C.Qs.	Q.1 -MCQs [20 x1=20]	**20**
Section B-B.A.Q.	Q.2 - Answer all of the following. (10 Questions) [10 x 2 =20]	**20**
S.A.Q.	Q. 3- Answer any 4 out of 5. [4 x 5 =20]	**20**
L.A.Q.	Q. 4 - Answer any 2 out of 3 [2 x 10 =20]	**20**
	Structured question based on ICF model with goal setting and physiotherapeutic intervention LAQ should give break up of 10 marks e.g.(2+3+5)	

	Q-4. – a. Based on Obstructive or Restrictive Respiratory disorders. **OR** **b.** Based on pulmonary or cardiac postsurgical management. **OR** c. Based on medical and surgical cardiovascular diseases.	
Total Marks		**80**

MCQs : 20	**BAQs: 20**	**SAQs: 20**	**LAQs: 20**
MK – 12 DK – 06 NK – 02	MK – 06 DK – 03 NK – 01	MK – 03 DK – 01 NK – 01	MK – 03 DK – 00 NK – 00

PRACTICAL 80 MARKS + I.A. – 20 MARKS		**Marks** **100**
LONG CASE	a SubjectiveandPhysicalExamination - 10marks b EvaluationandPhysicaltherapydiagnosis(ICF) – 10marks c Planofcare-Goalsetting – 10marks d Demonstration of any one important test and treatment intervention on patient – 15marks [Student will be evaluated in cognitive, psychomotor and affective domains.]	**45**
SHORT CASE	One Short case on: Demonstrationsoftwophysiotherapyinterventionskillsforeffectivepatient management 2 x 10marks	**20**
SPOTS	(5 spots x 2 Marks = 10 Marks) Chest/Cardiac X-ray, ABG, PFT, ECG, Adjunct/devices	**10**
JOURNAL	Documentations- Assessment, Evaluation, Diagnosis, Prognosis, Intervention of Case along with ICF	**5**
Total Marks		**80**

INTERNAL ASSESSMENT :

1. Two exams – Terminal and preliminary examination (Theory & Practical) of 80 marks each TOTAL - 160marks
2. Internal Assessment to be calculatedout of 20 marks.
3. In Practicals of Terminal & Preliminary examinations, Spots will be of 15 marks instead of

10 marks (3 marks X5)

4 Internal assessment (Theory) as perUniversity pattern.

COMMUNITY PHYSIOTHERAPY

(Didactic 85 hrs + Clinical 115 hrs) TOTAL 200 HRS

COURSE DESCRIPTION:

Community Physiotherapy describes the roles & responsibilities of the Physiotherapist as an efficient member of the society. This component introduces the Physiotherapist to a proactive preventive oriented philosophy for optimization & betterment of health.

Community Physiotherapy is not apart from the other sections of Physiotherapy described in this syllabus. In fact, it is the in-depth application of these same aspects viz. Musculoskeletal, Neurological & Cardio Vascular & Respiratory to the entire society. This is done by understanding thesections&subsectionsofthesocieties,thenational&internationalhealthpolicies,roleof Government & NonGovernment Organizations.

The applications of Community Physiotherapy are not limited to conditions & dysfunctions but as attributed to promotion of Health & rehabilitation in Communities like Elderly, Women, and Occupational Health etc.

Sr. No.	Topic	Didactic Hours	Clinical Hours	Total Hours
1	**HEALTH PROMOTION**	10	15	**25**
2	**WOMEN'S HEALTH**	20	20	**40**
3	**GERIATRICS HEALTH**	20	20	**40**
4	**REHABILITATION**	11	20	**31**
5	**HEALTHCARE DELIVERY & DISASTER MANAGEMENT**	04	-	**04**
6	**INDUSTRIAL HEALTH**	20	20	**40**
7	**SYNOPSIS**	-	20	**20**
TOTAL		**85**	**115**	**200**

OBJECTIVES :

At the end of the course the student shall:

COGNITIVE:

Be able to describe:

a. The general concepts about health, disease and physicalfitness.
b. Physiology of aging process and its influence on physicalfitness.
c. Nationalpoliciesfortherehabilitationofdisabled–roleofPT.
d. The strategies to access prevalence and incidence of various conditions responsible for increasing morbidity in the specific community – role of PT in reducing morbidity, expected clinical and functional recovery, reasons for non-compliance in specific community environment & solution for thesame.
e. Theevaluationofdisabilityandplanningforpreventionandrehabilitation.
f. Rehabilitationinurbanandruralsetup.
g. Able to be a part of decision making team regarding the policies for the welfare of special communities&onissuesofdisability

PSYCHOMOTOR:

a. Be able to identify with clinical reasoning the prevailing contextual {e.g. environmental and psycho-social cultural} factors, causing high risk responsible for various dysfunctions andmorbidityrelatedtosedentarylifestyleandspecificcommunitylikewomen,children, agedaswellasindustrialworkersanddescribeplanningstrategiesofinterventional policiestocombatsuchproblemsatcommunitylevel.
b. Be able to gain the ability to collaborate with other health professionals for effective service delivery &community satisfaction
c. Utilizetheresearchmethodologyknowledgeforformulationofaresearchquestion (synopsis)

AFFECTIVE:

Be an empathetic health professional, especially for those in the community, who is away from the health institutions and having difficulty in healthcare access

SYLLABUS

Sr. No.	Topics	Didactic Hours	Field Hours	Total Hours	Must know	Desirable to know	Nice to know
1	**HEALTH PROMOTION**	**10**	**15**	**25**			
	a. W.H.O. definition of health and disease.	01				05	
	b. Health Delivery System – 3 tiers	01				05	
	c. Physical Fitness: definition and evaluation related to:	08			05		
	i. Effect in GrowingAge	02			03		
	ii. Effect in Obesity	02			02		
	iii. Physical Fitness in women - Pregnancy, Menopause, Osteoporosis	02			02		
	iv. Physiology of Aging – Related to physiological changes in Aging	02			03		
	Preventive Measures in all the above groups of community with their related complications of physiological changes, growth, degenerative changes and lifestyle diseases.						
2	**WOMEN'S HEALTH**	**20**	**20**	**40**			
	a. Women in India.	1				05	
	b. Social issue having impact on physical Function.	1				05	
	c. Legal rights and benefits related to health.	1				05	
	d. Anatomical & Physiological variations associated with pregnancy & menopause.	8					

	e. Antenatal, postnatal care, advice on labour positions, pain relief.	4			10		
	f. Urogenital dysfunction, prolapse, incontinence malignancy and their therapeuticinterventions.	5			05 05		
3	**GERIATRICS**	**20**	**20**	**40**			
	a. Senior citizens in India	1				05	
	b. NGO's and Health related Legal rights and benefits for the elderly.	1				05	
	c. Institutionalized & Community dwelling elders	1			10		
	d. Theories of Aging	3			10		
	e. Physiology of ageing: Musculoskeletal, neurological, Cardio respiratory, metabolic changes	12			05		
	f. Scheme of evaluation & role of PT in Geriatrics.	2			05		
	CONCEPTS OF REHABILITATION	**11**	**20**	**31**			
	a. Disability- evaluation, types, prevention.	2			05		
	b. Rehabilitation- definition, types {Institutional, Reach out and Community}	1			05		
	c. National policies for rehabilitation of	1			05		
	d. Rehab Team work: Medical practitioner, P.T./ O.T., A.S.T., P.&O., Clinical psychologist, and vocational counselors and social workers.	2			05		
	e. CBR – Role of Physiotherapy & Physiotherapist	1			05		
	f. CBR strategies in: i. Urban area e.g. UHC, community centre, clubs, mahila mandals, Social centers, Schools, industries, sports centers. ii. Rural area- by using PHC / rural hospital, district hospital infrastructure**.** Loco motor aids using local resources.	4			05		
	INTRODUCTION TO DISASTER MANAGEMENT	2		**2**			**02**
	INDUSTRIAL HEALTH	**20**	**20**	**40**			
	a. Introduction to Industrial Health: Definition, Model of Industrial Therapy (Traditional Medical & Industrial Model)	4			10		
	b. Worker Care Spectrum: i. Ability Management – Job analysis:- Job description, Job demand Analysis, Task Analysis, Ergonomics Evaluation, Injury Prevention, Employee Fitness Program.	5			10		
	ii. Disability Management:-Acutecare, Concept of Functional	5			10		

	Capacity assessment, Work Conditioning, Work Hardening.						
	iii. Environmental stress in the industrial area – accidents due to a) Physical agents eg. heat/cold, light, noise, vibration, UV radiation, ionizing radiation. b) Chemical agents-inhalation, local action and ingestion. c) Mechanical hazards-overuse/fatigue injuries due to ergonomic alternation and ergonomic evaluation of workplace.	3			05		
	iv. Mechanical stresses: a) Sedentary table work-executive's clerk. b) Inappropriate seating arrangement-vehicle drivers. c) Constant standing- watchman, defense forces, surgeons. d) Over execution in labourer's stress management. e) Psychological hazards e.g. monotoni city and dissatisfaction in job, anxiety of work completion with quality, Role of PT. in industrial set up and stress management relaxation modes.	3			05		
	PROJECT SYNOPSIS						
	Students have to select a study to be done under the guidance of a teacher of any subject related to physiotherapy.AGerthefinalizationofthetopic,he/shehastodecide themethodologyofthestudytobe done(whichhastobeundertakenduringtheinternship)Studentwill presentdefendthesynopsisofthis studytobedoneduringtheUniversityPracticalexaminationofCom munityPhysiotherapy.						

CLINICAL - 115 hrs	
1	UHC & PHC visits, Industrial Visit, Geriatric Home Visit
2	Institutional adoption of close by area/ vicinity.
3	PerformsurveysinadoptedlocalitiesforANC,disability,exercises&healthpromotion, preventive aspects for smoking/ alcohol/ drugs in youthetc.
4	Students may make a case dependent evaluation proforma/ questionnaire.

RECOMMENDED TEXT BOOKS

1. PhysiotherapyinGynecological&Obstetricalconditions–Mantle
2. Therapeutic Exercise –Kisner
3. TextbookofCommunityHealthforPhysiotherapists–BhaskarRao
4. Geriatrics Physiotherapy –Andrew Guccione
5. Industrial Therapy –Glenda Key
6. TextofPhysiotherapyforobstetricsandGynecology–G.B.Madhuri&Pruthvish

RECOMMENDED REFERENCE BOOKS

1. MuralKF–Ergonomics:Maninhisworkingenvironment
2. Exercise Physiology-Mc'Ardle
3. MusculoskeletalDisordersinworkplace:Principle&Practice-Nordin
4. AndersonsPope
5. Indian Social Problem Vol 2 – G RMadan
6. StatusofDisabledinIndia-2000-RCIpublication
7. Legal Rights of disabled in India- GautamBannerjee
8. ICF –WHO HealthOrganisation 2001 publication
9. Preventive &Social Medicine –Park
10. TrainingintheCommunityforthepeoplewithdisability–HallenderPadminiMendes
11. Disabled Village Children-- DavidWerner
12. Chorin C& M Desai, C Gonsalves, 1999, Women & the Law, Vol. I & II Socio - legal Information CentreMumbai
13. Astrand P A Rodahe K-Text book of Work Physiology
14. Women's Health –Sapsford

SCHEME OF UNIVERSITY EXAMINATION

THEORY 80 MARKS + I.A. – 20 MARKS * The question paper will give appropriate weightage to all the topics in the syllabus.		**Marks** **100**
Section A – M.C.Qs.	Q.1 -MCQs [20 x1=20]	**20**
Section B- B.A.Q.	Q.2 - Answer all of the following. (10 Questions) [10 x 2 =20]	**20**
S.A.Q.	Q. 3- Answer any 4 out of 5. [4 x 5 =20]	**20**
L.A.Q.	Q. 4 - Answer any 2 out of 3 [2 x 10 =20]	**20**
	Structured question based on ICF model with goal setting and physiotherapeutic intervention LAQ should give break up of 10 marks e.g.(2+3+5)	
	Q-4. – a. Based on Women's Health. **OR** b. Based on Geriatric conditions. **OR** c. Based on Obesity/Occupational disorders.	
Total Marks		**80**

MCQs : 20	**BAQs: 20**	**SAQs: 20**	**LAQs: 20**
MK – 12 DK – 06 NK – 02	MK – 06 DK – 03 NK – 01	MK – 03 DK – 01 NK – 01	MK – 03 DK – 00 NK – 00

PRACTICAL 80 MARKS + I.A. – 20 MARKS		**Marks** **100**
LONG CASE	Rehabilitation/ Women's Health / Geriatric/ Industrial Health / Health Promotion.	**50**
PROJECT SYNOPSIS	(Synopsis can be on any topic to be done during Internship project/ monogram (Musculoskeletal, Neurosciences, Cardio Respiratory or Community). [Introduction, Aims & Objectives, Methods & Methodology & Review of Literature Expected]	**25**

JOURNAL	1 1caseseachofRehabilitation,HealthPromotion,IndustrialHealth, Women's Health & Geriatrics (Total 5 cases only) 2 Documentation of visits (Minimum One) to either Industry, Geriatric Home, Community assessment	**5**
Total Marks		**80**

INTERNAL ASSESSMENT:

1 Two exams – Terminal and preliminary examination (Theory & Practical) of 80 marks each TOTAL - 160marks

2 Internal Assessment(Theory) as per University pattern.

3 PracticalexaminationforTerminalexaminationtobetakenwith2LongCasesof40marks each.PracticalexaminationforPreliminaryexaminationtobetakenwith1LongCaseof 50 marks & Project Synopsis for 30marks.

4 Internal Assessment to be calculated out of 20 marks.

PRINCIPLES OF BIO ENGINEERING

(COLLEGE EXAMINATION)

(Didactic 27 hrs + Practical /Laboratory-03 hrs) TOTAL 30 HRS

COURSE DESCRIPTION:

The course is designed to give knowledge & application of biomechanical principles related to Orthotics&Prosthetics.Studentswillalsolearntheprinciplesoftheprescription&thecheckout proceduresofaids&appliancesasperthephysicaldysfunctionoftheperson.Theywilllearnto fabricate simple splints.

OBJECTIVES:

At the end of the course, the candidate shall

COGNITIVE:

a. Acquire knowledge about biomechanical principles of application of variety of aids & appliances used for ambulation, protection &prevention.

b. Acquireinbriefknowledgeaboutvariousmaterialusedfor splints/Orthoses&prostheses and their selectioncriteria

PSYCHOMOTOR:

Acquire the skill of fabrication of simple splints made out of Low cost material

SYLLABUS

Sr. No.	TOPIC	Didactic Hours	Must know	Desirable to know	Nice to know
1.	**Introduction to bioengineering-** Classification of Aids & appliances (Splints/ Orthoses for spine, upper & lower limb; Prostheses for Lower limbs & Upper limbs)	**1**	1		
2.	**Biomechanical principles in designing of appliances & assessment; Procedures for static & dynamic alignment of the Orthoses & Prostheses:**	**26**			
	a. Introduction to Orthotics, Solid Ankle foot Orthoses (AFO)	1	1		
	b. Articulated AFO, Various Shoe modifications	1	1		
	c. Knee Ankle Foot Orthoses (KAFO)	1	1		
	d. Knee Orthoses (KO)	1	1		
	e. Hip Knee Ankle Foot orthoses (HKAFO), Hip Orthoses (HO)	1	1		
	f. Fracture Bracing and Flexible Lumbo-sacral Orthoses (LSO) and Thoraco-Lumbo-sacral Orthoses (TLSO)	1		1	
	g. Rigid TLSOs and Cervical Orthoses (CO)	1	1		
	h. Orthotic mgmt. of Scoliosis, Milwaukee and low profile scoliosis orthoses, Scheuermann's Kyphosis & Osteoporosis	1	1		
	i. Orthoses for LBP, Introduction to Upper limb Orthotics and Shoulder orthoses (SO)	1	1		
	j. Shoulder (SO),Elbow Orthoses (EO) & Wrist Hand Orthoses (WHO)	1	1		
	k. Introduction to Gait in relation to the use of Orthoses / Prostheses	1		1	
	l. Prosthetic management of Forefoot amputees	1	1		
	m. Prosthetic management of Syme's and hind foot Amputees	1	1		
	n. Below Knee Prosthesis & Prosthetic foot pieces	1	1		
	o. Alignment of Below Knee Prosthesis and gait deviations	1		1	
	p. Prosthetic Knees and Knee Disarticulation mgmt.	1		1	
	q. Above Knee Prosthesis, alignment, gait deviations	1	1		
	r. AK Checkouts, Prosthetic mgmt. of Hip Disarticulation, hemipelvectomy, Bilateral amputees and Congenital cases	1			1
	s. Introduction to Upper Limb Prosthetics, Prosthetic mgmt. of Partial Hand amputees	2	2		
	t. Cosmetic Prostheses for all levels of Amputations	1			1
	u. Task Specific Prostheses, Prosthetic mgmt. of Wrist Disarticulation, Myoelectric Below Elbow prosthesis.	2	2		
	v. Body Powered Below Elbow Prostheses and it's components	1	1		

	w. Below Elbow Harnessing (BE)	1		1	
	x. Prosthetic mgmt. of Elbow Disarticulation and Above Elbow Amputation.	1	1		

3.	**Project**: Temporary splints: To fabricate ONE splint each [to use P.O.P, aluminum strips /sheets / wires rubber bands, Rexin, Orfit, etc]	3
	Splinting- Practical Demonstration of the following a) Cock up (dorsal/volar) b) Outrigger, c) Opponencesplint d) Anterior and posterior guard splints for gait training, e) Foot drop splint f) Facial splint g) Mallet Finger Splint h) C bar for 1st web space of hand	

RECOMMENDED REFERENCE BOOKS

1. Orthotics in Functional Rehabilitation of Lower limb - Deborah A. Nawoczenski,Marcia E. Epler
2. Orthotics – clinical Practice and Rehabilitation Technology- Published by-Churchill Livingstone
3. Atlas of Orthotics- Biomechanical principles and application (American Academyof Orthopedic Surgeons) - The C. V. Mosby Company

SCHEME OF COLLEGE EXAMINATION

THEORY ONLY: 50 MARKS [There shall be no LAQ in this paper] * The question paper will give appropriate weightage to all the topics in the syllabus.			**Marks** **50**
Section A-Q-1	MCQs – based on MUST KNOW area	[20 x1]	**20**
Section-B-Q-2 & Q3	SAQ-to answer any THREE out of FOUR	[3 x 5]	**15**
	SAQ – to answer any THREE out of FOUR	[3 x 5]	**15**
Total Marks			**50**
Passing in the exam is Mandatory			

RESEARCH METHODOLOGY AND BIOSTATISTICS

(COLLEGE EXAMINATION)

[DIDACTIC: 30 HRS]

COURSE DESCRIPTION:

Toprovidethestudentswiththenecessaryconceptsofstaticstoenablethemtorealizearesearch projectinthefieldofPhysiotherapy.Itinvolvesselectionofappropriatestatisticaltechniquesto address questions of medical and physiotherapeutic relevance; selects and applies appropriate statistical techniques for managing common types of medical / physiotherapeutic data. It uses various soGware packages for statistical analysis and data management. It interprets the results of statistical analyses and critically evaluates the use of statistics in the medical literature. It communicates effectively with statisticians and the wider medical community, in writing and orallythroughpresentationofresultsofstatisticalanalyses.Itexplorescurrentandanticipated developmentsinmedicalstatisticsasappliedtophysiotherapists.Itisdesignedtoteachentry-level physical therapy students the fundamentals of reading and understanding research methods, design, and statistics.

OBJECTIVES:

At the end of the study of this subject the student should be able to:

1. EnumeratethestepsinPhysiotherapyresearchprocess.
2. Describetheimportance&useofbiostatisticsforresearchwork.
3. Acquire skills of reviewing literature, formulating a hypothesis, collecting data, writing research proposaletc.

SYLLABUS

Sr. No.	Topics	Didactic Hours (30 hrs)	Must know	Desirable to know	Nice to know
1	**RESEARCH IN PHYSIOTHERAPY**	**5**	5		
	a. Introduction b. Research for Physiotherapist: Why? How? When? c. Research – Definition, concept, purpose, approaches d. Internet sites for Physiotherapists.				
2	**RESEARCH FUNDAMENTALS**	**5**	5		
	a. Define measurement b. Measurement framework c. Scales of measurement d. Pilot Study e. Types of variables f. Reliability &Validity g. Drawing Tables, Graphs, Master chart				
3	**WRITING A RESEARCH PROPOSAL**	**3**	3		
	a. Defining a problem b. Review of Literature c. Formulating a question, Operational Definition d. Inclusion & Exclusion criteria e. Methodology-Forming groups Data collection & method for analysis f. Informed Consent Steps of documentation–Title to Scope of study				
4	**RESEARCH ETHICS**	**2**	2		
	a. Importance of Ethics in Research b. Main ethical issues in human subjects' research c. Main ethical principles that govern research with human subjects d. Components of an ethically valid informed consent forresearch.				
5	**OVERVIEW OF STUDY DESIGNS**	**3**	3		
	a. Observational- i. Descriptive-Casestudy/series,Crosssectional,Normative,Correlational ii. Analytical; case control, cohort b. Experimental- True & quasi experimental				
6	**SAMPLING**	**3**	3		

	a. Random and non-randomsampling. b. Various methods of sampling – simple random, stratified, systematic, cluster and multistage. Sampling and non-sampling errors and methods of minimizing these errors.				
7	**BASIC PROBABILITY DISTRIBUTIONS AND SAMPLING DISTRIBUTIONS**	**2**		2	
	a Concept of probability and probability distribution. b Normal, Poisson and Binomial distributions, parameters and application. c Concept of sampling distributions. d Standard error and confidence intervals. e Skewness and Kurtosis				
8	**TESTS OF SIGNIFICANCE**	**3**	3		
	a Basics of testing of hypothesis – Null and alternate hypothesis, type I and type II errors, level of significance and power of the test, p value. b Tests of significance (parametric)-t–test (paired and unpaired), Chi square test and test of proportion, one way analysis of variance. c Repeated measures analysis of variance. d Tests of significance (non-parametric)-Mann-Whitneyutest,Wilcoxontest, e Kruskal- Wallis analysis of variance. Friedman's analysis of variance.				
9	**CORRELATION AND REGRESSION**	**1**			1
	Simple correlation – Pearson's and Spearman's; testing the significance of correlation coefficient, linear and multiple regressions.				
10	**STATISTICAL DATA**	**2**		2	
	Tabulation, Calculation of central tendency and dispersion, Using software packages, Analysis, Presentation of data in diagrammatic & Graphic form				
11	**RESEARCH REPORT**	**1**	1		
	Overview, Types and Publication				

RECOMMENDED TEXT BOOK

1 Methods in Biostatistics -B.K. Mahajan
2 Research forphysiotherapist-Hicks

SCHEME OF COLLEGE EXAMINATION

THEORY : 50 Marks [There shall be no LAQ in this paper] * The question paper will give appropriate weightage to all the topics in the syllabus.		**Marks** **50**
Section A-Q-1	MCQs – based on MUSTKNOWarea [20x1]	**20**
Section-B-Q-2 & Q3	SAQ-toAnsweranyTHREEoutofFOUR [3x5]	**15**
	SAQ – to Answer any THREE out of FOUR [3 x5]	**15**
Total Marks		**50**
Passing in the examination is Mandatory		

SCHEME OF EXAMINATIONS AT A GLANCE – IV B.P.Th.

Subjects	UNIVERSITY EXAMINATIONS						COLLEGE LEVEL EXAMS (Theory only)
	Theory			Practical			
	University	I.A.	Total	University	I.A.	Total	
Musculoskeletal Physiotherapy	80	20	100	80	20	100	---
Neuro Physiotherapy	80	20	100	80	20	100	---
Cardio-Vascular & Respiratory Physiotherapy	80	20	100	80	20	100	---
Community Physiotherapy	80	20	100	80	20	100	---
Professional Practice & Ethics	---	---	---	---	---	---	50
Administration, Management & Marketing	---	---	---	---	---	---	50
Principles of Bioengineering	---	---	---	---	---	---	50
Research Methodology & Biostatistics	---	---	---	---	---	---	50
Total	**320**	**80**	**400**	**320**	**80**	**400**	**200**

Elective Course System: Total hours
30 IV B.P.Th.
Spine Rehabilitation

Sr. No.	Item	Hours
01	Didactic	05
02	Clinical	15
03	Assignment	10

Sr. No	Topic	Didactic hours 05
01	Spine Rehabilitation – Defination, Anatomy of spine types of spine conditions and pathologies, traumatic and nontraumatic spine conditions	01
02	Assessment of posture with ICF model outcome Nervous used for spine assessment	01
03	Investigation for spine	01
04	Medical managements for spine conditions	01
05	Physiotherapy managements for spine conditions	01
	Topic	**Clinical hours 15**
	Assessmentanddocumentationofspineconditionswithmanagements(plan of care term goals long terms goals therapeutic interventions, criteria for discharged along with homeprogram)	
01	ICF management of patients with spine conditions	3
02	Non-traumatic spinal conditions	3
03	Traumatic spinal conditions	3
04	Metabolic spinal conditions	3
05	Pathological spinal conditions	3

Sr. No		Hours
01	Assignment	10

Reference Book –

1. Orthopedic physical assessment –David J Magee
2. ClinicalOrthopedicRehabilitation–SBrentBrotzmam
3. CervicalandThoracicspineMechanicalDiagnosis&TherapyVolI&II–RobinMckenzie
4. TheLumbarspineMechanicalDiagnosis&TherapyVolI&II-RobinMckenzie
5. Documentation for Rehabilitation A guide to clinical Decision making, - Lori Quinn, and jamesgorden

Stroke rehabilitation

Sr. No.	Item	Hours
01	Didactic	05
02	Clinical	15

03	Assignment	10

Sr. No.	Didactic	05
1	Stroke – definition, cerebral circulation, types of stroke and manifestations.	01
2	Assessment of stroke and outcome measures used for stroke	01
3	Application of various Neurotherapeutic approaches (Brunnstrom, Bobath,NDT,M.R.P, Constraintinducedmovementtherapy),translates,co-ordinationandbalancingexercises by using techniques based on Neurophysiologicalprinciples.	01
4	Strategies to improve trunk and lower limb control.	01
5	Strategies to improve upper limb control.	01
	Clinical	**15 hours**
	Presentationanddocumentationofstrokepatientwithmanagement(Planofcare:short termgoals,longtermgoals,therapeuticinterventions,criteriafordischargealongwith homeprogram) Using ICF models as follows:	
1	ICU management of patient with stroke	3
2	Anterior cerebral artery (ACA) stroke	3
3	Middle cerebral Artery (MCA) stroke	3
4	Posterior cerebral Artery (PCA) stroke	3
5	Transient Ischemic Stroke (TIA)	3

Sr. No		Hours
01	Assignment	10

Recommended Text Books:

1. Cash'sTextbookforPhysioTherapistanNeurologicaldisorders–Jayeebros.
2. Therapeutic exercises- O'Sullivan
3. "Right in the middle" – PatriciaDavis.
4. Stroke rehabilitation – MargaretJohnstone

Recommended Reference books:

1. Neurological Rehabilitation – DarcyUmphred
2. Brain's disorders of Nervoussystem

PULMONARY REHABILITATION

Sr. No.	Item	Hours
01	Didactic	05
02	Clinical	15
03	Assignment	10

Sr. No.	Didactic	05
1	Introduction to Pulmonary Rehabilitation.	01
2	Definition, Basis for Pulmonary rehabilitation.	01
3	Indication & Contraindications of Pulmonary rehabilitation.	01
4	Goals and team of PR	01
5	Assessment and components of PR	01
	Clinical	**15 hours**
1	Chronic bronchitis	01
2	Bronchial Asthma	01
3	Emphysema	01
4	Bronchiestasis	01
5	Silicosis	01
6	Asbestosis	01
7	Pneumoconiosis	01
8	Pneumonia	01
9	ARDS	01
10	Pulmonary tuberculosis	01
11	Thoracotomy	01
12	Lobectomy	01
13	Pleural effusion	01
14	Pneumothorax	01
15	Hydropnuemothorax	01

Sr. No		Hours
01	Assignment	10

Reference books :

1 Reference book of Cardio pulmonary rehabilitation - ScotIrvin

2 Reference of Cardio respiratory - Jenniferpyror
3 Physiotherapy book - OSullivan
4 Textbookofpulmonaryrehabilitation-Enricoclini.annee

Post Partum Rehabilitation

Sr. No.	Item	Hours
01	Didactic	05
02	Clinical	15
03	Assignment	10

Sr. No.	Didactic Topic	05 hours
1	IntroductiontoAnatomyoffemalereproductivesystem,abdominalwallandPelviccavity.	**1**
2	Overview of Physiological changes during pregnancy and Physiological of labour.	**1**
3	Anatomical and Physiological changes during post partum period.	**1**
4	Physical therapy management during labour pain.	**1**
5	Physical therapy management during post partum period.	**1**
	Clinical	**15**
	Presentation and documentation of post partum patient with management: (Plan of care- short term goals, long term goals , The rapertic, Interventions, criteria for discharge along with home program)	
	- Using ICF model as follows:	
	1 Full term Normal Vaginal Delivery.	**3**
	2 FTNVD with episiotomy.	**4**
	3 Emergency LSCS.	**4**
	4 Elective LSCS.	**4**

Sr. No		Hours
01	Assignment	10

Reference books:

1 MargertPolden,Jillmantle,Physiotherapyidobstetricsandgynaecology,2nd edition.
2 D.C. Datta- textbook ofobstetrics.
3 Women's health – A textbook for physiotherapist and sapstord, J. Bullock.(W.B.Sallnders)

STANDARD OF PASSING
B.P.Th

1. A Candidate must have minimum of 75 % attendance in theory and 80 % attendance in practical (irrespective of the kind of absence) of each course (subject) for appearing in the University examination.

2. For the subjects with practical, there will bethree heads of passing i.e. Theory, Practical, and Internal Assessment.For the subjects without practical there will be two heads of Passing i.e.Theory and Internal Assessment.

3. The candidate should secure minimum 50% marks in each of the theory and practical papers separately.The candidate will be held eligible to appear in the University examination only when he/she secureminimum 35% marks in Internal Assessment.

4. A Candidate should secure at least 50% marks in college exams in subject where there is no University exam.

5. If the candidate fails either in Theory or in Practical Examination of a subject he/she will have to reappear for both theory and practical /clinical examination.

6. **Grace Marks -**If a candidate fails by five or less marks in aggregate of all subjectsin the University examination;grace marks up to five will be given to the candidate by the University before the declaration of result.

7. **Supplementary Examination-**If a candidate fails in any number of course (subject)in the University examinationhe/shecan appear for those subjects onlyin Supplementary Examination, whichwill be held within **3 to 6weeks** from the date of declaration of the results of the University examination for every professional year, so that the candidates, who pass, can join the main batch for progression. Candidatewill be required to appear in the supplementary examination in that subject/ subjects while attending classes of next year.If the candidate fails in three or more subjects in supplementary examination, his/her session will be shifted by one year. If the candidate passes in all subjects or gets ATKT(for those who fail in two or less subjects)in Supplementary Examinationthen he/she is eligible to continue with the next academic year.

8. The candidate should have passed all subjects of previous years before appearing to 4th Year B.P.Th. University Examination.

9. First class with Distinction –75% and above marks in any subject or overall aggregate. First class - 60% to 74.99% and above in the aggregate of marks of all subjects. Second Class – 55% to 59.99% or 55% in the aggregate of marks of all subjects. Pass class – 50% to 54.99% in the aggregate of marks of all subjects.

10. Themaximumperiodtocompletethe B.P.Th. successfullyshouldnotexceednineyears.

11. Internship: There shall be compulsory six months rotatory structured Internship afterpassing finalB.P.Th. examination. Internship should be done in teaching hospital/hospitalsof the university. No candidateshallbeawardeddegreecertificatewithoutsuccessfullycompletingsixmonths internship.

12. ResearchProjectwork: Each Internhavetotakeupa short research projectwork duringinternshipperiod. The protocol approval shall be obtained bytheeach internin the final year of B.P.Th. however the ethical approval should be obtained latest by the second month of internship program.Data shall be collected in the next three months after the approval by the ethics committee.Completed project shall be submitted by the end of 6thmonth.

13. Structure of the Research Project: The written text of the project shall beofminimum50pages excluding references, tables, and questionnairesandotherannexure.It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") Times new Roman, 12 fontand hard bound properly. The intern shall provide plagiarism declaration in his/her project. The guide and head of the institution shall certify the written text of the project. Three copies of project work thus preparedshallbesubmittedtothePrincipal.Thecompletioncertificateof internshipwillbeissuedonlyafter completingtheresearchproject.

14. The degree will be awarded after the satisfactory completion of internship and submission of project work, in ensuing convocation to be conducted by the University.

D. Y. PATIL EDUCATION SOCIETY

(DEEMED TO BE UNIVERSITY), KOLHAPUR

Declared Ested U/S 3 of UGC Act 1956

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