Bachelor of Physiotherapy

Rev.- 1

Rules-Regulations & Curriculum (as per OBE)

(w.e.f. 2025-26)

REGISTRAR
Sai Tirupati University
Udaipur (Raj.)

Venkteshwar College of Physiotherapy
Principal
Udaipur

Venkteshwar College of Physiotherapy

(A Constituent Unit of Sai Tirupati University, Udaipur)

Program Outcomes (POs)

- **PO1** Graduates will acquire the ability to assess, diagnose, plan, and implement physiotherapy treatment for a wide range of medical conditions affecting the musculoskeletal, neurological, cardiopulmonary, and other systems.
- **PO2** Graduates will acquire the ability to assess research findings, clinical reasoning, and evidence-based knowledge to deliver effective and ethical physiotherapy interventions.
- **PO3** Graduates will develop effective communication and interpersonal skills, enabling them to clearly explain subject knowledge to patients, families, and healthcare teams, and also, foster collaborative care.
- **PO4** Graduates will adhere to professional, ethical, and legal standards in physiotherapy practice, respecting patient confidentiality, rights, and dignity.

Program Educational Objectives (PEOs)

- **PEO1** Demonstrate a strong understanding of human anatomy, physiology, pathology, and biomechanics to analyse normal and abnormal movements relevant to physiotherapy practice.
- **PEO2** Apply evidence-based physiotherapy assessment techniques to evaluate impairments, functional limitations, and patient needs across various clinical conditions.
- **PEO3** Develop and implement effective physiotherapy intervention plans using therapeutic exercises, electrotherapy, manual therapy, and rehabilitation strategies.
- **PEO4** Communicate professionally and ethically with patients, caregivers, and healthcare teams while maintaining high standards of patient-centred care.

Program Specific Outcomes (PSOs)

- **PSO1** Graduates will demonstrate proficiency in advanced physiotherapy techniques—including manual therapy, electrotherapy, exercise prescription, and patient rehabilitation planning—across musculoskeletal, neurological, and cardiopulmonary domains.
- **PSO2** Graduates will acquire integrated knowledge of anatomy, biomechanics, pathology, and human movement sciences, along with practical skills in using modern physiotherapy technologies such as EMG biofeedback, gait analysis systems, tapping, IASTM, and digital rehabilitation tools.
- **PSO3** Graduates will be able to apply critical thinking and research methodology to evaluate treatment outcomes, contribute to clinical innovations, and take on leadership roles in healthcare teams or pursue entrepreneurial opportunities in wellness and rehabilitation sectors.
- **PSO4** Apply advanced physiotherapeutic skills in specialty areas such as musculoskeletal, neurological, cardiopulmonary, and sports rehabilitation to enhance functional recovery and patient quality of life.

Rules-Regulations & Scheme of Examination

Program Name:
Bachelor of Physiotherapy (BPT)

Admission Criteria:

1. Candidate should have passed 10+2 (12th standard) or equivalent examination with science stream i.e. Physics, Chemistry, Biology and English with 45% marks in the aggregate of all the subjects prescribed for the examination for general and 40% for SC/ST/OBC candidate.
2. Candidate should have completed the minimum age of 17 years to enroll for B.P.T. first year course.

Duration of Program:
The Minimum duration of the program is two years, and a maximum is four years after that student has to re-register for the program.

Attendance Requirements:

1. No candidate will be permitted to appear in B.P.T First/Second/Third/Fourth university examination unless he/she has attended the course for the prescribed period.
2. A candidate is required to compulsorily attend 75% of the theory classes and 75% of the practical classes held annually in each of the prescribed subject(s) separately.

Scheme of Examination:

1. There will be Internal Examinations in Theory as well as Practical at the College level. These will carry 20% of total marks assigned to Theory as well as Practical Examination.
2. At the end of every academic year, after completion of the course of study there will be University Theory & Practical Examination. These will carry 80% of total marks assigned to Theory as well as Practical Examination.

Paper Pattern:
Section-I: It will contain 3 questions and answer any two questions.

Section-II: It will contain 10 questions and answer any six questions.

Program Scheme

L- Lecture, **T**-Tutorial, **P**-Practical, **C-** Credits
DCC- Discipline Core Course
SEC- Skill Enhancement Course
AEC- Ability Enhancement Course
VAC- Value Added Course
CL – Clinical Practice

I Year

S. No	Course Code	Course Name	Type	L	T	P	C	Theory			Practical			Sum Total
								IA	EA	Total	IA	EA	Total	
1	204AN101	Human Anatomy	SEC	2	0	0	2	20	80	100	-	-	-	100
2	204PH102	Human Physiology	SEC	2	0	0	2	20	80	100	-	-	-	100
3	204BC103	Biochemistry	AEC	2	0	0	2	10	40	50	-	-	-	50
4	204ET104	Exercise Therapy I	SEC	2	0	0	2	20	80	100	-	-	-	100
5	204EL105	Electro Therapy I	SEC	2	0	0	2	20	80	100	-	-	-	100
6	204BK106	Biomechanics & Kinesiology	AEC	2	0	0	2	20	80	100	-	-	-	100
7	204SO107	Sociology	VAC	2	0	0	2	10	40	50	-	-	-	50
8	204AN108	Human Anatomy Lab	SEC	0	0	2	2	0	0	0	20	80	100	100
9	204PH109	Human Physiology Lab	SEC	0	0	2	2	0	0	0	20	80	100	100
10	204ET110	Exercise Therapy-I Lab	SEC	0	0	2	2	0	0	0	20	80	100	100
11	204EL111	Electro Therapy-I Lab	SEC	0	0	2	2	0	0	0	20	80	100	100
								GRAND TOTAL						**1000**

II Year

S. No.	Course Code	Course Name	Type	L	T	P	C	Theory			Practical			Sum Total
								IA	EA	Total	IA	EA	Total	
1	204ET201	Exercise Therapy-II	SEC	2	0	0	2	20	80	100	-	-	-	100
2	204EL202	Electro Therapy-II	SEC	2	0	0	2	20	80	100	-	-	-	100
3	204PR203	Pharmacology	DCC	2	0	0	2	20	80	100	-	-	-	100
4	204PM204	Pathology & Microbiology	AEC	2	0	0	2	20	80	100	-	-	-	100
5	204CM205	Community Medicine	AEC	2	0	0	2	20	80	100	-	-	-	100
6	204PP206	Psychology & Psychiatry	VAC	2	0	0	2	10	40	50	-	-	-	50
7	204ET207	Exercise Therapy-II Lab	SEC	0	0	2	2	0	0	0	20	80	100	100
8	204EL208	Electro Therapy-II Lab	SEC	0	0	2	2	0	0	0	20	80	100	100
								GRAND TOTAL						**750**

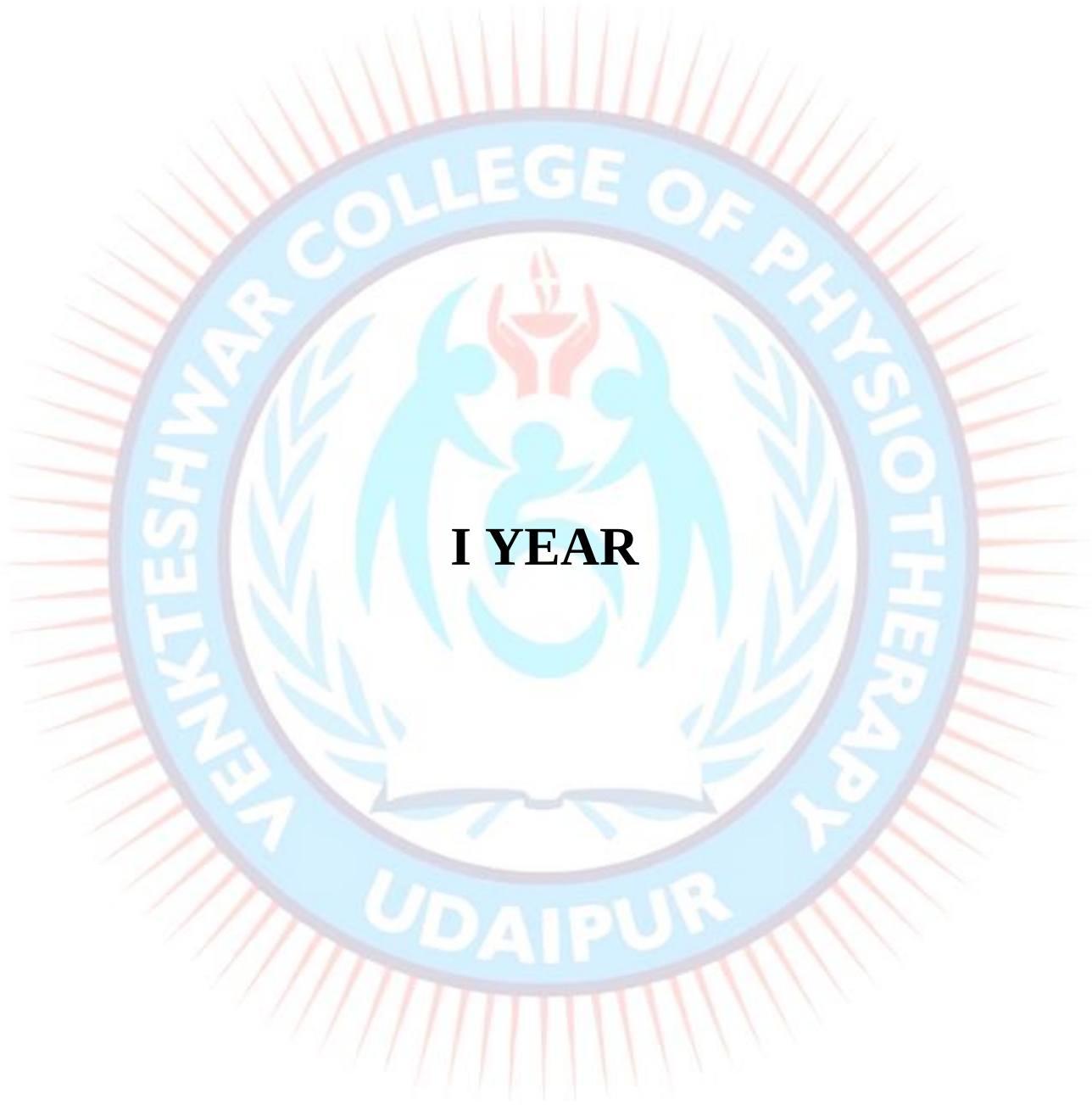
III Year

S. No	Course Code	Course Name	Type	L	T	P	C	Theory			Practical			Sum Total
								IA	EA	Total	IA	EA	Total	
1	204OT301	Orthopedics & Traumatology	DCC	3	0	0	3	20	80	100	-	-	-	100
2	204NN302	Neurology & Neurosurgery	DCC	3	0	0	3	20	80	100	-	-	-	100
3	204GO303	General Surgery /OBS & Gynecology	DCC	3	0	0	3	20	80	100	-	-	-	100
4	204GM304	General Medicine /Pediatrics	DCC	3	0	0	3	20	80	100	-	-	-	100
5	204OT305	Orthopedics & Traumatology-CL	SEC	0	0	1	1	-	-	-	20	80	100	100
6	204NN306	Neurology & Neurosurgery-CL	SEC	0	0	1	1	-	-	-	20	80	100	100
7	204GO307	General Surgery /OBS & Gynecology-CL	SEC	0	0	1	1	-	-	-	20	80	100	100
8	204GP308	General Medicine /Pediatrics-CL	SEC	0	0	1	1	-	-	-	20	80	100	100
								GRAND TOTAL						**800**

IV Year

S. No.	Course Code	Course Name	Type	L	T	P	C	Theory			Practical			Sum Total
								IA	EA	Total	IA	EA	Total	
1	204OT401	PT in Orthopedics & Traumatology	DCC	3	0	0	3	20	80	100	-	-	-	100
2	204NN402	PT in Neurology & Neurosurgery	DCC	3	0	0	3	20	80	100	-	-	-	100
3	204GO403	PT in General Surgery /OBS & Gynecology	DCC	3	0	0	3	20	80	100	-	-	-	100
4	204GM404	PT in General Medicine /Pediatrics	DCC	2	0	0	2	20	80	100	-	-	-	100
5	204CB405	Community Based Clinical Rehabilitation	AEC	2	0	0	2	20	80	100	-	-	-	100
6	204RM406	Research Methodology & Biostatistics	AEC	2	0	0	2	20	80	100	-	-	-	100
7	204OT407	PT in Orthopedics & Traumatology CL	SEC	0	0	1	1	-	-	-	20	80	100	100
8	204NN408	PT in Neurology & Neurosurgery CL	SEC	0	0	1	1	-	-	-	20	80	100	100
9	204GO409	PT in General Surgery /OBS & Gynecology CL	SEC	0	0	1	1	-	-	-	20	80	100	100
10	204GP410	PT in General Medicine /Pediatrics CL	SEC	0	0	1	1	-	-	-	20	80	100	100
11	204CB411	Community Based Clinical Rehabilitation CL	SEC	0	0	1	1	-	-	-	20	80	100	100
								GRAND TOTAL						**1100**

Detailed Syllabus



I YEAR

Course Name: Human Anatomy **L T P C**
Course Code: 204AN101 **2 0 0 2**

COURSE OF STUDY

Course Outcome

- After successful completion of the course students will be able to understand the structural organization of the human body from cells to organ systems.
- They will be able to use correct anatomical terminology to describe body regions, positions, and relationships.
- They will be able to identify major anatomical structures through models, images & dissections.
- They will be able to explain the functional relevance of anatomical structures in relation to body systems.

THEORY

a) Histology – cell tissues of the body, epithelium, connective tissue, cartilage, bone, lymphoid tissue.
b) Embryology – a) Ovum, spermatozoa, fertilization and formation of the Germ layers and their derivations (b) development of skin, Fascia, blood vessels, lymphatic, (c) Development of bones, axial and appendicular skeleton & muscles, (d) Neural tube, brain vessels & spinal cord, (e) Development of brain and brain stem structures, Development anomalies. (Brief)

Musculoskeletal Anatomy

a) anatomical terminologies (Planes, axis, groove, tuberosity, trochanters etc.)
b) Connective tissue classification.
c) Bones – Composition & function, classification & types according to morphology & development.
d) Joints – definition – classification, structure of fibrous, cartilaginous joints, blood supply and nerve supply of joints,

Regional Anatomy

a) Skin and its appendages (Brief outline)
b) Cardiovascular system – Heart, (Gross Anatomy and Functions) Arteries, Veins, Collateral Circulation
c) Respiratory system – Thoracic Cage, Brief outline of respiratory passages, brief gross Anatomy of lungs and pleura, Broncho – pulmonary segments (Details of intercostal muscles, muscles and mechanism of respiration)
d) Digestive system (Brief outline of gastrointestinal tract and associated glands)
e) Excretory system (Brief outline of Kidney, Ureters, Urinary bladder & urethra in male and female)
f) Male and Female reproductive system (Brief outline of genital organs
g) Endocrine system (Brief outline and classification of glands sites & secretion)
h) Lymphatic system (Brief outline)

Upper Extremity

a) Osteology, Clavicles, Scapula. Humerus, Radius, Ulna, Carpals, Metacarpals, Phalanges
b) Soft parts Breast, pectoral region, axilla, front of arm, back of arm, cubital fossa, front of forearm, back of forearm, palm, dorsum of hand, muscles, facial nerves, vessels and lymphatic drainage of upper extremity
c) Joints Shoulder girdle, Shoulder joint, elbow joints, Radio ulnar joint, wrist joint and joints of the hand
d) Arches of hand, skin of the palm and dorsum of hand.

Lower Extremity

a) Osteology: Hip bone, femur, tibia, Fibula, patella, tarsals, metatarsals, and phalanges.
b) Soft Parts: Gluteal region, front and back of the thigh [femoral triangle, femoral and inguinal canal], medial side of the thigh [adductor canal], lateral side of the popliteal-fossa, anterior and posterior compartment of leg, sole of the foot, lymph drainage of lower limb, venous drainage of the lower limb, arterial supply of the limb, arches of foot, skin of foot.

Trunk

a) Osteology: Cervical, thoracic, lumbar, sacral and coccygeal vertebrae and ribs.
b) Soft tissue: pre and para vertebral muscles, intercostal muscles, anterior abdominal wall muscles, intervertebral disc.
c) Joints: Hip joint, Knee joint, Ankle joint, joints of the foot.

Head and Neck

a) Osteology: Mandible and bones of the skull
b) Soft parts: Muscles of the face and neck and their nerve and blood supply, ocular muscles, salient points about the eyeball and internal ear.

Neuroanatomy

a) Organisation of Central Nervous System – Spinal nerves & autonomic nervous system mainly pertaining to cardiovascular, respiratory & urogenital systems.
b) Cranial nerves
c) Peripheral nervous system.
d) Central Nervous System: - Peripheral nerve, Sensory end organs, Brain stem, Inferior Colliculi, Hypothalamus, Cerebral hemisphere, Internal Capsule, The pyramidal system, Anatomic integration, Neuromuscular junction, Spinal segments & areas, Cerebellum, Superior Colliculi, Thalamus, Corpus Striatum, Lateral ventricles, Blood supply of Brain, Basal Ganglia, Pons & Medulla, Extra pyramidal system

Practical / Demonstrations

a) Upper extremity including surface Anatomy
b) Lower extremity including surface Anatomy
c) Head & Spinal cord and Neck and Brain, including surface Anatomy
d) Thorax including surface anatomy, abdominal muscles, joints

e) Histology – Elementary tissue including surface Anatomy
f) Embryology – models, Charts & X – Rays
g) Demonstration of the muscles of the whole body and organs in thorax and abdomen in a cadaver. Demonstration of movements of important joints.
h) Surface marking of the lung, pleura fissures and lobes of lungs, heart, liver, spleen, kidney, cranial nerves and important blood vessels.
i) Identification of body prominence on inspection and by palpation especially of extremities.
j) Points of palpation of nerves and arteries.
k) General Viva
l) Practical Record

Course Name: Human Anatomy Lab | **L** | **T** | **P** | **C**
Course Code: 204AN108 | **0** | **0** | **2** | **2**

COURSE OF STUDY

Upper extremity including surface Anatomy

Identification of body prominence on inspection and by palpation especially of extremities

(BONES)

a. Humerus
b. Ulna
c. Radius
d. Metacarpal
e. Carpels
f. Phalanges
g. Clavicle
h. Scapula

(JOINTS)

a. Shoulder Joint
b. Elbow Joint
c. Wrist Joint

Lower extremity including surface Anatomy

Identification of body prominence on inspection and by palpation especially of extremities

(BONES)

a. Femur
b. Tibia
c. Fibula
d. Metatarsals
e. Phalanges

(JOINTS)

Identification of the bones via palpation and side determination and muscle attachment

a. Hip Joint
b. Knee Joint
c. Ankle Joint

Head (Skull) Anatomy

Identification of the bones via palpation and side determination

a. Anterior aspect
b. Sagittal Section
c. Maxilla & Mandible
d. Sphenoid Bone
e. Base of Skull
f. Right orbit & Maxillary Sinus

Spinal Cord

Identification of the bones via palpation and side determination & Side determination

Vertebral Bones and its surface anatomy

a. (Cervical)
b. (Thoracic)
c. (Lumbar)
d. (Sacrum)
e. (Coccyx)

Neck Anatomy

Identification of the bones via palpation and side determination muscle attachment nerve supply & blood supply

a. Anterior Triangle of neck
b. Posterior Triangle of Neck

Brain surface Anatomy

Identification of lobes via Palpation Side determination nerve supply & blood supply

a. Outline of brain
b. Lobes of the brain
c. Cerebrum & Cerebellum
d. Pons & Medulla

Thorax including surface anatomy

Thorax

Identification of the bones via palpation and side determination muscle attachment nerve supply & blood supply

a. Juglar Notch
b. Sternoclavicular Joint
c. Diaphragm Margin & Outline
d. Costal Arch
e. Xiphoid Process

f. Body of sternum
g. Sternal Angle
h. Costal Cartilage
i. Costal Margin
j. Costal Arch

Abdominal muscles

Identification of muscles via palpation and side determination nerve supply & blood supply

a. Anterolateral and posterior abdominal walls
b. Layers from superficial to deep
c. Skin, superficial fascia, muscles and peritoneum
d. Muscles, Transversalis fascia
e. Extraperitoneal fat (extraperitoneal fascia)

Histology – Elementary tissue including surface Anatomy

Embryology – Models, Charts & X – Rays

Demonstration of the muscles of the whole body and organs in thorax and abdomen in a cadaver. Demonstration of movements of important joints. Surface marking of the lung, pleura fissures and lobes of lungs, heart, liver, spleen, kidney, cranial nerves and important blood vessels.

Identification of body prominence on inspection and by palpation especially of extremities. Points of palpation of nerves and arteries.

Course Name: Human Physiology	**L**	**T**	**P**	**C**
Course Code: 204PH102	**2**	**0**	**0**	**2**

COURSE OF STUDY

Course Objective

- The Human Physiology aims to provide students with a thorough understanding of the normal functions of the human body at the cellular, tissue, organ, and system levels.
- It seeks to develop the ability to explain physiological mechanisms, correlate structure with function, and apply physiological principles to maintain homeostasis and interpret clinical scenarios

Course Outcome

- After successful completion of the course students will be able to understand the basic functions of major organ systems in the human body.
- They will be able to explain the mechanisms that regulate & maintain internal balance of human body.
- They will be able to describe the physiological processes at cellular, tissue, and system levels by applying physiological principles to interpret normal and abnormal body functions.
- Will be able to understand the detailed physiological mechanism of visceral organs.

THEORY

Intro

a) General physiology
b) Cell structure and organelle, general principles of biophysics and body compartments

Blood

a) Composition and functions of blood, plasma and their formation.
b) Structure and formation and function of **RBC, WBC,** and platelets
c) Haemoglobin
d) Coagulation, bleeding time. Clotting time and their defects.
e) Blood groups and their significance.
f) Reticule – endothelial system, structure and functions.

Digestive System

a) General introduction, organizational plan and digestive system
b) Composition, function and regulation of salivary, gastric, pancreatic, intestinal and biliary secretion
c) Movements of G.I. Tract.
d) Digestion and absorption of carbohydrate, protein and G R F
e) Urinary System - Functions and General introduction

f) Endocrine – Secretion, regulation and functions of pituitary, thyroid, adrenal, pancreas, parathyroid, testis and ovaries. Influence of hormones on growth & development, blood sugar and its regulation, blood calcium regulation.

Respiratory System

a) Introduction, general organization.
b) Mechanics of respiration.
c) Pulmonary volumes and capacities
d) Transport of respiratory gases
e) Nervous and chemical, control, of respiration.
f) Pulmonary function tests.
g) Effect of exercise on respiratory system.

Cardiovascular System

a) Structure and properties of Cardiac muscle
b) Cardiac cycle
c) Regulation of heart rate
d) Cardiac output
e) Blood Pressure and its regulation
f) Regional circulation – coronary, skin, muscle, cerebral circulation
g) Cardiorespiratory changes during exercise and cardiac performance during exercise
h) Normal ECG

Vision

a) General outline of image formation and visual perception
b) Pupillary and conjunctival reflexes
c) Errors of refraction and correction of refractive errors
d) Extra ocular muscles and eye movements
e) Nutritional deficiency and blindness

Audition

a) General outline of mechanism of hearing and perception of sound
b) Test for hearing, Types of deafness and hearing aids
c) Speech and its disorders
d) Vestibular apparatus

Reproductive System

a) Changes during puberty, classification of male sex hormones and their functions, spermatogenesis
b) Changes during puberty, classification and functions of female sex hormones, menstrual cycle, ovulation and contraception.
c) Physiology changes during pregnancy, childbirth, functions of placenta and physiology of lactation.

Neuromuscular Physiology

a) Nerve & muscle – structure and function of muscle and nerve cells, classification of muscle and nerve fibres.

b) Cell membranes, ionic and potential and its propagation evoked potential factors affecting muscle tension, neuromuscular transmission motor units, synapse, reflex physiology, degeneration and regeneration of the nerve fibre, reaction of degeneration muscle contraction mechanics, chemistry and biophysics.

Central Nervous System

a) Physiology of Synapse

b) Physiology of receptor organs for general special sensation

c) Physiology of touch, pain and temperature sensations

d) Physiology of reflex action, Classification and properties of reflexes (excluding conditioned reflexes) Sensory and motor tracts of spinal cord and effects of complete & incomplete transaction of spinal cord at various levels

e) Cerebral Cortex – characteristics, areas and functions.

f) Cerebellum and basal ganglia – upper and lower motor neurone type of paralysis structure, functions and connections

g) Sensory and motor cortex

h) Physiology of Labyrinthine

i) Regulation of equilibrium and posture

j) Physiology of equilibrium and balance

k) Learning, Memory.

l) Golgi tendon organ

m) Autonomic Nervous System.

Physiology Of Exercise

a) Introduction to Exercise therapy & effect of exercise on

b) Oxygen transport

c) Muscle strength / Power & Endurance

d) Mobility

e) Neuromuscular system

f) Body composition

g) Body temperature and basal metabolic rate

h) Hormonal system

i) Body fluid and electrolyte balance

j) Cardiovascular function

k) Respiratory functions

Physiology Of Pain And Re – Education

a) Types of muscle and nerve fibres and their properties and response to various electronic stimulation
b) Generation of action potential and its propagation
c) Neuromuscular function and transmission of impulse
d) Physiology of pain
e) Psychosomatic Physiology of pain
f) Physiology of Bio feed back

Neurophysiology Of Exercise

a) Normal human developmental process
b) Reflex and reaction maturation
c) Sensory – motor integration
d) Rotation
e) Perception and motor learning
f) Growth, development and maturation

Practical / Demonstrations

Haematology

a) RBC count,
b) WBC count,
c) Differential Count,
d) ESR
e) Bleeding & clotting time
f) Estimation of haemoglobin
g) Blood groups

Human Physiology

a) Examination of
b) respiratory system
c) heart and arterial pulse
d) deep and superficial reflexes,
e) Cranial nerves,
f) Motor system
g) Sensory system including higher functions
h) Measurements of blood pressure

Demonstration (only)

a) Pulmonary Function test (Spiro meter)
b) Ergographic and work done
c) General Viva. & Practical

Course Name: Human Physiology Lab	**L**	**T**	**P**	**C**
Course Code: 204PH109	**0**	**0**	**2**	**2**

COURSE OF STUDY

Course Objectives

- To provide hands-on understanding of physiological principles through laboratory experiments.
- To develop skills in recording basic physiological parameters such as pulse, BP, reflexes, and respiration.
- To train students to use physiological instruments and perform standard clinical tests.
- To help students correlate physiological findings with normal and altered body functions.
- To promote accuracy, critical thinking, and interpretation of physiological data in clinical contexts.

Course Outcomes

CO1 Demonstrate the ability to record vital signs, reflexes, and other physiological parameters accurately.
CO2 Perform and interpret basic laboratory experiments related to cardiovascular, respiratory, neural, and muscular physiology.
CO3 Use physiological instruments correctly and safely.
CO4 Analyse experimental findings and relate them to normal physiological mechanisms.
CO: Apply physiological knowledge to clinical assessment and decision-making in physiotherapy practice.

Section I: Haematology Practical's

1. Estimation of Red Blood Cell (RBC) Count
2. Estimation of Total White Blood Cell (WBC) Count
3. Differential Leukocyte Count (DLC)
4. Estimation of Erythrocyte Sedimentation Rate (ESR) by Westergren/Wint robe Method
5. Determination of Bleeding Time (BT) and Clotting Time (CT)

Section II: Haemoglobin And Blood Grouping

1. Estimation of Haemoglobin by Sahli's Method
2. Determination of Blood Grouping (ABO and Rh System)

Section Iii: Clinical Physiology Examination

1. Clinical Examination of Respiratory System
2. Examination of Heart and Arterial Pulse
3. Measurement of Blood Pressure by Auscultatory Method
4. Examination of Deep and Superficial Reflexes
5. Examination of Cranial Nerves

Section Iv: Neurological Examination

1. Examination of Motor System (Tone, Power, Coordination, Gait)
2. Examination of Sensory System including Higher Cortical Functions

Section V: Demonstration Practical's

1. Pulmonary Function Tests using Spirometer (Demonstration Only)
2. Ergograph – Assessment of Muscle Work and Fatigue (Demonstration Only)

Course Name: Biochemistry	**L**	**T**	**P**	**C**
Course Code: 204BC103	**2**	**0**	**0**	**2**

COURSE OF STUDY

Course Outcome

- After successful completion of the course students will be able to understand the structure and function of biomolecules such as proteins, carbohydrates, lipids, and nucleic acids.
- They will be able to explain key metabolic pathways and how they provide energy and building blocks for the body.
- They will be able to understand the mechanism of applying biochemical principles to understand health, disease, and clinical diagnostics.
- Will be able to understand complex mechanism of minerals & Vitamins

THEORY

1. **Bio- Physics**

   Concepts of PH and buffers: Acid–base equilibrium, osmotic pressure and its physiological applications.

2. **Cell**

   Morphology, structure and functions of cell, cell membrane, nucleus, chromatin, Mitochondria, endoplasmic reticulum & Ribosome

3. **General Carbohydrates, Lipids & Proteins & Metabolism**:

   Definition, functions, sources, classification & metabolism

4. **Vitamins**

   Classification, Fat soluble vitamins A, D, E, K, water soluble vitamins – B complex and vitamin 'C' Daily requirement physiological functions and disease of vitamin deficiency.

5. **Bio- Energetics**

   Concept of free energy change, energetic reaction and concepts regarding energy rich compounds, respiratory chain and biological oxidation

6. **Water And Electrolytes**

   Fluid compartments, daily intake and output, Dehydration, sodium and potassium Metabolism.

7. **Mineral Metabolism**

   Iron, Calcium, Phosphorous, Trace elements

8. **Nutrition**

   Nutritional aspects of carbohydrate, fat and proteins, Balanced diet, Metabolism in exercise and injury, Diet for chronically ill and terminally ill patients.

9. **Connective Tissue**

Mucopolysaccharides, connective tissue proteins, Glycoprotein chemistry and Metabolism of bone and teeth

10. **Nerve Tissue**

Composition, Metabolism, Chemical mediators of nerve activities

11**. Hormones** - General Characteristic and mechanism of Hormone action .

Course Name: Exercise Therapy-I	**L**	**T**	**P**	**C**
Course Code: 204ET104	**2**	**0**	**0**	**2**

COURSE OF STUDY

Course Outcome

- After successful completion of the course students will be able to understand foundational concepts, definitions, and aims of exercise therapy.
- They will be able to differentiate between types of exercise (e.g., passive, active, resisted, aerobic, stretching, and functional training),
- They will be able to understand physiological effects of exercise on different body systems (musculoskeletal, cardiovascular, respiratory, etc.)
- Students will be able to learn to conduct comprehensive patient assessments to identify impairments, functional limitations, and physical fitness levels
- Basic physics in exercise therapy. Mechanics: Force, Gravity, line of gravity, centre of gravity in human body, Base, equilibrium, Axes and planes, mechanical principles of lever, order of lever, Examples in human body, Pendulum, spring.
- Massage: Definition of massage, type of massage, general effects and used of massage, local effects of individual manipulation (physiological effects), contra- indications, techniques of application of all manipulations – stroking, Effleurage, kneading and picking up, skin rolling (back), clapping, tapping, friction etc.
- Suspension Therapy: Principal of suspension, types of suspension therapy, effects and uses of suspension therapy their application either to mobilize a joint to increase joint range of motion or to increase muscle power – explaining the full details of components used for suspension therapy.
- Introduction to exercise therapy.
- Starting positions – Fundamental starting positions – standing, sitting, kneeling, lying and – hanging. All the derived positions of the above five fundamental starting positions.
- Classification of movements in details:
    - Active – voluntary in definition involuntary movements; Passive movements.
- Voluntary movements: Free exercise, assisted exercises, resisted exercise
    - Active – Assisted and Resisted exercise.
- Assisted Exercise: Technique and uses.
- Free exercise – Classification, technique, effects of frequent exercise on various systems etc.
- Resisted exercises- Techniques and types of resistance, Set system (Heavy resisted exercises, Oxford method, De-Lorme method, and Mc queen method.
- Relaxed passive movements, basic knowledge of classification of relaxed passive movements, definition, technique effects and uses of relaxed passive movement.
- Muscles strength: Anatomy and physiology of muscle tissue cause of muscle weakness paralysis, prevention of muscle weakness/ paralysis types of muscle work and contraction ranges of muscle work, prevention of muscle atrophy. Muscle assessment M.R.C. grading principles of muscle strengthening/ re- education of a paralyzed muscle etc.

- Joint Movement: Classification of joint movements causes of restriction of joint movement, prevention of restriction of restriction joint range of motion, etc. principles of mobilization of a point in increasing its range of motion Technique of mobilization of a stiff joint, Goniometry.
- Bed Rest – its necessity & Complication.
- Posture: Types, factors responsible for good posture, factors for poor posture, principles of development of good posture.
- Breathing exercises: Physiology of respiration, types of breathing exercise, techniques of various types of breathing exercises, its effects and uses.
- Hydrotherapy: Introduction, various types of hydrotherapy units, construction and equipment's used in hydrotherapy principles, Indications Contraindication, effects and uses of hydrotherapy. Precautions towards patient, towards therapist, equipment unit etc.

Course Name: Exercise Therapy-I Lab	**L**	**T**	**P**	**C**
Course Code: 204ET110	**0**	**0**	**2**	**2**

COURSE OF STUDY

Massage Therapy

1. Physiological Effects of Massage Therapy

2. Methods of Massage Therapy

- Effleurage (stroking)
- Petrissage (kneading)
- Tapotement (percussion)
- Friction
- Vibration
- Compression

3. Effects of Massage Therapy

- Physical: reduces enema, improves muscle tone
- Psychological: relaxation, stress reduction
- Neurological: stimulates nerve endings, improves proprioception

4. Role & Principles of Massage Therapy

Suspension Therapy

1. Principles
2. Advantages
3. Disadvantages
4. Suspension Instruments

- Slings, pulleys, ropes, harnesses, overhead frames

5. Types of Suspension

- Upper limb suspension
- Lower limb suspension
- Whole-body suspension

6. Techniques for Upper & Lower Limb

Relaxed Passive Movement (RPM) / Types of Exercise

1. Classification of Exercise

- Active exercise
- Passive exercise
- Isometric exercise

- Dynamic exercise

2. Active Exercise

- Movement performed by the patient's own muscle effort
- Improves strength, coordination, and endurance

3. Passive Exercise

- Movement performed by therapist without patient effort
- Maintains joint mobility and prevents contractures

4. Isometric Exercise

- Muscle contraction without joint movement

5. Dynamic Exercise

- Muscle contraction with joint movement

6. Principle of RPM

- Move joint slowly through its range of motion
- Avoid pain and overstretching
- Maintain rhythm and gentle pressure

7. Contraindications

- Acute fractures
- Severe inflammation or infection
- Recent surgery with restrictions
- Severe pain

8. RPM for Upper and Lower Limb

- **Upper Limb:** shoulder, elbow, wrist, fingers
- **Lower Limb:** hip, knee, ankle, toes

Manual Muscle Testing (Mmt)

1. Uses in Physiotherapy

- Assess muscle strength
- Detect muscle weakness
- Guide rehabilitation programs

2. Role in Muscle Grading

- Grades muscle power from 0 (no contraction) to 5 (normal strength)

3. Types of Muscle Grades

Goniometry

1. Introduction

- Measurement of joint angles
- Evaluates range of motion (ROM)

2. Types of Goniometers

3. Principles of Goniometry

4. Uses in Upper & Lower Limb

- **Upper Limb:** shoulder, elbow, wrist, fingers
- **Lower Limb:** hip, knee, ankle, toes

Breathing Exercises

1. Types of Breathing Exercises

- Diaphragmatic breathing
- Segmental breathing
- Pursed-lip breathing
- Thoracic expansion exercises

2. Active Cycle of Breathing Technique (ACBT)
3. Indications
4. Contraindications

Course Name: Electro Therapy-I	**L**	**T**	**P**	**C**
Course Code: 204EL105	**2**	**0**	**0**	**2**

COURSE OF STUDY

THEORY

a) Electrical Fundamentals Physical Principles: - Structure and Properties of matter" molecular Atom, Proton, Neutron, Electron, Ion, etc.
b) Electrical Energy: - Ohm's law, Joule's law.
c) Magnetic Energy: - Nature and Property of a Magnet, Electromagnetic induction, Principle of working of choke Coil transformer- rectification of A.C. to D.C. Metal oxide Rectifier,
    - Semiconductor – Diode and Triode.
d) Valves – principle working- condenser – principle – Details of charging and discharging, etc. Transistors, measurement of current intensity, EMS and power – moving coil millimetre and Voltmeter.
e) Wiring of components in series and parallel Distribution of Electrical energy – Earth Shock and electrical shock Safety Devices.
f) Low Frequency Currents - Nature and Principles of production of muscle stimulating current- Types of Low frequency currents used for treatment. High voltage Galvanic Current, Rectifying currents.
g) Principles of Electro diagnosis – strength duration curve Chronaxie and Rheobase- Their relationship
h) Faradic Under Pressure.
i) Faradic Galvanic Test.
j) Nerve Conduction Velocity (NCV) Test.
k) Medium Frequency Current- Definition, Production (Brief), Physiological effects and therapeutic effects of Interferential Current, Russian Current.
l) High Frequency Current- Definition, Production (Brief)
m) Actino Therapy- Definition, Production (Brief), Physiological & Therapeutic effect of the following – Infrared radiation, ultraviolet Radiation.
n) Therapeutic Heat- Definition, Principles, Physiological & therapeutic effects of moist heat, Paraffin Wax Bath, Contrast Bath, Whirl Bool bath, Fluido Therapy, Electric Heating Pads.
o) Cryotherapy- Principles, Physiological effects, uses of cold packs, Ice massage, commercial cold packs, Ice Towels, cold compression Units, Evaporating sprays.
p) Traction.

Course Name: Electro Therapy-I Lab	**L**	**T**	**P**	**C**
Course Code: 204EL111	**0**	**0**	**2**	**2**

COURSE OF STUDY

Types of Current

1. **Galvanic Current**
   - Definition and characteristics
   - Physiological effects
   - Indications and contraindications
   - Techniques and clinical applications

2. **Faradic Current**
   - Definition and characteristics
   - Differences from galvanic current
   - Uses in muscle stimulation
   - Precautions and treatment protocols

3. **Motor Point Stimulation**
   - Identification of motor points
   - Techniques for effective stimulation
   - Clinical applications for muscle strengthening and re-education

Thermal Therapy

1. **Hot Pack**
   - Types and methods of application
   - Physiological effects on tissues
   - Indications, contraindications, and precautions

2. **Cold Pack**
   - Types and methods of application
   - Physiological effects (cryotherapy)
   - Indications, contraindications, and precautions

3. **Paraffin Wax Bath**
   - Application technique
   - Benefits for joints and soft tissue
   - Safety consideration

Mechanical Therapy

- **Traction**
  - Definition and types (cervical, lumbar)
  - Physiological effects
  - Indications, contraindications, and precautions
  - Equipment and procedural technique

Practical Component

- **Practical Record**
  - Documentation of treatment sessions
  - Recording parameters, patient response, and outcomes
  - Case studies and analysis
- Hands-on practice for all modalities covered
- Safety protocols and infection control

Assessment & Evaluation

- Written tests (conceptual understanding)
- Practical exams (demonstration of techniques)
- Case study reports
- Viva/Oral questioning on modalities

Course Name: Biomechanics & Kinesiology **L T P C**

Course Code: 204BK106 **2 0 0 2**

COURSE OF STUDY

THEORY

Essential Concepts

a) Motion and forces, Axis and planes, Mechanical lever, Lever in human body.
b) Force distribution- linear force, Resultant force& equilibrium, parallel forces in one plan concurrent force.
c) Newton's laws- Gravity and its effects on human body
d) Moments
e) Forces and moments in action
f) Concepts of static equilibrium and dynamic equilibrium
g) Composition and resolution of forces
h) Friction

Kinematical Concepts & Kinetic Aspects Of Limb Movement

a) Biomechanics of upper extremity
b) Scapulo- shoulder joint
c) Elbow joint
d) Wrist joint & hand
e) Motion of hip & pelvis
f) Forces of hip knee joint
g) Patella femoral joint
h) Ankle and foot kinematics
i) Motion of ankle
j) Forces of ankle joint
k) Stability of ankle joint
l) Temporo Mandibular Joint

Bio Mechanics Of Gait:

a) Gait cycle
b) Parameters of gait
c) Myo kinetics of human gait
d) Gait deviations
e) Crutch and cane exercises

Posture

a) Anatomical aspects of posture
b) Factors affecting posture
c) Assessment of posture
d) Types of posture
e) Postural deviation

Course Name: Sociology **L T P C**

Course Code: 204SO107 **2 0 0 2**

COURSE OF STUDY

THEORY

Introduction

a) Definition of Sociology, Sociology as a science, uses of study of Sociology, application of knowledge of sociology in physiotherapy.
b) Sociology and health social factors affecting health status, social consciousness and perception of Illness, social consciousness and meaning of illness, decision making in taking treatment Institution of health, their role in the improvement of health and the people.
c) Socialization Meaning of socialization, influence of social factors on personality, Socialization in hospital and socialization in rehabilitation of patients.
d) Social Groups-Concepts of social groups & influence of formal and informal groups on health and sickness, the role of primary groups and secondary groups in the hospital and rehabilitation setting.
e) Family -Influence of family on human personality, discussion of changes in the functions of a family, influence of family on the individual's rehabilitation
f) Social problems of the disabled - Consequences of the following social problems in relation to sickness and Disability, remedies to prevent these problems to prevent these problems:

- Prevent these problems
- Population explosion
- Poverty and unemployment
- Beggary
- Juvenile delinquency
- Prostitution
- Alcoholism
- Problems of Women in employment.

II YEAR

Course Name: Exercise Therapy II **L T P C**

Course Code: 204ET201 **2 0 0 2**

COURSE OF STUDY

a) P.N.F: Detail theory of proprioceptive –Neuro muscular facilitation
b) Techniques Functional re-education and demonstration
c) Coordination Exercise: Definition of coordinated movements, in coordinated movements,
d) Factors for coordinated movement's technique of coordination exercises
e) Gait: Analysis of normal gait with muscle work, various pathological gaits.
f) 2-point, 3 point & 4-point gait: Introduction, crutch measurement, crutch balance, various types of crutch gait in details.
g) Individual, group and mass exercises, maintenance exercises, plan of exercise- therapy tables and schemes.
h) Therapeutic exercises – impact on physical function
i) Strategies for effective exercise instruction
j) Independent learning activities
k) Range of motion & types of ROM exercises
l) Resistance exercises and adaptation of skeletal muscles
m) Principles of aerobic exercises & its physiological response
n) Determinants of exercise program
o) Testing as basis of aerobic program
p) Stretching & its determinants
q) Manual stretching techniques
r) Peripheral joint mobilization techniques
s) Aquatic exercises
t) Application of therapeutic exercises to different regions of body
u) Pulmonary exercises & postural drainage
v) Yoga: Definition- History- Principles – concepts, General effects of yogic posture on the body

Practical / Demonstrations

1. Gait and crutch walking
2. Resistive exercise.
3. Range of motion exercise.
4. Stretching.
5. Mobilization techniques.
6. Breathing exercise and postural drainage.
7. Practical record.

Course Name: Exercise Therapy-II Lab | **L** | **T** | **P** | **C**
Course Code: 204ET207 | **0** | **0** | **2** | **2**

COURSE OF STUDY

Introduction

- Overview of therapeutic exercises
- Principles of rehabilitation
- Role of exercise in functional recovery

Gait And Mobility Training

1. **Gait Training**
    - Normal gait pattern and deviations
    - Assessment techniques
    - Therapeutic interventions for abnormal gait
2. **Crutch Walking**
    - Types of crutches and their use
    - Techniques: Two-point, Three-point, Four-point, Swing-to, Swing-through
    - Safety precautions and patient education

Exercise Therapy

1. **Resistive Exercise**
    - Definition and types (manual, mechanical)
    - Progressive resistance techniques
    - Indications, contraindications, and precautions
    - Benefits for muscle strength and endurance
2. **Range of Motion (ROM) Exercise**
    - Types: Active, Active-assisted, Passive
    - Techniques and precautions
    - Indications for different conditions
    - Role in maintaining joint flexibility and preventing contractures
3. **Stretching**
    - Types: Static, Dynamic, PNF
    - Principles and techniques
    - Indications, contraindications, and benefits
    - Stretching for specific muscle groups

Manual Therapy

- **Mobilization Techniques**
    - Definition and types (joint mobilization, soft tissue mobilization)
    - Techniques and clinical applications
    - Safety measures and contraindications
    - Integration with exercise programs

Respiratory Therapy

- **Breathing Exercises**
    - Diaphragmatic breathing, segmental breathing, incentive spirometry
    - Indications for respiratory conditions
    - Techniques to improve lung expansion and oxygenation

- **Postural Drainage**
    - Principles and positions
    - Indications and contraindications
    - Techniques for clearing secretions
    - Integration with breathing exercises

Practical Component

- Demonstration and supervised practice of all exercises
- Patient handling and safety during therapy
- Recording therapy sessions and outcomes
- Case-based practical assessments

Course Name: Electro Therapy-II	**L**	**T**	**P**	**C**
Course Code: 204EL202	**2**	**0**	**0**	**2**

COURSE OF STUDY

a) Electrophysiology & Thermal Principles – Study of electrical and thermal energy interactions with biological tissues for therapeutic effects.
b) Electrical Properties of Cell & Tissue – Exploration of how cells and tissues conduct, resist, and respond to electrical currents.
c) Tissue Repair – Understanding the biological phases and mechanisms underlying healing and regeneration of injured tissues.
d) Sensory & Motor Nerve Activation – Principles governing stimulation of sensory and motor nerves for therapeutic and diagnostic purposes.
e) Pain & Role of Physical Modalities – Mechanisms of pain and how physical agents modulate pain pathways for relief.
f) Thermal Effect – Physiological responses of tissues to heating or cooling for therapeutic benefit.
g) Low Energy Treatment – Use of low-intensity modalities like LLLT or micro current to promote healing at the cellular level.
h) Simulative Effect – Therapeutic use of external stimuli (electrical, thermal, mechanical) to activate physiological responses.
i) Conduction Agents of Heat & Cold – Materials and methods used to transfer thermal energy into or out of the body.
j) Electromagnetic Agents: IRR, Diathermy, Laser, UV Therapy – Application of electromagnetic energy forms for heating, healing, and photo biomodulation.
k) Ultrasound – Use of high-frequency sound waves for deep tissue heating and mechanical therapeutic effects.
l) Low-Frequency Current: IFT/TENS – Application of low-frequency electrical currents for pain modulation and neuromuscular stimulation.
m) Diagnosis & Assessment Applications: Electrophysiology Testing – Use of electrical techniques (EMG, NCV) to evaluate neuromuscular function.
n) Wound Repair – Physiological processes and therapeutic interventions involved in restoring tissue integrity.

Practical / Demonstrations

1. Practical applications of the above.
2. File Work
3. Assignment work

Course Name: Electro Therapy-II Lab	**L**	**T**	**P**	**C**
Course Code: 204EL208	**0**	**0**	**2**	**2**

COURSE OF STUDY

Electrical Stimulation Techniques

1. **TENS (Transcutaneous Electrical Nerve Stimulation)**
    - Definition and mechanism of action
    - Types: Conventional, Acupuncture-like, Burst mode
    - Indications and contraindications
    - Electrode placement and parameters
    - Clinical applications for pain management

2. **IFT (Interferential Therapy)**
    - Definition and characteristics
    - Physiological effects and mechanism
    - Indications and contraindications
    - Electrode placement techniques
    - Clinical applications: pain relief, edema reduction, muscle stimulation

3. **Ultrasound Therapy (US)**
    - Principles of ultrasound
    - Thermal and non-thermal effects
    - Indications and contraindications
    - Modes: Continuous vs Pulsed
    - Techniques and clinical applications

Thermal Modalities

1. **Paraffin Wax Bath**
    - Principles and application technique
    - Indications and benefits (especially hand and joint conditions)
    - Safety precautions

2. **Infrared Radiation (IRR)**
    - Mechanism of action and effects on tissues
    - Indications and contraindications
    - Clinical applications and techniques

3. **Ultraviolet Radiation (UVR)**
    - Mechanism and types of UV therapy
    - Indications and contraindications
    - Clinical applications: skin conditions, wound healing

Mechanical Therapy

- **Traction**
    - Definition and types (cervical, lumbar, mechanical vs manual)
    - Physiological effects on spine and joints
    - Indications and contraindications
    - Techniques, equipment, and procedural guidelines

Practical Component

- Hands-on demonstration and supervised practice of:
    - TENS, IFT, Ultrasound
    - Paraffin wax bath, IRR, UVR
    - Traction techniques
- Patient positioning, electrode placement, and dosage recording
- Maintaining a **practical record** for each session

Assessment & Evaluation

- Written exams on theory and principles
- Practical exams demonstrating proper technique
- Case study documentation and analysis
- Viva on indications, contraindications, and precautions

Course Name: Pharmacology **L T P C**
Course Code: 204PR203 **2 0 0 2**

COURSE OF STUDY

a) General pharmacology: - Introduction and definitions, Nature and sources of drugs; Dosage forms of drugs' Routes of drug administration, Pharmacokinetics (Absorption, Bioavailability, Distribution, Metabolism Excretion, first order zero order Kinetics); Pharmacodynamics (Sites and mechanisms of drug action in brief, Adverse drug reactions, Margin of safety of drugs and factors influencing dosage and drug response)

b) Drugs Affecting ANS: - General introduction, Drug affecting parasympathetic nervous system, Drugs affecting sympathetic nervous systems,

c) Drugs Affecting Peripheral (Somatic) nervous System: - Skeletal Muscle Relaxants; Local Anaesthetics.

d) Renal and CVS: Diuretics; Renin- angiotensin system and its inhibitors, Drugs treatment of Hypertension, Angina pectoris, Myocardial infarction Heart failure, and hypercholesterolemia.

e) Anti- inflammatory drugs and related autacoids: Histamine, Bradykinin, 5-HT and their antagonists; prostaglandins and leukotrienes; Nonsteroidal – Anti-inflammatory drug, Anti- rheumatic drugs and drugs used in gout.

f) Drugs Affecting CNS: General anaesthetics, Anxiolytics and hypnotics; Alcohol, Opioid analgesic Drug dependence and abuse Antiepileptic drugs, Drugs therapy for Neurodegenerative disorders.

g) Endocrines: Parathyroid hormone, vitamin D, calcitnin and drugs affecting calcium balance, Thyroid and antithyroid drugs; Adrenocortical and anabolic steroids, Insulin's and Oral Hypoglycaemic agents.

h) Drugs Affecting Respiratory system: Drug therapy of bronchial asthma and chronic obstructive pulmonary disease.

i) Chemotherapy: Introduction; sulphonamides, fluoroquinolones, penicillin's, cephalosporin's, newer B-Lactam antibiotic, Tetracycline's chloramphenicol, chemotherapy of Tuberculosis and leprosy, antiseptics-disinfectants.

j) Miscellaneous Topic: Management of stroke, Toxicology and heavy metal poisoning, special aspects of paediatric and geriatric pharmacology; Drugs interactions with drugs commonly used by physiotherapists; Haematinics, vitamins and antioxidants.

Course Name: Pathology & Microbiology	**L**	**T**	**P**	**C**
Course Code: 204PM204	**2**	**0**	**0**	**2**

COURSE OF STUDY

Pathology

a) Brief outline of cell injury, degeneration, necrosis and gangrene.
b) Inflammation: Definition, vascular and cellular phenomenon difference between Transudate and Exudates. Granuloma.
c) Circulatory disturbances: Haemorrhage, Embolism thrombosis infarction, Shock, Volkmann's ischemic contracture.
d) Blood disorder: Anaemia, Bleeding disorder.
e) CVS: Heart and blood vessels, coronary heart disease
f) Respiratory system: Ch. Bronchitis, Asthma Bronchiectasis, Emphysema, COPD etc.
g) Bones and joint: Arthritis &Spondyloarthropathy
h) PNS and Muscles: Neuropathies, Poliomyelitis & Myopathies etc.
i) CNS Infection, Demyelinating disease, Degenerative disease etc.
j) Neoplasia
k) Growth and its disorders like hypertrophy hyperplasia & atrophy.
l) Autoimmune diseases.
m) Healing and repair.
n) Diabetes mellitus and gout.

Microbiology

a) Introduction, Microbiology terminology & History of Microbiology

b) General lectures on microorganisms:

- Difference between prokaryotes & eukaryotes
- General Characteristics of Bacteria, Parasites, Fungi & Viruses
- Bacterial Morphology & Bacterial anatomy – cell wall & cell structure (Flagella, Fimbriae & Pilli)
- Basic staining in bacteriology (Gram & ZN)
- Bacterial spores & Bacterial Motility
- Basic knowledge of culture media
- Bacterial toxins- Exotoxins &Endotoxins

c) Bacterial growth / Reproduction: Growth Curve

d) Sterilization and disinfection

- Physical methods
- Chemical methods
- Mechanism of Sterilization
- Difference between Sterilization and Disinfection
- Asepsis & Aseptic techniques

e). Hospital waste disposal & universal safety precaution

f) Infection-

- Source of infection, Entry and Spread
- Hospital Acquired Infections (HAI) & bacteria responsible for HAI

g) Immunity-

- Active, Passive, Innate & Acquired Immunity
- Antigen & Antibody
- Antigen & Antibody reaction
- Hypersensitivity
- immunization

h) Systemic Bacteriology

- List of Gram-positive cocci (Staphylococci, Streptococci, Pneumococci)
- List of Gram-positive bacilli (Diphtheria, Clostridia)
- List of Gram-negative bacilli (Vibrio Cholera, Shalmonella, Shiegella, E. coli)
- List of Gram-negative cocci (Gonococci, Meningiococci)
- Mycobacterial infections: Tuberculosis, Lepra bacilli, Atypical Mycobacteria

i) Applied Microbiology

- Respiratory tract infections
- Sexually transmitted diseases
- Meningitis
- Urinary tract infections
- Enteric infections
- Anaerobic infections

j) Viral Disease

- HIV
- Hepatitis
- Poliomyelitis
- Rabies

k) Fungus – classification & common disease (Candidacies, Cryptococcosis, Aspergillosis)
Parasites: - classification & common disease (Amoebiasis, Malaria

Course Name: Community Medicine **L T P C**

Course Code: 204CM205 **2 0 0 2**

COURSE OF STUDY

a) General concepts of health diseases, With reference to natural history of disease with pro pathogenic and pathogenic phases. The role of socio- economic and cultural environment in health and disease, Epidemiology, definition and scope
b) Public health administration an overview of the health administration set up at central and state levels.
c) The national health program- highlighting the role of social, economic and cultural factors in the implementation of the national program.
d) Health problems of vulnerable groups- pregnant and lactating women, infants and pre-school children, Occupational groups.
e) Occupational Health- definition, scope occupational disease prevention of occupational diseases and hazards.
f) Social security and other measurement for the protection from occupational hazard accident and diseases. Details of compensation acts
g) Family planning- Objectives; of national family planning program and family methods. A general idea of advantage and disadvantages of the methods
h) Mental health emphasis on community aspects of mental, role of physiotherapy in mental health problems such as mental retardation etc.
i) Communicable disease- an overall view of communicable disease classified according to principal mode of transmission role of insect and other factors.
j) International health agencies.
k) Community medicine and rehabilitation epidemiology, habitat, nutrition, environment anthropology.
l) The philosophy and need of rehabilitation
m) Principles of physical medicine
n) Basic principles of administration of organization.
o) Introduction to community health.
p) CBR and institutional based rehabilitation and strategies to intervene in rural health system.
q) CBR in relation to different medical & surgical condition

Course Name: Psychology & Psychiatry **L T P C**
Course Code: 204PP206 **2 0 0 2**

COURSE OF STUDY

General Psychology

a) Definition of Psychology
- Science of mind, consciousness and behaviour
- Scope and branches of psychology

b) Methods of introspection, observation and experimentation

c) Hereditary and Environment
- Relative importance of heredity and environment
- Physical characteristics intelligence and personality.
- Nature vs. Nurture controversy

d) Learning: Types of learning
- Trial and error
- Classical learning
- Instrumental learning
- Insight for learning

e) Memory
- Steps of memory
- Measurement of memory
- Causes of forgetting
- Concept of STM and LTM

f) Perceptual process
- Nature of perceptual process
- Structural and functional factors in perception
- Illusion and hallucination

g) Emotion
- Emotion and feeling
- Physiological changes
- Theories of emotion (James–lange and Eonnon –Bird)

h) Motivation
- Motive; need and Drive
- Types of motive: Physiological, Psychological and social

i) Intelligence
- Definitions: Theory and assessment

j) Personality: Definition; Types and measurements

k) Child Psychology:

l). Concept of child psychology

a) Meaning; nature, and subject matter of child psychology
b) Practical importance of studying child psychology for rehabilitation professionals

m) Methods of studying of child development
a) Baby Biography
b) Case History
c) Behaviour rating

Applied Psychology

(Section–A)

Industrial Psychology

a) Human Engineering
l) Importance of human engineering
m) Development of human engineering
n) Problems in human engineering

b) Decision making
- Process and steps indecision making
- Individual decision- making
- Decision making in organization

c) Stress and mental health
- Causes and reaction to stress
- Stress management

d) Work culture, moral and rewards of work discipline

e) Guidance and counselling
Meaning, Types and objectives of counsellor

(Section–B)

a) Rehabilitation Psychology:
Interpersonal Relationships, familial & Social relationships, acceptance about the disability- Its outcome in relation to different diagnostic categories – Psychological aspects of multiple handicapped, contribution of Psychology in total Rehab.

Psychiatry

a) Definition/ criteria of Normality and Abnormality and factor contributing to normal mental health.
b) Neurotic Disorders.
c) Psychotic Disorders
d) Psychosomatic disorders
e) Organic mental disorders
f) Substances abuse disorders
g) Problems in adjustment in old age
h) Psychotherapy
i) Child psychiatry

III YEAR

Course Name: Orthopedic & Traumatology **L T P C**
Course Code: 204OT301 **3 0 0 3**

COURSE OF STUDY

(SECTION –1)

1. General Orthopedic': Clinical examination of an Orthopedic patient, common investigations, Radiological and Imaging techniques [salient features]
2. Deformities – Acquired deformities, causes – principles of Management Splinting
3. Traction Procedures – Materials Preventive orthopaedics Geriatric orthopaedics Congenital disorders
4. Common disorders: Congenital Torticollis, Congenital CLUB FOOT, CDH, Congenital scoliosis, flat foot.
5. Rare disorders: Congenital construction bands, Congenital Pseudo arthrosis of tibias, Congenital Radioulnar Synostosis, Congenital limb deficiencies.
6. Uncommon Disorders: -Coxavara, Congenital Vertical talus, Ontogenesis Imperfecta AG. MC

Infection Of Bones and Joints

1. Pyogenic – Acute osteomyelitis, complicating open features, chronic osteomyelitis Brodie's abscess.
2. Tuberculosis of spine, major joints and other joints (Hip, Knee, Ankle Elbow, Shoulder & Wrist) Tuberculosis Osteomyelitis – Dactylitis, Caries rib.
3. Arthritis – Acute pyogenic Arthritis – septic arthritis of infancy, smallpox arthritis – Chronic arthritis – Syphillic infection of joints – Rheumatoid arthritis, Osteo arthritis.
4. Bone Tumours – classification Primary Bone Tumours – Osteosarcoma, Giant Cell Tumour, Ewings Sareoma
5. Bone Metastasis
6. Neurological and Muscular disorders.
7. Anterior poliomyelitis stages, management, surgery
8. Cerebral Palsy – types, treatment
9. Leprosy: Classification, management foot drop, claw hand tropic ulcer
10. Muscular dystrophy: types and treatment:
11. Birth injury: Erbs palsy, Klumpkes palsy Peripheral Nerve injury and its management

(Section II)

Traumatology

1. Fracture and Dislocation: Briefly mention – Types of fracture and dislocation, symptoms and signs of above injuries and their principle of management and complication, healing of fracture.
2. Spinal Injury – Paraplegia, Quadriplegia.
3. Pre and post-operative management of tendon transfer.
4. Tendon operation, External fixation, Limb re-attachment, spinal stabilization Ligament & Meniscus Injury of Knee.

Lower Limb

1. Backache: Lumbosacral strain, Intervertebral Disc prolapse, Lumbar Canal stenosis, sacroiliac strain spondylosis
2. Foot: Painful Heel, Metatarsalgia, Foot strain, Flat Foot. Regional conditions of neck and upper limb
3. Neck Cervical spondylosis Cervical rib Torticollis Brachialgia
4. Shoulder:Rotator Cuff Injury Periarthritis shoulder Tendinitis – Supraspinatus
5. Infraspinatus, Bicipital Tendinitis
6. Elbow: Tennis elbow, Golfers elbow
7. Wrist and Hand: Describe Queruain's Disease
8. Hand Trigger finger & thumb, Ganglion Carpal tunnel Syndrome
9. Mallet finger Duptyuren's contracture

Practical / Demonstrations

1. The students will be exposed to a variety of clinical cases, with case, demonstration and ward rounds.
2. General Viva
3. Practical Record

Assessment & Evaluation

1. Goniometry: Measuring range of motion (ROM) of major joints
2. Manual Muscle Testing (MMT)
3. Posture assessment and spinal alignment
4. Limb length measurement (true and apparent)
5. Swelling and edema assessment
6. Pain assessment using VAS or functional scales
7. Functional mobility assessment (e.g., sit-to-stand, stair climbing)

Therapeutic Exercises

1. Active, active-assisted, and passive range of motion exercises
2. Resistive exercises for major muscle groups
3. Stretching techniques (static, dynamic, PNF)
4. Strengthening exercises for upper and lower limbs
5. Balance and proprioception exercises
6. Gait training, including assistive devices (crutches, walkers, canes)

Manual Therapy & Mobilization

1. Joint mobilization techniques (grades I–IV)
2. Soft tissue mobilization (massage, friction, myofascial release)
3. Traction techniques (cervical and lumbar)
4. Mobilization of specific joints (shoulder, hip, knee, ankle)

Electrotherapy & Physical Modalities

1. Application of TENS and IFT for pain management
2. Ultrasound therapy for soft tissue healing
3. Paraffin wax bath for hand and finger joints
4. Hot packs and cold packs for pain and inflammation
5. Infrared and ultraviolet therapy for skin and wound healing
6. Cryotherapy techniques (ice massage, cold compression)

Rehabilitation Skills

1. Transfer training (bed to wheelchair, wheelchair to standing)
2. Functional activities: stair climbing, sit-to-stand, reaching tasks
3. Postural training for scoliosis, kyphosis, or postural defects
4. Use of orthoses and splints: fitting, application, and patient education

Trauma-Specific Practices

1. Management of fractures: immobilization techniques (plaster, splints)
2. Post-fracture mobilization protocols
3. Rehabilitation after ligament injuries (knee, shoulder, ankle)
4. Post-surgical rehabilitation (joint replacements, tendon repairs)
5. Early mobilization after orthopaedic surgery

COURSE OF STUDY

a) Disorders of function in the context of Pathophysiology, Anatomy in Neurology and Cortical Mapping.

a. Classification of neurological involvement depending on level of lesion.

b. Neurological assessment: Principles of clinical diagnosis, higher mental function, assessment of brain & spinal cord function, evaluation of cranial nerves and evaluation of autonomic nervous system.

c. Investigations: principles, methods, views, normal/abnormal values/features, types of following investigative procedures- skull x-ray, CT, MRI, evoked potentials, lumbar puncture, CSF examination, EMG, NCV.

d. Neuro-ophthalmology: Assessment of visual function – acuity, field, colour vision, Pupillary reflex, accommodation reflex, abnormalities of optic disc, disorders of optic nerve, tract, radiation, occipital pole, disorders of higher visual processing, disorders of pupil, disorders of eye movements, central disorders of eye movement.

e. Deafness, vertigo, and imbalance: Physiology of hearing, disorders of hearing, examination & investigations of hearing, tests of vestibular function, vertigo, peripheral vestibular disorders, central vestibular vertigo.

f. Lower cranial nerve paralysis – Etiology, clinical features, investigations, and management of following disorders - lesions in trigeminal nerve, trigeminal neuralgia, trigeminal sensory neuropathy, lesions in facial nerve, facial palsy, bell's palsy, hemi facial spasm, Glossopharangial neuralgia, lesions of Vagus nerve, lesions of spinal accessory nerve, lesions of hypoglossal nerve. Dysphagia – swallowing mechanisms, causes of dysphagia, symptoms, examination, and management of dysphagia.

g. Cerebro-vascular diseases: Define stroke, TIA, RIA, stroke in evolution, multi infarct dementia and Lacunar infarct. Classification of stroke – Ischemic, hemorrhagic, venous infarcts. Risk factors, cause of ischemic stroke, causes of hemorrhagic stroke. Classification of hemorrhagic stroke, classification of stroke based on symptoms, stroke syndrome, investigations, differential diagnosis, medical and surgical management.

h. Head injury: Etiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications.

i. Higher cortical, Neuro psychological and neurobehavioral disorders: Causes of blackouts, physiological nature of Epilepsy, classification, clinical features, investigations, medical & surgical management of following disorders – Non-epileptic attacks of childhood, Epilepsy in childhood, Seizers, and Epilepsy syndromes in adult. Classification and clinical features of Dyssomnias, Parasomnias, Dementia, Obsessive-compulsive disorders.Neural basis of

consciousness, causes & investigations of Coma, criteria for diagnosis of Brain death.Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, management of Perceptual disorders and Speech disorders.

j. Movement disorders: Definition, etiology, risk factors, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Parkinson's disease, Dystonia, Chorea, Ballism, Athedosis, Tics, Myoclonus and Wilson's disease.

k. Cerebellar and coordination disorders: Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, management of Congenital ataxia, Friedreich's ataxia, Ataxia talengiectasia, Metabolic ataxia, Hereditary cerebellar ataxia, Tabes dorsalis and Syphilis.

l. Spinal cord disorders: Functions of tracts, definition, etiology, risk factors, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Spinal cord injury, Compression by IVD prolapse, Spinal epidural abscess, Transverse myelitis, Viral myelitis, Syringomyelia, Spina bifida, Sub acute combined degeneration of the cord, Hereditary spastic paraplegia, Radiation myelopathy, Progressive encephalomyelitis, Conusmedullaris syndrome, Bladder & bowel dysfunction, and Sarcodosis.

m. Brain tumors and spinal tumors: Classification, clinical features, investigations, medical and surgical management.

n. Infections of brain and spinal cord: Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Meningitis, Encephalitis, Poliomyelitis and Postpolio syndrome. Complications of systemic infections on nervous system – Septic encephalopathy, AIDS, Rheumatic fever, Brucellosis, Tetanus, and Pertussis.

o. Motor neuron diseases: - Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, and complications of following disorders - Amyotrophic lateral sclerosis, Spinal muscular atrophy, Hereditary bulbar palsy, Neuromyotonia and Post-irradiation lumbosacral polyradiculopathy.

p. Multiple sclerosis - Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, and complications.

q. Disorders of neuromuscular junction – Etiology, classification, signs & symptoms, investigations, management, of following disorders Myasthenia gravis, Eaton-Lambert syndrome, and Botulism.

r. Muscle diseases: Classification, investigations, imaging methods, Muscle biopsy, management of muscle diseases, genetic counselling. Classification, etiology, signs & symptoms of following disorders – Muscular dystrophy, Myotonic dystrophy, myopathy, Non-dystrophic myotonia.

s. Polyneuropathy – Classification of Polyneuropathies, Hereditary motor sensory neuropathy, Hereditary sensory and Autonomic neuropathies, Amyloid neuropathy, Acute idiopathic

Polyneuropathies. Guillain-Barre syndrome – Causes, clinical features, management of GBS, Chronic Idiopathic Polyneuropathies, diagnosis of polyneuropathy, nerve biopsy.

t. Focal peripheral neuropathy: Clinical diagnosis of focal neuropathy, neurotmesis, Axonotmesis, Neuropraxia. Etiology, risk factors, classification, neurological signs & symptoms, investigations, management, of following disorders – RSD, Nerve tumors, Brachial plexus palsy, Thoracic outlet syndrome, Lumbosacral plexus lesions, Phrenic &

u. Intercostals nerve lesions, Median nerve palsy, Ulnar nerve palsy, Radial nerve palsy, Musculocutaneous nerve palsy, Anterior & Posterior interosseous nerve palsy, Axillary nerve palsy, Long thoracic nerve palsy, Suprascapular nerve palsy, Sciatic nerve palsy, Tibial nerve palsy, Common peroneal nerve palsy, Femoral nerve palsy, Obturator nerve palsy, Pudental nerve palsy.

v. Paediatric neurology: Neural development, Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders - Cerebral palsy, Hydrocephalus, Arnold-chiari malformation, Basilar impression, Klippel-Feil syndrome, Achondroplacia, Cerebral malformations, Autism, Dandy walker syndrome and Down's syndrome.

w. Toxic, metabolic and environmental disorders: Etiology, risk factors, classification, neurological signs & symptoms, investigations, management, of following disorders – Encephalopathy, Alcohol toxicity, Recreational drug abuse, Toxic gases & Asphyxia, Therapeutic & diagnostic agent toxicity, Metal toxicity, Pesticide poisoning, Environmental & physical insults, Pant & Fungal poisoning, Animal poisons, & Complications of organ transplantation.

x. Introduction, Indications and Complications of following Neuro surgeries: Craniotomy, Cranioplasty, Stereotactic surgery, Deep brain stimulation, Burr-hole, Shunting, Laminectomy, Hemilaminectomy, Rhizotomy, Microvascular decompression surgery, Endarterectomy, Embolization, Pituitary surgery, Ablative surgery - Thalamotomy and Pallidotomy, Coiling of aneurysm, Clipping of aneurysm, and Neural implantation.

Course Name: Neurology & Neurosurgery-CL **L T P C**

Course Code: 204NN306 **0 0 1 1**

COURSE OF STUDY

Neurological Assessment

1. Higher mental functions assessment
2. Cranial nerve examination
3. Motor examination (tone, power, reflexes)
4. Sensory assessment
5. Balance & coordination tests
6. Gait analysis
7. Posture assessment
8. Spasticity assessment (Modified Ashworth Scale)
9. Muscle strength testing (MMT)
10. Functional Independence Measure (FIM)

Assessment For Major Neurological Conditions

1. Stroke (Hemiplegia / Hemiparesis)
2. Cerebral palsy
3. Parkinson's disease
4. Multiple sclerosis
5. Guillain-Barre syndrome
6. Myasthenia gravis
7. Spinal cord injury (paraplegia / quadriplegia)
8. Traumatic brain injury
9. Motor neuron disease
10. Peripheral neuropathy

Special Tests & Scales

1. Romberg test
2. Finger–nose test
3. Heel–shin test
4. Babinski sign
5. Clonus
6. Brannstrom stages of recovery
7. Berg Balance Scale
8. Tinetti Balance Test
9. Barthel Index
10. Glasgow Coma Scale
11. NIH Stroke Scale

Gait & Balance Examination

1. Gait training in stroke
2. Parallel bar training
3. Stair climbing training
4. Walker / cane training
5. Balance board exercises
6. Frenkel's exercises (ataxia)
7. Vestibular rehabilitation

Pediatric Neuro Physiotherapy

1. Cerebral palsy assessment
2. Developmental milestones
3. Reflex testing
4. GMFCS classification
5. Early intervention programs

Common Practical Case Topics

1. Stroke patient assessment & treatment plan
2. Spinal cord injury rehab program
3. Parkinson's gait training
4. Cerebral palsy management
5. Bell's palsy physiotherapy
6. GBS rehabilitation
7. Balance disorder rehab

Course Name: General Surgery OBS & Gynecology **L T P C**
Course Code: 204GO303 **3 0 0 3**

COURSE OF STUDY

a) Fluid, Electrolyte and Acid-Base disturbances – diagnosis and management; Nutrition in the surgical patient Wound healing – basic process involved in wound repair, basic phases in the healing process, clinical management of wounds, factors affecting wound healing, Scars – types and treatment. Hemostasis – components, hemostatic disorders, factors affecting bleeding during surgery. Transfusion therapy in surgery – blood components, complications of transfusion; Surgical Infections; General Post – Operative Complications and its management

b) Reasons for Surgery; Types of anaesthesia and its effects on the patient; Types of Incisons; Clips Ligatures and Sutures; General Thoracic Procedures – Radiologic Diagnostic procedures, Endoscopy – types, Biopsy – uses and types. Overview and Drainage systems and tubes used in Surgery.

c) Causes, Clinical Presentation, Diagnosis and treatment of the following Thoracic Trauma situations – Airway obstruction, Pnuemothorax, Hemothorax, Cardiac Tamponade, Tracheobronchial disruption, Aortic disruption, Diaphragmatic disruption, Esophageal disruption, Cardiac and Pulmonary Contusions.

d) Surgical Oncology – Cancer – definition, types, clinical manifestations of cancer, Staging of Cancer, surgical procedures involved in the management of cancer.

e) Disorders of the Chest Wall, Lung and Mediastinum – Definition, Clinical features, diagnosis and choice of management for the following disorders – chest wall deformities, chest wall tumors, Spontaneous Pneumothorax, Pleural Effusion, Empyema Thoracis, Lung abscess, Bronchiectasis, Tuberculosis, Bronchogenic Carcinoma, Bronchial Adenomas, Metastatic tumors of the Lung, tracheal Stenosis, Congenital tracheomalacia, Neoplasms of the trachea, Lesions of the Mediastinum. Carcinoma of the female breast.

f) Disorders of the Heart – Definition, Clinical features, diagnosis and choice of management for the following disorders: Congenital Heart diseases – Acyanotic congenital heart disease & Cyanotic congenital heart disease : Patent Ductus Arteriosus, Coarctation of Aorta, Atrial Septal Defect, Ventricular Septal Defect, Tetraology of Fallot, Transposition of Great Vessels ; Acquired Heart Disease – Mitral Stenosis & Insufficiency, Aortic Stenosis and Insufficiency, Ischemic Heart Disease – Coronary Artery Disease, Cardiac tumours.

g) Thoracic surgeries – Thoracotomy – Definition, Types of Incisions with emphasis to the site of incision, muscles cut and complications. Lung surgeries: Pneumonectomy, Lobectomy, segmentectomy – Indications, Physiological changes and Complications; Thoracoplasty, Pleurectomy, Pleurodesis and Decortication of the Lung. Cardiac surgeries – An overview of the Cardio-Pulmonary Bypass Machine – Extra cardiac Operations, Closed Heart surgery, Open

Heart surgery. Transplant Surgery – Heart, Lung and Kidney – Indications, Physiological changes and Complications.

h) Diseases of the Arteries and Veins : Definition, Etiology, Clinical features, signs and symptoms, complications, management and treatment of following diseases : Arteriosclerosis, Atherosclerosis, Aneurysm, Buerger's disease, Raynaud's Disease, Thrombophlebitis, Deep Vein Thrombosis, Pulmonary Embolism, Varicose Veins.

i) Definition, Indication, Incision, Physiological changes and Complications following Common operations like Cholecystectomy, Colostomy, Ileostomy, Gastrectomy, Hernias,

   a. Appendicectomy Mastectomy, Neprectomy, Prostectomy.

j) Burn: Definition, Classification, Causes, Prevention, Pathological changes, Complications, Clinical Features and Management. Skin Grafts – Types, Grafting Procedures, Survival of Skin Graft ; Flaps – Types and uses of Flaps.

k) WomensHealth : Menstrual cycle and its disorders. Hormonal disorders of females-obesity and female hormones.Cancer of the female reproductive organs-management Infections and sexually transmitted disease in female Menopause - its effects on emotions and musculoskeletal system.Malnutrition and deficiencies in females.Sterility-pathophysiologyinvestigations-management.Maternal physiology in pregnancy.Musculo skeletal disorders during pregnancy.Prenatal complications-investigations- management.Child birth- Stages - complications-investigations-management – Pain relief in labour - Purperium - Post Natal care.Surgical procedures involving child birth.Incontinence – Types, Causes, Assessment and Management.Definition, Indications and Management of the following surgical procedures – Hysterosalphyngography, Dilatation and Curettage, Laproscopy, Colposopy, Hysterectomy.

l) ENT: Common problems of ear, otitis media, Otosclerosis, functional achonia and deafness, management facial palsy classification, medical and surgical management/ of lower motor neuron type of facial palsy.

m) Ophthalmology: Ophthalmologic surgical conditions, refraction's, conjunctivitis, glaucoma, corneal ulcer, iritis, cataract, retinitis, detachment of retina, defects of extra-ocular muscles surgical management

Course Name: General Surgery OBS & Gynecology-CL	**L**	**T**	**P**	**C**
Course Code: 204GO307	**0**	**0**	**1**	**1**

COURSE OF STUDY

Case Examination

1. Hernia (inguinal, femoral, umbilical, incisional)
2. Breast lump
3. Thyroid swelling
4. Abdominal lump
5. Acute abdomen (appendicitis, perforation)
6. Varicose veins
7. Hydrocele
8. Scrotal swelling
9. Peripheral vascular disease
10. Diabetic foot / ulcers
11. Abscess & cellulitis
12. Intestinal obstruction

Systematic Examination Topics

1. Abdominal examination
2. Breast examination
3. Thyroid examination
4. Hernia examination
5. Scrotal examination
6. Peripheral vascular examination
7. Lymph node examination
8. Wound examination
9. BP examination

Instruments & Procedures (Viva)

1. Suturing materials & needles
2. Surgical drains
3. Catheters (Foley, suprapubic)
4. NG tube
5. Chest tube
6. Trolley setup
7. Sterilization methods
8. OT instruments

Investigations & Interpretation

1. X-ray abdomen (erect)
2. USG abdomen
3. CT scan
4. FNAC
5. Biopsy
6. Blood investigations
7. Doppler study

Emergency Surgery Topics

1. Shock
2. Burns
3. Head injury
4. Acute abdomen
5. Trauma assessment (ABCDE)
6. Tetanus
7. Snake bite

Obstetrics

Antenatal Case Examination

1. History taking in pregnancy
2. General examination in pregnancy
3. Abdominal palpation (Leopold's manoeuvres)
4. Fundal height measurement
5. Fatal lie, presentation & position
6. Fatal heart sound (FHS)
7. Pelvic assessment

Normal Labour Assessment

1. Stages of labour
2. Partograph
3. Vaginal examination
4. Progress of labour
5. Mechanism of labour
6. Conduct of normal delivery

Obstetric Complications (Practical Cases)

- Preeclampsia / eclampsia
- Antepartum haemorrhage (placenta previa, abruption)
- Postpartum haemorrhage
- Breech presentation
- Multiple pregnancy
- IUGR
- PROM
- Obstructed labour
- Anaemia in pregnancy

Newborn Examination

- APGAR score
- Birth weight & measurements
- Reflexes
- Neonatal resuscitation
- Breastfeeding assessment

Gynecology

Gynecological Case Examination

- Menstrual disorders (amenorrhea, menorrhagia)
- Fibroid uterus
- Ovarian cyst
- Prolapse uterus
- PCOS

Gynaecological Examination

- Per abdomen examination
- Per speculum examination
- Per vaginal examination
- Bimanual examination
- Breast examination (female)

Course Name: General Medicine & Pediatrics **L T P C**
Course Code: 204GM304 **3 0 0 3**

COURSE OF STUDY

a) Infection: Infectious diseases including AIDS, poisons & venoms, emphasis in common diseases.
b) Deficiency diseases in adults and malnutrition.
c) Diseases of metabolism – special emphasis to be given to Diabetes mellitus its varieties and management.
d) Endocrine diseases, special emphasis to be given to obesity and its related disorders – management – Diet exercise and medication.
e) Diseases of the blood (anaemia, clinical manifestation common anaemias and management haemophilia)
f) Diseases of the digestive system (in brief) management.
g) Rheumatic Fever, Common Rheumatic conditions
    - Rheumatoid Arthritis – pathology – classification – clinical manifestations, medical management.
    - Polyarthritis, Juvenile R.A., Ankylosing spondylitis, Psoriatic arthritis, polyarteritismodosa, scleroderma
    - Degenerative – primary / secondary Osteoarthritis, pseudo joint, Avascular necrosis, Perthese disease.
    - Calcium metabolism and its disorders: Osteomalacia, Osteoporosis: symptoms. Management.

Cardio – Thoracic Conditions

a) Brief idea of Anatomy and Physiology of Cardiorespiratory system
b) Outline Aetio Pathogenesis of Cardio – respiratory disorders, Investigations, Diagnosis, Differential diagnosis and principles of Management

Cardio –Vascular System

a) Cardiac failure –Definition, Causes, Symptoms and signs and Brief management of Cardiac failure
b) Rheumatic fever– Definition, Brief description of etiology, Clinical features, Complications and treatment
c) Congenital Heart Diseases – Classification and brief outline of diseases like ASD, VSD, PDA. Fallot's Tetralogy with complication.
d) Ischemic Heart Disease –Aetiopathogenesis classifications Symptoms, Diagnosis, Medical and Surgical treatment
e) Hypertension – Definition, Classification, Symptomatology, complication and treatment
f) Infective Endocarditis – Brief aetiopathogenesis, Clinical features, Diagnosis and treatment.
g) Brief description of Deep Vein thrombosis and pulmonary embolism.
h) Vascular Disease Atherosclerosis, Burger's disease, Phlebitis etc.
i) Cardiac Muscle disorder: Cardiomyopathies, Myocarditis

j) Cardiac Tumours

Respiratory System

[Respiratory disease including diseases of chest wall]

a) Chronis Bronchitis and Emphysema; Definition; Clinical features diagnosis and Treatment
b) Bronchial Asthma; Definition, Aetiopathogenesis, Clinical features, Diagnosis and Treatment
c) Pneumonia; Definition, Classification, Clinical tests of pulmonary tuberculosis, Diagnosis Complications and Treatment
d) Tuberculosis; Aetiopathogenesis, Clinical tests of pulmonary tuberculosis. Diagnosis, complication and treatment.
e) Lung abscess and bronchiectasis; Definition, Clinical features, Diagnosis and treatment.
f) Chest Wall deformities: Describe various deformities of chest wall and effect and pulmonary diseases associated with it.
g) Occupational lung diseases –Clinical features, diagnosis and treatments.
h) Respiratory failure – classification, causes and treatment.
i) A R D S

Intensive & Emergency Care

a) Review of anatomy & Physiology related to acute care – cardio – vascular system, pulmonary system nervous system & musculoskeletal system.
b) Common emergencies (surgical and medical)
c) Trauma – Accidents: explosions: riots: gunshots – shock haemorrhage - DIC Burns, septicaemia – acute respiratory failure, pulmonary oedema / pulmonary embolism – A.R.O.S. Cardiac failure / Myocardial infarction, Cardiac arrhythmias unconsciousness /Coma / cerebral hypoxia – drug overdose, poisoning, Tetanus,
d) respiratory paralysis (Polio – G.B. Syndromes) Renal Failure – obstetrical emergencies – Paediatric emergencies.
e) Intensive / metabolic emergencies
f) Anaesthetics – types – indications – merits – demerits – effect of Gen – Anaesthesia on cardiopulmonary function.
g) Special procedures in intensive care, cardiopulmonary resuscitation and airway care – bronchoscope – thoracentesis – tracheotomy – intubations – chest tubes (Nasogastric tubes and trichinas incubation) –Skeletal and skin tractions.
h) Bioelectric instrumentation / interpretation – E.C.G. Cardiopulmonary monitoring – Radiological evaluation – A & C. Analysis. Fluid & electrolyte balance – haematological studies.
i) Therapeutics – Mechanical Ventilators – Medical gas therapy I.P.P.B.
j) Psychosocial aspect of critical care.

Paediatric Condition

a) C.N.S. Involvement in children - Tubercular meningitis & other infective conditions.
b) Birth trauma / intrauterine and early infancy conditions. Cerebral palsy – types – methods of evaluation – management.
c) Learning disorders – perceptual disorders.
d) Mental retardation – etiological factors, types of symptomatology treatment.
e) Problems in emotional development – nail biting, bed wetting behavioural problems, thumb sucking, aggressive & harmful behaviour, relationship of child – parent – teacher.
f) Childhood obesity and its complications.
g) Hereditary neuromuscular disorders- Down's syndrome.
h) Congenital neuromuscular disorders including spinal dystrophies.
i) Peripheral neuromuscular disorders including polio, spinal muscular atrophies, muscular dystrophic, myopathy.
j) Malnutrition and vitamin deficiency – associated systemic conditions – Rickets, skin conditions, deficiency neuromuscular conditions.
k) Respiratory conditions, Asthma T.B. Bronchiectasis and neuromuscular conditions.
l) Acute paediatric respiratory distress syndrome – intensive paediatric care.
m) Intensive neonatological and paediatric surgical care.
n) Congenital cardiovascular problems – management.
o) Cardio – respiratory rehabilitation in children.

Dermatology Conditions

Common diseases of skin: -

a) Leprosy
b) Vasomotor disorders
c) Trophic ulcers, their classifications and management,
d) Coccal and fungal parasitic and viral infections,
e) Skin diseases related to Rheumatology
f) Tropical skin disease

Practical / Demonstrations

1. The students will be exposed to a variety of clinical cases, with case, demonstration and ward rounds.
2 General Viva
3 Practical Record

Course Name: General Medicine & Pediatrics-CL **L T P C**

Course Code: 204GP308 **0 0 1 1**

COURSE OF STUDY

General Medicine

1. Cardiovascular system examination (heart sounds, murmurs)
2. Respiratory system examination (asthma, COPD, pneumonia)
3. Abdominal examination (liver, spleen, ascites)
4. Neurological examination (stroke, seizures)
5. Diabetes mellitus case assessment
6. Hypertension case assessment
7. Anaemia evaluation
8. Jaundice (medical causes) assessment
9. Chronic kidney disease assessment
10. Thyroid disorders (hypo/hyperthyroidism)

Paediatrics

1. Growth & development assessment
2. Immunization schedule assessment
3. Neonatal examination
4. Pneumonia in children – clinical assessment
5. Diarrhea with dehydration assessment (IMNCI)
6. Malnutrition (PEM) assessment
7. Congenital heart disease assessment
8. Bronchial asthma in children
9. Febrile seizures assessment
10. Anaemia in children

Intensive / Emergency Care

1. Shock assessment & management (hypovolemic, septic, cardiogenic)
2. Cardiopulmonary resuscitation (CPR & BLS/ACLS)
3. Acute poisoning & overdose management
4. Acute stroke (emergency assessment & stabilization)
5. Diabetic emergencies (DKA & hypoglycaemia)

Respiratory System

1. Bronchial asthma – clinical examination & management
2. COPD – assessment & oxygen therapy
3. Pneumonia – respiratory examination & investigations
4. Pleural effusion – clinical signs & diagnosis
5. Pulmonary tuberculosis – case assessment

IV YEAR

Course Name: PT in Orthopedics & Traumatology **L T P C**
Course Code: 204OT401 **3 0 0 3**

COURSE OF STUDY

SECTION –I

a) Arthritis and Allied conditions with detail Physiotherapy Management of:

- Osteo-arthritis – Generalised, Degenerative and traumatic, Spondylosis.
- Rheumatoid Arthritis, Still's disease. Infective Arthritis.
- Spondylitis Ankylosing Spondylitis.
- Non-Articular Rheumatism-Fibrositis, Myalgia, bursitis.

b) Common Conditions of skin

- Acne,
- Psoriasis,
- Alopecia,
- Luco derma

c) Common Vascular diseases

- Thrombosis,
- Embolism,
- Berger's disease,
- Arteriosclerosis.
- Thrombophlebitis,
- Phlebitis,
- Gangrene,
- Hypertension.

d) Deficiency Diseases Rickets, nutritional disorders

e) Traumatology and Orthopaedics Conditions

- Classification of fracture, causes and types.
- Signs and symptoms of fractures.
- Complications of fracture.
- Healing and fracture affecting it.
- Principles of fracture management.
- Principles of Physiotherapy management in fracture
- Physiotherapy management of complications
- Dislocations –Common sites, sign and symptoms

f) Specific fractures and their complete Physiotherapy Assessment and management.

Upper Limb - Scapula, Clavicle, Humerus, Ulna and Radius, Colle's Fracture and crush injuries of Hand.

Lower Limb - Fracture of pelvis, Neck of femur, Shaft of femur Patella, Tibia and fibula, Pott's fracture, fractures of tarsal and Metatarsal bones.

Spine - Management of fracture of spine with or without neurological deficit

Soft tissue injuries - soft tissue injuries, Synovitis, Capsulitis, Volkmann's ischemic contracture etc. Tear of semi lunar cartilage and cruciate ligament of knee.

g) Principles of Physiotherapy Assessment and Management in dislocation of all major joints.

SECTION –II

a) Degenerative and Infective Conditions

- Osteoarthritis of major joints,
- Spondylosis, spondylitis,
- Prolapsed intervertebral disc-lesion,
- Spondylolisthesis,
- Periarthritis,
- Rotator Cuff Lesions of shoulder, etc.
- Tuberculosis of spine, bone and major joint,
- Perthes disease.
- Rheumatoid arthritis,
- Ankylosing spondylitis etc.
- And other miscellaneous orthopedic conditions commonly treated by physiotherapy and physiotherapist

b) Deformities

- Congenital: Torticollis and Cervical Rib, C.T.E.V.; Pes cavus and planus and other common deformities
- Acquired: Scoliosis, Kyphosis, Lordosis, Coxavara, Genuvalgum, Genu Varum and Genu recurvatum etc.

c) Orthopaedic Surgery

Pre and post operative assessment and management of surgeries like Arthroplasty, Arthrodesis, and Osteotomy. Tendon transplant, Soft tissue release, Grafting, Partial and complete joint replacement, Arthroscopy, spinal stabilization, Reattachment limbs. Illizarov technique, surgeries in C.P. and polio and External Fixators.

4. Amputations

Levels of amputation of upper and lower extremity, stump care, setup bandaging, pre and post prosthesis fitting assessment and management [check out of prosthesis, Training etc.] Complications of amputations and their management.

5. Manipulation / Mobilization / Therapy

Assessment, Principles and techniques of therapy and factors considered in therapy – [McKenzie Mait Land mention only].

6. Ergonomic measures and its brief uses in Physiotherapy

Practical / Demonstrations

1. The students will be exposed to a variety of clinical cases, with case, demonstration and ward rounds.
2. General Viva
3. Practical Record

Course Name: PT in Orthopedics & Traumatology Lab	**L**	**T**	**P**	**C**
Course Code: 204OT407	**0**	**0**	**1**	**1**

COURSE OF STUDY

Assessment

- Post-surgical assessment
- Pre surgical Assessment
- Post-Surgical Gait Training
- ACL/PCL Reconstruction surgery assessment & management
- Manual Mobilization of upper & lower limb joints
- Special tests of upper limb & lower limb
- Soft tissue mobilization

Condition Wise Rehab

- Low back pain protocol
- Frozen shoulder protocol
- ACL rehab stages
- Knee OA rehab
- Post fracture rehab
- ROM assessment
- MMT assessment
- Post Fracture Rehab
- Stretching of bilateral Upper and lower limb

Special Techniques

Basic outline and introduction of:

- MET techniques
- MFR techniques
- Mulligan technique
- Maitland mobilization

Course Name: PT in Neurology & Neurosurgery **L T P C**

Course Code: 204NN402 **3 0 0 3**

COURSE OF STUDY

a) Neuroanatomy

Review the basic anatomy of the brain and spinal cord including Blood supply of the brain and spinal cord, anatomy of the visual pathway, connections of the cerebellum and extrapyramidal system, relationship of the spinal cord segments, long tracts of the spinal cords, the brachial and lumbar plexuses and cranial nerves.

b) Neurophysiology

a. Review in brief the Neurophysiological basis of: tone and disorders of tone and posture, bladder control, muscle contraction and movement and pain.

c) Clinical Features &Management.

b. Briefly outline the clinical features and management of the following neurological

Disorders

a) Congenital and childhood disorders

- Congenital and childhood disorders
- Hydrocephalus
- Spina Bifida
- Arnold Chiari malformation, Dandy

b) Cerebrovascular accidents

- General classification, thrombotic, embolic, haemorrhagic and inflammatory strokes.
- Gross Localization and sequelae.
- Detail rehabilitative programme.

c) Trauma

Broad localization, first aid and management of sequelae of head injury and spinal cord injury.

d) Diseases of the spinal cord

- Cranio- vertebral junction anomalies.
- Syringomyelia
- Cervical and lumbar
- Tumours
- Spinal arachnoiditis
- T.B. spine

e) Demyelinating diseases (central and peripheral)

- Gullian- Barre syndrome
- Acute disseminates encephalomyelitis
- Transverse myelitis
- Multiple sclerosis

f) Degenerative disorders

- Parkinson's disease
- Dementia

g) Infections

- Pyogenic meningitis sequelae
- Tuberculosis infection of central nervous system
- Poliomyelitis
- Brain abscess

h) Diseases of the muscle including myopathies

Classification, sign, symptoms, progression and management.

i) Peripheral nerve disorders

- Epilepsy; Definition, classification and management.
- Myasthenia gravis; Definition, course and management
- Intracranial tumours; Broad classification, signs and symptoms.
- Motor neuron disease
- Herniation of brain

j) Clinical assessment of

Neurological Functions to be taught through bedside or demonstration clinics spread over at least 5 sessions.

- Basic history to determine whether the brain, spinal cord or peripheral nerve is involved.
- Assessment of higher mental function such as orientation, memory, attention, speech & language.
- Assessment of cranial nerves.
- Assessment of Motor power.
- Assessment of sensory functions touch, pain & position
- Assessment of tone-spasticity, rigidity and Hypotonia
- Assessment of cerebellar functions
- Assessment of higher cortical functions – apraxia etc.
- Assessment of gait abnormalities.

Practical / Demonstrations

1. The students will be exposed to a variety of clinical cases, with case, demonstration and ward rounds.
2. Assessment planning & management of Neurological conditions
3. General Viva
4. Practical Record

Course Name: PT in Neurology & Neurosurgery-CL | **L** | **T** | **P** | **C**
Course Code: 204NN408 | **0** | **0** | **1** | **1**

COURSE OF STUDY

History Taking (Neurological Case)

- Chief complaints (weakness, numbness, pain, imbalance, speech problem, seizures)
- Onset & duration
- Progression (sudden / gradual)
- Past medical history (stroke, diabetes, trauma, infection)
- Medications
- Functional difficulties (walking, ADLs)

Higher Mental Functions (HMF)

- Orientation (time, place, person)
- Memory (immediate, recent, remote)
- Attention & concentration
- Speech (aphasia, dysarthria)
- Intelligence & behaviour

Cranial Nerve Examination (I – XII)

- I: Olfactory – smell
- II: Optic – vision, field
- III, IV, VI – eye movements
- V – facial sensation, mastication
- VII – facial expressions
- VIII – hearing & balance
- IX, X – swallowing, voice
- XI – shoulder shrug
- XII – tongue movement

Motor System Examination

- Muscle bulk
- Muscle tone (spastic / flaccid / normal)
- Power (0–5 grading)
- Reflexes (biceps, triceps, knee, ankle)
- Involuntary movements

Sensory Examination

- Superficial: pain, touch, temperature
- Deep: position sense, vibration
- Cortical: stereognosis, graphesthesia

Coordination Tests

- Finger–nose test
- Heel–shin test
- Rapid alternating movements
- Romberg test

Gait Examination

- Hemiplegic gait
- Parkinsonian gait
- Ataxic gait
- Steppage gait

Course Name: PT in General Surgery OBS & Gynecology **L T P C**
Course Code: 204GO403 **3 0 0 3**

COURSE OF STUDY

a) Brief review of the following surgical conditions and various physiotherapeutic modalities, aims, means and techniques of physiotherapy should be taught.
b) Pre- and Post-Operative physiotherapy management of following abdominal surgical conditions including incisions. Pre and postoperative complications.
c) Herniorrhaphy
d) Nephrectomy
e) Radical Mastectomy
f) Postural drainage & respiratory physiotherapy in CTVS
g) Physiotherapy in patients in ventilators
h) Pre- and Post-Operative physiotherapy management of following Conditions
i) Thoracotomy
j) Lobectomy
k) Thoracoplasty
l) Pneumonectomy
m) Orientation about atelectasis, pneumothorax, pre- and post-operative physiotherapy management of cardiac surgery, open- heart surgery.
n) Burn & its classification physiotherapy management.
o) Pre and postoperative physiotherapy of skin grafting
p) Physiotherapy of cases after reconstructive surgery of hand.
q) Physiotherapy in obstetrics
r) Physiotherapy in PID. Stress incontinence, Prolapse uterus, etc.
s) Pre- and post-operative physiotherapeutic management of neuro-surgical conditions and complication. Peripheral Nerve Injuries, Pre and post operative physiotherapeutic in management of Nerve Repair/ Grafting. Physiotherapy in Head Injury

Practical / Demonstrations

1. The students will be exposed to a variety of clinical cases, with case, demonstration and ward rounds.
2. Assessment planning & management of Surgical conditions
3. General Viva
4. Practical Record

Course Name: PT in General Surgery OBS & Gynecology Lab **L T P C**
Course Code: 204GO409 **0 0 1 1**

COURSE OF STUDY

Assessment Format

A. History

- Name, age, diagnosis, date of surgery
- Type of surgery (open / laparoscopic)
- Pain (site, severity)
- Breathing difficulty
- Cough / sputum
- Past illness (DM, HTN)
- Mobility status

B. Examination

- Vital signs
- Chest expansion
- Breath sounds
- Pain assessment
- ROM
- Muscle strength
- Wound condition
- Posture & mobility
- Functional ability

Physiotherapy Management (Post-Op)

- Positioning
- Breathing exercises (diaphragmatic, thoracic expansion)
- Incentive spirometry
- Coughing & huffing
- Ankle pumps (DVT prevention)
- ROM exercises
- Bed mobility
- Ambulation
- Posture correction
- Strengthening exercises
- Functional training
- Stair climbing

Gynaecological Conditions

Antenatal

Assessment:

- Gestational age
- Pain (back pain, pelvic pain)
- Posture
- Edema
- Breathing pattern

Treatment:

- Postural advice
- Breathing exercises
- Pelvic floor exercises (Kegels)
- Relaxation exercises
- Walking
- Back care exercises
- Education (ergonomics, sleeping positions)

Postnatal (After Delivery)

Assessment:

- Type of delivery (normal / C-section)
- Pain
- Abdominal muscle tone
- Perineal condition
- Bladder & bowel control
- Posture

Treatment:

- Breathing exercises
- Pelvic floor exercises
- Abdominal strengthening
- Postural correction
- Mobility exercises
- Baby care ergonomics

Assessment for following cases

- Hysterectomy
- Prolapse uterus
- Urinary incontinence
- PCOS (supportive role)

Management

- Pelvic floor strengthening
- Breathing exercises
- Early ambulation
- Core strengthening
- Relaxation
- Education

Course Name: PT in General Medicine & Pediatrics **L T P C**
Course Code: 204GM404 **2 0 0 2**

COURSE OF STUDY

a) Introduction: Brief review of the following medical condition and various modalities of physiotherapy, aims, mean and techniques of physiotherapy should be taught.
b) Physiotherapy in diseases of respiratory system.
Prior to beginning with various conditions brief introduction of breathing exercises and postural drainage in derail to be taught

Physiotherapy in relation to

1. Oedema,
2. Non Articular' Reheumatism Rickets & Vitamin Deficiency syndrome,
3. Myopathy
4. Various types of muscular dystrophy,
5. Diabetic neuropathy,
6. Rheumatoid Arthritis and General debility.

c) Physiotherapy in relation To

1. Congestive heart failure,
2. myocardial Infarction
3. Peripheral vascular diseases

d) Physiotherapy in relation to

1. Hemiplegia
2. Cerebral palsy
3. Tetraplegic syndrome
4. Multiple Sclerosis
5. Tabes dorsalis
6. Transverse myelitis
7. Polio myelitis
8. Parkinson's Disease
9. Motor Neuron Disease
10. Poly Neuritis Ataxia
11. Extra pyramidal lesion
12. Peripheral Neuropathy
13. Peripheral Nerve Injuries
14. Sciatica
15. Brachial Neuritis and Neuralgia
16. Facial palsy and Bell's palsy
17. Syringomyelia
18. Monoplegia
19. Myopathy and Muscular Dystrophy
20. Sub-acute Combined Degeneration of spinal cord
21. General and physiotherapeutic management of psychiatric patient

Practical / Demonstrations

1. The students will be exposed to a variety of clinical cases, with case, demonstration and ward rounds.
2. Assessment planning & management of Surgical conditions
3. General Viva
4. Practical record

Course Name: PT in General Medicine & Pediatrics Lab | **L** | **T** | **P** | **C**
Course Code: 204GP410 | **0** | **0** | **1** | **1**

COURSE OF STUDY

Assessment for the following conditions

Subjective assessment

- Case history
- Objective assessment

Treatment for Specific condition

- COPD
- TB
- Asthma
- Emphysema
- Pleural Effusion
- Bronchitis
- CABG
- Open Heart Surgery

Breathing Exercises

- Segmental Breathing Exercise
- Intercostal stretch
- Chest mobility
- Diaphragmatic breathing
- Chest expansion
- ACBT
- Spirometry

Pediatrics

- Subjective Assessment
- Objective Assessment
- Milestone Assessment
- Motor Assessment
- Sensory Assessment
- AGPR score
- Reflex Assessment
- Physical feature & Skin assessment

Course Name: Community Based Clinical Rehabilitation **L T P C**
Course Code: 204CB405 **2 0 0 2**

COURSE OF STUDY

Rehabilitation: Definition, Types

a) Community: Definition of Community, Multiplicity of Communities, and The Community based approach, Community entry strategies, CBR and Community development, Community initiated versus community-oriented program, Community participation and mobilization
b) Introduction to Community Based Rehabilitation: Definition, Historical review, Concept of CBR, need for CBR, Difference between Institution based and Community based Rehabilitation, Objectives of CBR, Scope of CBR, Members of CBR team, Models of CBR
c) Principles of Community based Rehabilitation. W.H.O.`s policies-about rural health care concept of primary /tertiary health centres-district hospitals etc.-Role of P.T.-Principles of a team work of Medical person/P.T./O.T. audiologist/speech therapist /P.&O./vocational guide in C.B.R. of physically handicapped person, Agencies involved in rehabilitation of physical handicapped - Legislation for physically handicapped, concept of multipurpose health worker, role of family members in the rehabilitation of a physically handicapped.
d) Planning and management of CBR Programs, CBR Programmed planning and management, Ownership and Governance, Decentralization and CBR, Management of CBR, Programmed sustainability, Communication and Coordination, Community participation, mobilization and awareness, CBR program influence on promoting and developing public policies
e) Disability: Definition of Impairment, Handicap and Disability, Difference between impairment, handicap and disability, Causes of disability, Types of disability, Prevention of disability, Disability in developed countries, Disability in developing countries. Disability Surveys: Demography. Screening: Early detection of disabilities and developmental disorders, Prevention of disabilities-Types and levels
f) Disability Evaluation: Introduction, what, Why and How to evaluate, Quantitative versus Qualitative data, Uses of evaluation findings
g) Role of Government in CBR: Laws, Policies, Programs, Human Rights Policy, Present rehabilitation services, Legal aspects of rehabilitation
h) Role of Social work in CBR: Definition of social work, Methods of social work, History of social work, Role of social worker in rehabilitation
i) Role of voluntary Organizations in CBR: Charitable Organizations, Voluntary health agencies – National level and International NGO's, Multilateral and Bilateral agencies. International Health Organizations: WHO, UNICEF, UNDP, UNFPA, FAO, ILO, World bank, USAID, SIDA, DANIDA, Rockefeller, Ford foundation, CARE, RED CROSS.
j) National District Level Rehabilitation Program: Primary rehabilitation unit, regional training centre, District rehabilitation centre, Primary Health centre, Village rehabilitation worker, Anganwadi worker
k) Role of Physiotherapy in CBR: Screening for disabilities, prescribing exercise program, Prescribing and devising low cost locally available assistive aids, Modifications physical and architectural

barriers for disabled, Disability prevention, Strategies to improve ADL, Rehabilitation programs for various Neuro-Musculo Skeletal and Cardiothoracic disabilities.

l) Screening and rehabilitation of paediatric disorders in the community: Early detection of high-risk babies, Maternal nutrition and education, Rehabilitation of Cerebral Palsy, Polio, Down's Syndrome, Muscular Dystrophies etc., Prevention and rehabilitation of mental retardation and Behavioural disorders, Immunization programs, Early intervention in high-risk babies, Genetic counselling

m) Extension services and mobile units: Introduction, Need, Camp approach

n) Vocational training in rehabilitation: Introduction, Need, Vocational evaluation, Vocational rehabilitation services

o) Geriatrics - Physiology of Aging /degenerative Changes-Musculoskeletal /Neuro motor /cardio – respiratory-/Metabolic, Endocrine, Cognitive, Immune systems. Role of Physiotherapy in Hospital based care, Half-way homes, Residential homes, Meals on wheels etc. Home for the aged, Institution based Geriatric Rehabilitation. Few conditions: - Alzheimer's disease, Dementia, Parkinson's disease, Incontinence, Iatrogenic drug reactions, etc. Ethics of Geriatric Rehabilitation

Industrial Health & Ergonomics

Occupational Hazards in the industrial area - Accidents due to

1. Physical agents-e.g.-Heat/cold, light, noise, Vibration, U.V. radiation, Ionizing radiation,
2. Chemical agents-Inhalation, local action, ingestion,
3. Mechanical hazards-overuse/fatigue injuries due to ergonomic alteration & ergonomic evaluation of workplace-mechanical stresses per hierarchy –
4. Sedentary table work –executives, clerk,
5. Inappropriate seating arrangement- vehicle drivers
6. Constant standing- watchman- Defence forces, surgeons,
7. Over-exertion in labourers, -common accidents –Role of P.T.-Stress management,
8. Psychological hazards- e.g.-executives, monotonicity & dissatisfaction in job, anxiety of work completion with quality, Role of P.T. in Industrial setup & Stress management relaxation modes.
9. Biological Hazards

a) Prosthesis and orthosis-

1. Upper limb amputee rehab and prosthetic training.
2. Lower limb amputee rehab and prosthetic training.
3. Foot wears modifications in various conditions.
4. Wheelchair and seating system.
5. Design and construction of adoptive devices.
6. Classification of aids and appliances
7. Ambulatory aid and assistive devices.
8. Simple splint techniques.

b) Professional management and ethics-

1. The implications of and confirmation to the rules of professional conduct.
2. Legal responsibilities for their actions in the professional context and understanding liability and obligations in case of medico legal action.
3. A wider knowledge of ethics relating to current social and medical policy in the provision of health care.

4. The role of international health agencies such as WHO.

c) Management studies-

1. Definition and branches of management – Principles of health sector management.
2. General principles of management- theories of management.
3. Personnel management – policies and procedure, basic concepts and theories.
4. Financial issues including budget and income generation.
5. Principle of an organization chart.
6. Organization of a department planning, space, manpower, materials, basic requirements.
7. Resources and quality management- planning with change and coping with change.
8. Self-management- preparing for 1st job, time management, career development.

Practical / Demonstrations

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

Course Name: Community Based Clinical Rehabilitation Lab | **L** | **T** | **P** | **C**
Course Code: 204CB411 | **0** | **0** | **1** | **1**

COURSE OF STUDY

Field Visits

- Visits to Urban and Rural Primary Health Centres (PHCs)
- Visits to Regional Rehabilitation Training Centres (RRTC)
- Observation of community health and rehabilitation services

Mobile Rehabilitation Camps

- Organization and participation in regular mobile physiotherapy camps
- Community interaction and service delivery
- Documentation of cases and outcomes

Disability Survey and Screening

- Conducting disability surveys in villages
- Disability identification and classification
- Screening for:
    - Musculoskeletal disorders
    - Neuromuscular disorders
    - Cardio-respiratory conditions
    - Paediatric disabilities
    - Gynaecological conditions
    - Geriatric problems

Community Evaluation Techniques

- Demonstration and practice of:
    - Functional assessment methods
    - Physical examination techniques in community settings
    - Outcome measurement tools

Physiotherapy Prescription in Community

- Demonstration and application of physiotherapy treatment planning for:
    - Musculoskeletal conditions
    - Neuromuscular conditions
    - Cardio-respiratory conditions
    - Paediatric cases
    - Gynaecological cases
    - Geriatric cases

Ambulatory and Assistive Devices

- Demonstration of evaluation for:
    - Walking aids (crutches, walkers, canes)
    - Wheelchairs and orthotic supports
- Prescription of appropriate ambulatory and assistive devices
- Training patients and caregivers in usage.

Fabrication of Low-Cost Assistive Devices

- Fabrication of simple assistive devices using **locally available materials**
- Modification and customization of devices as per patient needs
- Safety and usability testing

Health Education & Community Awareness

- Patient and caregiver education
- Prevention of disability and promotion of functional independence
- Awareness programs in community settings

Record Keeping and Reporting

- Case documentation
- Survey reports
- Camp reports
- Practical logbook maintenance

Course Name: Research Methodology & Biostatistics **L T P C**

Course Code: 204RM406 **2 0 0 2**

COURSE OF STUDY

a) Introduction to Biostatistics

b) Measure of central value of Median, Mode, Mean.

c) Measure of Variability–Range, Semi inter–Quartile Range (S.I.Q.R.) standard deviation.

d) Variance co-efficient of variation.

e) Finding Percentile Norms Percentile bank by interpolation in cumulative distributions.

f) Correlations product moment co-efficient of correlation difference correlations.

g) Reliability and significance standard error of mean and its interpretation, reliability of difference between means.

h) Testing Hypotheses, T & F Tests.

i) Computation of Chi square from contingents table and its interpretation.

j) Introduction to research Methodology.

k) Role of Research in Physiotherapy.

l) Principles of Conducting Research

- Defining a Problem.
- Review of Literature.
- Formation of Hypothesis.
- Testing Hypothesis.
- Analysing & Reporting.

m) Concepts of Measurement

- Types of data.
- Tabulator of data.
- Graphic representation of data.
- Measure of dispersion standard error and standard deviation. E-Sampling and sampling Technique.
- Statistical tests, X^2 Tests, Concept of Z, S.E. of proportion.