GOKUL GLOBAL UNIVERSITY
Approved By Govt. of Gujarat
(Recognized by UGC under Section 22 & 2(f) of 1956)
(Gujarat Private State University Act 4 of 2018)

COURSE STRUCTURE

Bachelor of physiotherapy

FACULTY OF PARAMEDICAL
GOKUL PHYSIOTHERAPY COLLEGE
University Campus, State Highway-41, Siddhpur - 384151, Dist. Patan, Gujarat, INDIA
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YEAR WISE DISTRIBUTION OF HOURS AND CREDITS

First Year

HUMAN ANATOMY (FPB110101)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
125	175	300	80	20	80	20	100	100

HUMAN PHYSIOLOGY (FPB110102)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
150	150	300	55	15	80	20	70	100

BIO-CHEMISTRY

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
40	-	40	25	5	-	-	30	-

PSYCHOLOGY (FPB110103)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
70	-	70	40	10	-	-	50	-

SOCIOLOGY (FPB110104)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
70	-	70	40	10	-	-	50	-

EXERCISE THERAPY I & SOFT TISSUE MANIPULATION (FPB110104)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
150	150	300	80	20	80	20	100	100

BIOMEDICAL PHYSICS (FPB110105)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
100	50	150	40	10	-	-	50	-

PROFESSIONAL PRACTICE & ETHICS

(Not for University Exam)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
20	-	20	-	-	-	-	-	-

COMPUTER APPLICATIONS

(Not for University Exam)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
40	-	40	-	-	-	-	-	-

ENGLISH

(Not for University Exam)

Course Outline: The course is designed to help Acquire a good command and comprehension of the English language through individual papers and conferences.

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
50	-	50	-	-	-	-	-	-

ENVIRONMENTAL SCIENCES

(Not for University Exam, Only for Internal Exam)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
50	-	50	-	-	-	-	-	-

Second Year

1. PATHOLOGY (FPB120101)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
70	-	70	40	10	-	-	50	-

2. MICROBIOLOGY (FPB120101)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
70	-	70	40	10	-	-	50	-

3. PHARMACOLOGY (FPB120102)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
70	-	70	40	10	-	-	50	-

4. EXERCISE THERAPY II (FPB120103)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
160	150	310	80	20	80	20	100	100

5. KINESIOLOGY (FPB120104)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
90	-	90	40	10	-	-	50	-

6. PSYCHIATRY (FPB120105)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
70	-	70	40	10	-	-	50	-

7. ELECTROTHERAPY (FPB120106)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
160	150	310	80	20	80	20	100	100

8.Miscellaneous Medicines

8.1RADIOLOGY

(Not for University Exam)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
10	-	-	-	-	-	-	-	-

8.2ENT

(Not for University Exam)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
10	-	-	-	-	-	-	-	-

8.3 OPTHALMOLOGY
(Not for University Exam)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
10	-	-	-	-	-	-	-	-

9. ALLIED THERAPEUTICS (Basics only)
(Not for University exam)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
40	-	-	-	-	-	-	-	-

10.RECENT TRENDS
(Not for exam)

10.1 PROFESSIONAL PRACTICE & ETHICS

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
10	-	-	-	-	-	-	-	-

Third Year

1. GENERAL MEDICINE (FPB130101)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
80	-	80	55	15	-	-	70	-

2. SKIN & V.D. (DERMATOLOGY) (FPB130101)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
30	-	30	25	5	-	-	30	-

3. NEUROLOGY (FPB130102)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
70	-	70	55	15	-	-	70	-

4. PAEDIATRICS (FPB130102)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
50	-	50	25	5	-	-	30	-

5. SURGERY (FPB130103)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
50	-	50	55	15	-	-	70	-

6. OBSTETRICS AND GYNECOLOGY (FPB130103)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
40	-	40	25	5	-	-	30	-

7. PHYSICAL & FUNCTIONAL DIAGNOSIS (FPB130104)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
120	100	220	80	20	80	20	100	100

8.ORTHOPADICS (FPB130105)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
120	-	120	80	20	-	-	100	-

8.1 ORTHOPADICS (NON-TRAUMATIC)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
120	-	120	80	20	-	-	100	-

9.PREVENTIVE & SOCIAL MEDICINE(FPB130106)

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
70	-	70	40	10	-	-	50	-

10. RECENT TRENDS

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
40	-	40	-	-	-	-	-	-

Fourth Year

1.PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
120	20	140	80	20	80	20	100	100

2. PHYSIOTHERAPY IN MUSCULO-SKELETAL CONDITIONS

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
120	20	140	80	20	80	20	100	100

3. PHYSIOTHERAPY IN CARDIO RESPIRATORY & MEDICAL SURGICAL CONDITIONS

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
100	20	120	80 (55+25)	20 (15+5)	80	20	100	100

4.COMMUNITY PHYSIOTHERAPY REHABILITATION AND ASSISTIVE TECHNOLOGIES

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
60+30	20	110	80 (55+25)	20 (15+5)	80	20	100	100

5. ETHICS AND MANAGEMENT

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
20+20	-	40	40	10	-	-	50	-

6. BIO-STATISTICS & RESEARCH METHODOLOGY

Teaching Scheme (Hours)			Evaluation Scheme (Marks)					
Lecture	Practical	Total	Theory (T)		Practical (P)		Total Marks	
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
50	-	50	40	10	-	-	50	-

COURSE CONTENTS

FIRST YEAR B.P.T SYLLABUS

HUMAN ANATOMY (FPB110101)

OBJECTIVES:

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

1) Acquire the knowledge of structure of human body in general.
2) Understand the regional anatomy in detail
3) age
4) Understand histological features of various organs
5) Understand its application in medical science

SYLLABUS:-

1. GENERAL ANATOMY

a) Introduction & anatomical terms
b) Skin, Superficial Fascia & deep fascia
c) CVS, Portal system, collateral circulation & arteries
d) Lymphatic system
e) Osteology
f) Myology
g) Syndesmology (joints)
h) Nervous system

2.MYOLOGY, OSTEOLOGY AND ARTHROLOGY

a) Fascia & muscles of scalp and face
b) Muscles of mastication
c) Temporomandibular joint
d) Muscles of orbit & related nerves
e) Superficial and lateral cervical muscle
f) (platysma, trapezius, SCM)
g) Anterior triangle of neck-suprahyoid & infrahyoid

h) Anterior and lateral vertebral muscles
i) Cervical plexus
j) Cranial nerve (7th & 8th)
k) Cranial nerve (9th , 10th , 11th , 12th)
l) Sub occipital triangle &sub occipital muscles
m) Joints of vertebral column to cranium
n) Muscles of thorax and movement of respiration
o) Joints of thorax including sternochondral & chondrocostal joints
p) Muscles of abdomen
q) Muscles of pelvis
r) Muscles of perineum
s) Vertebral joint
t) Joints of pelvis (lumbosacral, sacrococcygeal, pubic symphysis)
u) Deep muscles of back
v) Muscles connecting upper limb to vertebral column with regional structures
w) Scapular muscles including regional structures
x) Muscles of arm
y) Axilla and brachial plexus
z) Joints of shoulder girdle
aa) Shoulder joint
bb) Anterior antebrachial muscles (front of forearm) with regional structure
cc) Posterior antebrachial muscles (back of forearm) with regional structures
dd) Elbow joint &cubital fossa
ee) Radioulnar joint (superior, middle and inferior)
ff) The retinacula, fascia and synovial sheath of wrist and hand
gg) Muscles of hand
hh) Radiocarpal / wrist joint
ii) Other joints of hand
jj) Muscles connecting lower limb to vertebral column with regional structures
kk) Muscles of iliac region(psoas muscle) and lumbar plexus
ll) Anterior femoral muscles (front of thigh) including regional structures
mm) Medical femoral muscles (adductor compartment) including regional structures
nn) Muscles of gluteal region including regional structures

oo) Posterior femoral muscles (back of thigh)
pp) including regional structures
qq) Hip joint
rr) Anterior crural muscles including regional structures
ss) Lateral crural muscles including regional structures
tt) Posterior crural muscles including regional structures
uu) Knee joint
vv) Popliteal fossa
ww) Muscles of foot
xx) Tibiofibular joint (superior, middle and inferior)
yy) Talocrural joint (ankle joint)
zz) Joints of foot & Arches)

3. NERVOUS SYSTEM

a) Introduction to nervous system & meanings
b) Spinal cord & peripheral nerves and vertebral canal
c) Brain stem-1
d) Brain stem-2
e) Cerebellum
f) Diencephalon with basal ganglia
g) Limbic system with olfactory region
h) Cerebrum & functional areas
i) Spinal tracts & overview of CNS – I
j) Spinal tracts & overview of CNS – II

4. RESPIRATORY SYSTEM

5. DIGESTIVE SYSTEM

6. URINARY SYSTEM

7. ENDOCRINE SYSTEM

8.REPRODUCTIVE SYSTEM

9. SPECIAL SENSORY ORGANS AND SENSATIONS

10. CARDIOVASCULAR SYSTEM (Heart & Vessels)

11. HISTOLOGY

a) Cell
b) Epithelia
c) Connective tissue(general)
d) Cartilage
e) Bone
f) Muscles

g) Nerves
h) Blood and phagocytic system
i) Lymph and lymphatic system
j) Blood vessels
k) Skin and its appendages
l) Central nervous system

12. General embryology

a) Spermatogenesis
b) Structure of Spermatozoon
c) Oogenesis
d) Ovarian follicle
e) Fertilization
f) Formation of germ layers
g) Placental development
h) Brachial arches
i) Development of skeletal system
j) Development of all type muscular system
k) Development of locomotor system
l) Development of nervous system

Note:-

1. Dissection of upper limb, lower limb & Trunk.
2. Identification of anterolateral abdominal wall, posterior abdominal wall & thoracic cage.
3. Anatomical position & description of all bones.
4. Surface marking in cadaver and living body.
5. Radiological examination of upper limb, lower limb & other special X-rays.
6. In BRAIN: Identification of all parts and various sections at different levels.
7. In HISTOLOGY PRACTICAL: Identification of basic tissues of body

Topic Distribution for Paper Setting	
Section	Topic Sr. No.
I (40 Marks)	1-6
II (40 Marks)	7-12

Course Code	Course Name	Course Outcome
FPB110 101	HUMAN ANATOMY	OBJECTIVES: the student will be able to: 1) Acquire the knowledge of structure of human body in general. 2) Understand the regional anatomy in detail 3) Anatomical changes right from embryonic period till old age 4) Understand histological features of various organs Understand its application in medical science

HUMAN PHYSIOLOGY (FPB110102)

OBJECTIVES:

At the end of the year the student will be able to:

1) Acquire the knowledge of functions of various systems of human body
2) Understand the role of hormones, enzymes, and other different types of cells of Human body.

SYLLABUS: -

1. General Physiology:

a) Cell Structure and organelle.
b) General Principles of Biophysics
c) Body Fluid compartments.

2. Blood:

a) Composition of blood, Plasma, protein formation and their function.
b) Structure, formation and functions of R.B.C.
c) Structure, formation and functions W.B.Cs. and Platelets.
d) Coagulation and its effects on bleeding, clotting time.
e) Blood groups and their significance, Rh. factor.
f) Reticulo-Endothelial system, jaundice, structure and functions of spleen.
g) Haemoglobin and E.S.R.

3. Cardiovascular System:

a) Structure, properties of heart muscle and nerve supply of heart, Structure and functionof arteries, arterioles, capillaries and veins.
b) Cardiac cycle and heart sounds.
c) Cardiac output measurement & affectingfactors
d) Heart rate and its regulation, cardio vascular reflexes.
e) Blood pressure, its regulations and physiological variations.
f) Peripheral resistance, Factors controlling, Role in B.P.

g) Haemorrhage.
h) Changes in muscular exercise.

4. Respiratory System:

a) Mechanism of respiration, Intra-pleural and intra pulmonary pressure.
b) Lung volumes and capacities.
c) O2 and CO2 carriage and their exchange in tissues and lungs.
d) Nervous chemical regulation of respiration - Respiratory Centres. Respiratory states - anoxia, asphyxia, Cyanosis, Acclimatization.

5. Digestive System:

a) General outline and salivary digestion
b) Gastric secretion and its mechanism of secretion and functions.
c) Digestion, absorption and metabolism of proteins.
d) Structure, Secretions and Functions of Livers.

6. Nutrition:

a) Digestion, absorption and metabolism of carbohydrates.
b) Digestion, absorption and metabolism of fats.
c) Digestion, absorption and metabolism of proteins.
d) Vitamins, sources, functions and resources.
e) Balanced diet in different age groups and occupation.

7. Endocrines:

a) Anterior Pituitary
b) Posterior Pituitary and parathyroid.
c) Thyroid.
d) Adrenal Cortex.
e) Adrenal Medulla, thymus.
f) Pancreas and Blood sugar regulation.

8. Reproductive System:

a) Sex determination and development, puberty,

b) Male sex hormones and their functions, spermatogenesis.
c) Female sex hormones and formation of urine, G.F.R. and Tubular functions.
d) Pregnancy, functions of placenta and lactation.

9. Excretory System:

a) Gross and minute structure of kidney and features of renal circulation.
b) Mechanism of formation of urine, G.F.R. and Tubular function.
c) Renal function tests.
d) Physiology of micturition

10.Neuro Muscular Physiology:

A. Muscle and Nerve:

1. Structure of neurones, membrane potential and generation of action potential.
2. Nerve impulse conduction, saltatory conduction.
3. Nerve muscular junction and drugs acting on it - Myasthenia.
4. Degeneration and regeneration in peripheral nerves including Wallerian degeneration

B. Muscle:

1. Type of muscles and their gross structure, stimulus, chronaxie, strength duration curve.
2. Structure of Sarcomere - basis of muscle contraction, Starlings law, changes during muscle contraction.
3. Electrical - Biphasic and monophasic action potentials.
4. Chemical, Thermal and Physical changes, isometric and isotonic contraction.
5. Motor units and its properties, clonus, tetanus, all or none law, beneficial effect.
6. Nature of voluntary contraction, fatigue.

11.Nervous System:

a) Types and properties of receptors, types of sensations
b) Structure of synapse, reflex arc and its properties, occlusion, summation, subminimalfringe etc.
c) Tracts of spinal cord.
d) Descending tracts, Pyramidal and Extrapyramidal.

e) Hemi section and complete section of spinal cord. Upper and lower motor neuronparalysis.

f) Cerebral cortex, areas and functions - E.E.G.
g) Structure - connections and function of cerebellum.
h) Basal ganglia and thalamus, connections and functions.
i) Reticular formation, tone, posture and equilibrium.
j) Autonomic Nervous system.

12.Special Senses:

1. Broad features of eye, errors of refraction, lesions of visual pathways.
2. Speech and its disorders.
3. Ear and vestibular apparatus.

Practical & Demonstrations:

Title

Nerve Muscle physiology

1. Gastrocnemius Muscle-Sciatic Nerve Prep.
2. Action Potential etc.
3. Effect of Temperature on S.M.C
4. Effect of Load on Skeletal Muscle Contraction

Cardio-Vascular System

5. Graph
6. BP
7. Radial Pulse
8. Spirometry/Respiratory Efficiency Test

Instruments

Recording Body Temperature Haematology

9. Total red Cell Count
10. Total White Blood Count
11. Cells in Peripheral blood film
12. Differential WBC count
13. Absolute count, Arneth count
14. Blood grouping Bleeding time/Clotting Time, Blood ,PCV, ESR

Central Nervous System

15. Examination of sensory function
16. Examination of motor functions
17. Examination of reflexes
18. Cranial nerves I, III, IV, V, VI
19. Cranial nerve II
20. Cranial nerves VII, VIII, IX, X, XII

Course Code	Course Name	Course Outcome
FPB11 0102	HUMAN PHYSIOLOGY	OBJECTIVES: the student will be able to: 1) Acquire the knowledge of functions of various systems of human body Understand the role of hormones, enzymes, and other different types of cells of Human body.

BIO-CHEMISTRY

OBJECTIVES:

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

1. Describe the structure and function of the cell in brief.
2. Describe the normal functions of different components of food.
3. Describe basal metabolic rate and the factors affecting the same (in brief) with special reference to obesity.
4. Discuss nutritional aspects of carbohydrates, lipids, proteins, vitamins and minerals andtheir metabolism with special reference to obesity.
5. Define enzymes and discuss in brief the factors affecting enzyme activity and diagnostic use of enzymes.
6. Describe in detail the biochemical aspects of muscle contraction.
7. Acquire knowledge in brief about the clinical biochemistry, with special reference to liver and renal function tests, blood study for lipid profile, metabolism of fat, carbohydrates, proteins, bone minerals, electrolyte balance, water balance and acid – base balance.

Content:

1. Biochemical characteristics of living mater.
2. Biochemistry, morphology of cell
3. Nucleic acids.
4. Proteins.
5. The enzymes.
6. Metabolism.
7. Hormones.
8. Nutrition.
9. Biochemistry of connective tissues, nerve tissue and muscle.
10. Water, electrolyte and acid base balance.
11. Chemistry of biology materials.
12. Physicochemical Phenomenon.
13. Common procedures used in biochemistry.

Topic Distribution for Paper Setting	
Section	Topic Sr. No.
I (55 Marks)	Physiology
II (25 Marks)	Biochemistry

Course Code	Course Name	Course Outcome
FPB110102	BIO-CHEMISTRY	the candidate will be able to 1. Describe the structure and function of the cell in brief. 2. Describe the normal functions of different components of food. 3. Describe basal metabolic rate and the factors affecting the same (in brief) with special reference to obesity. 4. Discuss nutritional aspects of carbohydrates, lipids, proteins, vitamins and minerals and their metabolism with special reference to obesity. 5. Define enzymes and discuss in brief the factors affecting enzyme activity and diagnostic use of enzymes. 6. Describe in detail the biochemical aspects of muscle contraction. Acquire knowledge in brief about the clinical biochemistry, with special reference to liver and renal function tests, blood study for lipid profile, metabolismof fat, carbohydrates, proteins, bone minerals, electrolyte balance, water balanceand acid – base balance.

PSYCHOLOGY (FPB110103)

OBJECTIVES:

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

1. Define the term psychology and its importance in the health delivery system and gain knowledge of psychological maturation during human development and growth and alteration during ageing process.
2. Understand the importance of psychological status of the person in the health and diseases, environmental and emotional influence on the mind and personality.
3. Acquire the knowledge as to how to deal with the patient. Reference should be made whenever appropriate to the therapist's relationship with the patient and with his professional colleagues. Emphasis should be laid on the effects of disease on the patient's behavior.

SYLLABUS: -

1. Introduction: Introduction of psychology, brief history, definitions, schools of psychology
2. Biological foundations of behaviour, hereditary, environment and logical basis for development, developmental psychology (child).
3. Learned and unlearned behaviour: Simple learning and conditioning, sociallearning.Learning disability in children (counselling for exercise)
4. Memory: Phases of memory, short term storage, memory and perception thinkingetc. Forgetting testimony and recall of events, memory and ageing
5. Perception: Sensory basis of perception, attention and perception, observer error
6. Motivation and Emotions: Approaches to motivations, emotional development, influence of early experience. Family and social influences on motivation and behaviour. Thematic Apperception Test developed by A M Mankad based on Maslow theory.
7. Thinking and Intelligence: Learning and problem solving, development of conceptualthinking in children. Communication, language and thinking, Measurement of intelligence,influences on intelligence, extent and consequence of individual difference.
8. Tests: Wechsler scales, Standford-Binet Intelligence scale, Bender, and Gestalt - other projective test, Anxiety scale.

9. Personality: Nature of personality structure and dynamics, dimensional, psycho analyticaland constitutional theories of personality, measurement of personality, culture and personality patterns.
10. Attitude: Nature of attitudes and beliefs including prejudice, group influences on attitudes, attitude change, doctor - patient expectations and attitudes, prejudice formation and reduction.
11. Interpersonal Behavior: Experimental analysis on social interaction, studies of the interview situation, behavior in formal and informal groups, group norms and roles. Leadership in formal and informal groups, group moral, Behavior therapy, behavior modification techniques, token economy.
12. Social Psychology: nature and scope of social psychology, social interaction, psychological groups and their classification, socialization of the individual, social control (social heredity) - moves, customs, fashion, propaganda and its techniques.
13. Stress: stress and responses, disorders, coping with stressors, four maxims, meditational yoga.
14. Pain: Physiological and psychological factors, types of pain, pain measurement.
15. Psychotherapy and counselling: Goals, Psychodynamic therapy, Humanistic therapy Behavior therapy- Relaxation training (Jacobson training), Hypnosis, Biofeedback. Behavior modification therapies (BMT) – Operant conditioning techniques, Token economy, Classical conditioning, modelling techniques. Cognitive therapy- Elli's rational/ emotive therapy, Beck's cognitive, Meichenbaum's self-instructional training.

Course Code	Course Name	Course Outcome
FPB11 0103	PSYCHOLOGY	1. Define the term psychology and its importance in the health delivery system and gain knowledge of psychological maturation during human development and growth and alteration during ageing process. 2. Understand the importance of psychological status of the person in the health and diseases, environmental and emotional influence on the mind and personality. Acquire the knowledge as to how to deal with the patient. Reference should be made whenever appropriate to the therapist's relationship with the patient and with his professional colleagues. Emphasis should be laid on the effects of diseaseon the patient's behavior.

SOCIOLOGY (FPB110103)

OBJECTIVES:

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

1. Define the term sociology and its importance in the health delivery system.
2. Understand the basic sociological concepts, principles and social process, social institution in relation to the individual family and community and the various social factors affectingthe family in the rural and urban communities in India. The subject will introduce thestudent to the basic sociological concepts, principles and social processes, socialinstitutions in relation to the individual family and community and the various socialfactors affecting the family in rural and urban communities.

SYLLABUS:-

1. Introduction:

a. Meaning - Definition and scope of sociology.
b. Its relation with anthropology, psychology, social psychology and ethics.
c. Methods of sociology - Case study, social survey, questionnaire interview and opinionpoll methods.
d. Importance of its study with special reference to health care professionals.

2. Social factors in Health and disease:

The meaning of social factors, the role of social factors in health and illness.

3. Socialization:

a) Meaning and nature of socialization
b) Primary, secondary and anticipatory socialization
c) Agencies of socialization.

4. 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 settings.

a) Prostitution.
b) Alcoholism.
c) Problems of women in employment.

5. Family:

a) The family
b) Meaning and definition
c) Functions
d) Types
e) Changing family patterns
f) Influence of family on the individuals health, family and nutrition, the effects of sicknesson family and psychosomatic disease and their importance to physiotherapy.

6. Community:

a) Rural community - Meaning and features - Health hazards of ruralities.
b) Urban community - Meaning and features -Health hazards of urbanities.

1. Community:

a) Rural community - Meaning and features - Health hazards of ruralities.
b) Urban community - Meaning and features -Health hazards of urbanities.

2. Culture and Health:

a) Concept of culture
b) Culture and behaviour.
c) Cultural meaning of sickness.
d) Culture and health Disorders

3. Social Change:

a) Meaning of social changes.
b) Factors of social change.

c) Human adaptation and social change.
d) Social change and stress
e) Social change and deviance.
f) Social change and health programme.
g) The role of social planning in the improvement of health and in rehabilitation.

4. Social Problems of Disabled:

Consequences of the following social problems in relation to sickness and disability remedies to prevent these problems.

a) Population explosion.
b) Poverty and unemployment.
c) Beggary.
d) Juvenile delinquency.
e) Prostitution.
f) Alcoholism.
g) Problems of women in employment.

5. **Social Security:**
   Social security and social legislation in relation to disabled.

6. **Social Worker:**
   Meaning of social work.
   The role of a medical social worker

7. **Culture and Health:**
   a) Concept of culture
   b) Culture and behaviour.
   c) Cultural meaning of sickness.
   d) Culture and health Disorders

8. **Social Change:**
   a) Meaning of social changes.
   b) Factors of social change.
   c) Human adaptation and social change.
   d) Social change and stress
   e) Social change and deviance.
   f) Social change and health programme.
   g) The role of social planning in the improvement of health and in rehabilitation.

9. **Social Problems of Disabled:**

Consequences of the following social problems in relation to sickness and disability remedies to prevent these problems.

   d) Population explosion.
   e) Poverty and unemployment.
   f) Beggary.
   g) Juvenile delinquency.

10. Social Security:

Social security and social legislation in relation to disabled.

11. Social Worker:

Meaning of social work.

The role of a medical social worker

Topic Distribution for Paper Setting	
Section	Topic Sr. No.
I (40 Marks)	Psychology
II (40 Marks)	Sociology

Course Code	Course Name	Course Outcome
FPB11 0103	SOCIOLOGY	1. Define the term sociology and its importance in the health delivery system. Understand the basic sociological concepts, principles and social process, social institution in relation to the individual family and community and the various socialfactors affecting the family in the rural and urban communities in India. The subject will introduce the student to the basic sociological concepts, principles and social processes, social institutions in relation to the individual family and community andthe various social factors affecting the family in rural and urban communities.

EXERCISE THERAPY I & SOFT TISSUE MANIPULATION (FPB110104)

OBJECTIVES:

At the end of the year the student will be able to

1. Understand the basic mechanical principles and effect of exercise, therapeutic modality inthe restoration of physical function.
2. Describe and acquire the skills of application and demonstration of the use of various toolsof the therapeutic gymnasium and various starting and derived positions.
3. Describe the physiological and therapeutic effect of various movements and demonstrate in various anatomical planes.
4. Acquire the skills of application of various massage manipulations and describe the physiological effects, therapeutic uses, merits – demerits of the same.
5. Demonstrate and acquire the skill of relaxation.

SYLLABUS:-

1. Introduction to exercise therapy.
2. Physiological effects and uses of exercise.
3. Use of apparatus in exercise therapy.
4. Fundamental starting positions, derived positions-effects and uses, pelvis tilt & Muscle work for all positions
5. Joint movement - terminology and range axes and planes of movement, levers, measurement of joint movements, goniometry, types of goniometer, bubble and gravity goniometer.
6. Causes of restriction of range of movement - Distinguish between skin, muscles, Capsular contractures.
7. Classification of movements
8. Active movements - Definition, types, techniques, effects and uses. Passive movements - Definition, types, techniques of relaxed passive movements and uses, comparison of both movements.
9. Group work-Criteria of selection of patients, advantages and disadvantages of group class exercises.
10. Home exercises - trick movements.

1. Suspension therapy - definitions of suspension and point of suspension, types of suspension, pulleys and use of pulleys in suspension therapy, application of suspension therapy either to increase the joint range or to increase muscle power.
2. Breathing - Mechanism of breathing (normal), Muscles of respiration, changes in thoracic cage during process of respiration
3. Pursed lip breathing & Glossopharyngeal Breathing - significance.
4. Normal gait cycle – Phases of gait
5. Crutch walking - Types of crutch walking, Use of parallel bars in pre-crutch walking stage, balance exercises, phase of walking, gait training, group of muscles responsible during crutch walking.
6. Progression in crutch walking, measurement of crutches, other walking aids canes,walkers, tripods other types of crutches, crutch - walking on even surface, slopes, climbing up the stair case.
7. Measurement of limb length, methods of measurements.
8. Application of resistance to develop endurance and power, progression of exercises angle of pull, types of muscle work, exercises - free resisted, assisted - use of gadget apparatus. esisted Exercises - Techniques and types of resistance, SET system (Heavy resisted exercises) Oxford method, Delorme method, Macqueen's method.
9. Free Exercises - Classification, technique, effects of free exercises - application for shoulder, neck, hip and knee joints, techniques of mobilization for stiff joints.
10. Maintenance of record-volume, range of motion, resistance, limb length.

6.2 SOFT TISSUE MANIPULATION

11. Introduction-brief history, definition, classification.
12. Physiological effects and therapeutic uses, contra - indications.
13. Preparation of patient, basic points to be considered before and during massage procedure.
14. Technique, effects and uses of each manipulation and contra-indications.
15. Specific effects of certain manipulations.
16. Massage for arm, leg, neck and upper back face.
17. Massage for edema, scar, tendinitis, fibrosis (tight fascia)

18. Practice of soft tissue manipulation in subjects.
19. Mobilization of soft tissues, joints and fluid collection.

Topic Distribution for Paper Setting	
Section	Topic Sr. No.
I (40 Marks)	1-15
II (40 Marks)	16-29

Course Code	Course Name	Course Outcome
FPB110104	EXERCISE THERAPY I & SOFT TISSUE MANIPULATION	1. Understand the basic mechanical principles and effect of exercise, therapeutic modality in the restoration of physical function. 2. Describe and acquire the skills of application and demonstration of the use of various tools of the therapeutic gymnasium and various starting and derived positions. 3. Describe the physiological and therapeutic effect of various movements and demonstrate in various anatomical planes. 4. Acquire the skills of application of various massage manipulations and describethe physiological effects, therapeutic uses, merits – demerits of the same. Demonstrate and acquire the skill of relaxation.

BIOMEDICAL PHYSICS (FPB110105)

OBJECTIVES:

At the end of the course the candidate will able to

1. Describe the fundamentals of general physics and able to relate its application in physiotherapy
2. Understand basic physical principles of sound, light and heat and their application in physiotherapy field
3. Understand basic aspects of electricity and electronics as related to its application in electrotherapy instruments
4. Describe in brief, certain common electrical components such as capacitors, transformers, valves & transistors and will be able to identify such components.

General Physics (Mechanics):

1. Force – Definition, unit, resolution of forces. Newton's laws of motion. Types ofmotion, direction and quantity of motion, Speed, Velocity, Work, Energy and Power.
2. Force of gravity, centre of gravity, line of gravity and base. Axes and planes of movement and gravity,
3. Reaction forces, ground reaction force, Equilibrium, determination of equilibrium of a body, Inertia, Acceleration, Momentum and Torque
4. Friction – force of friction, static and dynamic friction, limit of friction, friction a necessity and evil.
5. Simple machine – Lever, mechanical advantage, angle of pull, pulley, wheel and axle, fixed and movable pulley, pendulums, elasticity, spring properties of spring
6. Fluid mechanics – Viscosity, definition, coefficient of viscosity, streamline and turbulent flow, effect of temperature and pressure on viscosity. Principle of Archimedes, laws of floatation, hydrostatic pressure, buoyancy, surface tension, excess pressure in spherical liquefied drop. Physical property of water.
7. Heat: Heat transfer, properties of thermal radiation, Specific heat, thermal capacity, Energy conversion, I and II law of thermodynamics, physical effects of heat – expansion,evaporation, thermionic emission etc., Concept of heat and temperature, measurement of heat

thermometry, thermometer. Method of measuring body temperature. Human body temperature. Biophysics of superficial heat and cold.

8. Sound: Origin of sound, Characteristics of sound waves, velocity of sound in air and water, effect of temperature, pressure, density of medium, humidity, wind on sound waves.
9. Frequencies of sound waves, Infrasonic, Normal hearing band and Ultrasonics,Reflection, Refraction and Attenuation of Sound waves, Acoustic Impedance, Interference of sound waves, Resonance, Echo, Doppler effect and Fresnel and Fraunhofer zones in Ultrasonics.
10. Electromagnetic Spectrum: Electromagnetic Radiation: Laws Governing EMR, Laws of Reflection, Refraction, Absorption, Cosine law, Attenuation, Inverse square law. Grothuslaw etc.
11. Light: Emission and absorption spectra. Electromagnetic spectrum. Laws oftransmission, reflection, refraction, absorption. Internal reflection and fibre optics, Interference of light. LASER and its application.

Electricity and Electronics:

1. Structure of atom, Isotopes, States of matter; Compound formation-(covalent formation),
2. Static Electricity: Theories of Electricity, Production of Electric Charge, Characteristic of Charged body, Potential and Capacity, Potential Difference.
3. Current Electricity: Energy sources for electricity, EMF, Resistance, Intensity, Ohm's Law, resistance in Series / Parallel, Devices for regulating Intensity (Types, Construction and working of Rheostat), Electric energy and power, Thermal Effects of Electric (Joule 's Law).
4. Magnetism: Nature, Type, Molecular Theory of Magnetism, Property of Magnet, Magnetic Effect of Electric Current, Electromagnets, Milliamperemeter& Voltmeter (Construction and working), Meters for measuring Ac.
5. Capacitor / Condenser: Principles, Capacity (Measurement and factors determining), Types and Construction, Electric field, lines of force and characteristics of lines of force, Charging and discharging of the condenser, Duration of discharge, discharge through inductance, capacitive reactance and uses of condenser.
6. Electro Magnetic Induction: Principles (Faraday's/Lenz's law), Production, Direction of Induced EMF, Strength of induced EMF, Types (Self and Mutual) and inductive reactance. Eddy Currents, Dynamo, Transformers (Functions, Types, Constrictions), Choke coil.
7. Thermionic Valves (Diode and Triodes), Types of rectification (Half and full wave – Voltage

halving and Westinghouse Bridge), Semi Conductors: Types, semiconductordiodes, Metal rectifier & Transistors, Integrated circuits (IC), Picture Circuitry boards (PCB),

8. Main Supply: Production of Electricity, Types, Distribution, Earthing, Types of Plugs & Switches. Fuse.

9. Electric and electronic circuits: Oscillating circuit, Smoothing Circuit, surging circuit, CR circuit, multivibrator circuit, faradic coils (lewis jones and smart bristow), panel diagram of electrical stimulator, Production of high frequency current by klystron, magnetron
10. Frequencies of Current – Low, Medium and High frequency currents and their characteristics, Biological Cell as a capacitor and resistor, frequency of current7 and its relation to capacitive reactance (resistance)
11. Types of current – DC and AC, Sources of DC,Necessity for rectification of AC, Use of DC as a therapeutic current and its dangers, Electrical Skin Resistance, Electrolysis, acidic and alkaline reactions under anode and cathode, Electrolytic burns and its prevention
12. Shock: Types (Electric Shock, Earth Shock), Definition, Severity, Effects, Causes and Precautions.

Course Code	Course Name	Course Outcome
FPB110105	BIOMEDICALPHYSICS	1. Describe the fundamentals of general physics and able to relate its application in physiotherapy 2. Understand basic physical principles of sound, light and heat and their application in physiotherapy field 3. Understand basic aspects of electricity and electronics as related to its application in electrotherapy instruments Describe in brief, certain common electrical components such as capacitors, transformers, valves & transistors and will be able to identify such components.

PROFESSIONAL PRACTICE & ETHICS

(Not for University Exam)

OBJECTIVES:

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

1. Be able to understand the moral values and meaning of ethics
2. Acquire bedside manners and communication skills in relation with patients, peers seniorsand other professionals.

SYLLABUS:-

1. Introduction to the history of physiotherapy
2. Orientation to the curriculum, clinical areas and geographical location
3. Concept of morality & ethics
4. Concept of professionalism and professional dress code

COMPUTER APPLICATIONS

(Not for University Exam)

OBJECTIVES:

The course enables the students to understand the fundamentals of computer and its basic applications.

SYLLABUS: -

1. Introduction to data processing:

a) Features of computers. What are Hardware and Software?
b) Advantages of using computers. Role and uses of computers. What is data processing?
c) Application areas of computers and common activities in data processing. Types of data processing, characteristics of application.

2. Hardware concepts:

a) Architecture of computers – characteristics of discs, tapes, terminals, printers, network.
b) Types of storage devices.
c) Concept of damage. Application of networking concept of PC system care, floppy care, data care etc.

3. Concept of software

a) Classification of software: System software. Application of software, Operating System,Computer System, computer virus, precautions against viruses, dealing with viruses, computers in medical electronics.

4. Basic anatomy of Computers:

a) Principles of programming: Computer application – principles in scientific research, work processing, medicine, libraries, museum, education, information system.
b) Data processing
c) EMG, Exercise testing equipment, Laser.

ENGLISH

(Not for University Exam)

Course Outline: The course is designed to help Acquire a good command and comprehension of the English language through individual papers and conferences.

SYLLABUS:-

1. Introduction:

a) Study techniques
b) Organization of effective note taking and logical processes of analysis and synthesis.
c) Use of the dictionary
d) Enlargement of vocabulary
e) Effective diction

2. Applied Grammar:

a) Correct usage
b) The structure of sentences
c) The structure of paragraphs
d) Enlargement of vocabulary

3. Written composition:

a) Precise writing and summarizing
b) Writing of Bibliography
c) Enlargement of vocabulary

4. Reading and Comprehension:

Review of selected materials and express oneself in one's words and enlargement of vocabulary.

5.The study of various forms of composition:

Paragraph, essay, letter, summary, practice in writing

6.Verbal Communication:

Discussions and summarization, debates, oral reports, use in teaching.

ENVIRONMENTAL SCIENCES

(Not for University Exam, Only for Internal Exam)

1: Multidisciplinary nature of environmental studies

a) Definition, scope and importance
b) Need for public awareness.

2: Natural Resources:

Renewable and non-renewable resources:

Natural resources and associated problems.

a) Forest resources: Use and over-exploitation, deforestation, case studies. Timberextraction, mining, dams and their effects on forest and tribal people.
b) Water resources: Use and over-utilization of surface and ground water, Floods, drought, conflicts over water, dams-benefits and problems.
c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water Logging, salinity, casestudies.
e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Case studies.
f) Land resources: Land as a resource, land degradation, man induced Landslides, soil erosion and desertification.
g) Role of an individual in conservation of natural resources.
h) Equitable use of resources for sustainable lifestyles.

Unit 3 : Ecosystems

a) Concept of an ecosystem.
b) Structure and function of an ecosystem.
c) Producers, consumers and decomposers.
d) Energy flow in the ecosystem.
e) Ecological succession.

f) Food chains, food webs and ecological pyramids.

4 : Biodiversity and its conservation

a) From Unsustainable to Sustainable development
b) Urban problems related to energy
c) Water conservation, rain water harvesting, watershed management
d) Resettlement and rehabilitation of people; its problems and concerns. Case Studies
e) Environmental ethics: Issues and possible solutions.
f) Climate change, global warming, acid rain, ozone layer depletion, nuclear
g) Accidents and holocaust. Case Studies.
h) Wasteland reclamation.
i) Consumerism and waste products.
j) Environment Protection Act.
g) Introduction, types, characteristic features, structure and function of the Following ecosystem :-
   - Forest ecosystem
   - Grassland ecosystem
   - Desert ecosystem
   - Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

5 : Biodiversity and its conservation

a) Introduction – Definition: genetic, species and ecosystem diversity.
b) Biogeographical classification of India
c) Value of biodiversity : consumptive use, productive use, social, ethical, aesthetic and option values
d) Biodiversity at global, National and local levels.
e) Inida as a mega-diversity nation
f) Hot-sports of biodiversity.
g) Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.
h) Endangered and endemic species of India

i) Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

6 : Environmental Pollution

a) Definition, Cause, effects and control measures of:-
b) Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, nuclear hazards
c) Solid waste Management: Causes, effects and control measures of urban and Industrial wastes.
d) Role of an individual in prevention of pollution.
e) Pollution case studies.
f) Disaster management: floods, earthquake, cyclone and landslides.

7 : Social Issues and the Environment

a) Air (Prevention and Control of Pollution) Act.
b) Water (Prevention and control of Pollution) Act
c) Wildlife Protection Act
d) Forest Conservation Act
e) Issues involved in enforcement of environmental legislation.
f) Public awareness.

8: Human Population and the Environment

a) Population growth, variation among nations.
b) Population explosion – Family Welfare Programme.
c) Environment and human health.
d) Human Rights.
e) Value Education.
f) HIV/AIDS.
g) Women and Child Welfare.
h) Role of Information Technology in Environment and human health.
i) Case Studies.

9: Field work

a) Visit to a local area to document environmental assetsriver/ forest/ grassland/ hill/ mountain
b) Visit to a local polluted site-Urban/Rural/Industrial/Agricultural
c) Study of common plants, insects, birds.

Study of simple ecosystems-pond, river, hill slopes, etc.

SECOND YEAR BACHELOR OF PHYSIOTHERAPY

1.PATHOLOGY (FPB120101)

OBJECTIVES:

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

1. Acquire the knowledge of concepts of cell injury and changes produced thereby in different tissues and organs; capacity of the body in healing process.
2. Recall the etio-pathogenesis, the pathological effects and the clinical-pathological correlation of common infection and non-infectious disease.
3. Acquire the knowledge of concepts of neoplasia with reference to the etiology, gross and microscopic features, diagnosis and prognosis in different tissues and organs of the body.
4. Correlate normal and altered morphology of different organ systems in different Diseases needed to understand the disease process and their clinical significance (with Special emphasis to neuro-musculo skeletal and cardiovascular – respiratory system).
5. Acquire knowledge of common immunological disorders and their resultant effects on The human body.
6. Understand in brief, about the hematological diseases and investigations necessary to Diagnose them and determine their prognosis.

General Pathology:

1. Introduction: Aims and objects of study of pathology, definitions of health, disease, causes of disease, methods of study of disease.
2. Inflammation – General morphology, types, phenomenon of acute inflammation.
3. Tissue repair – Wound healing, fracture, skin, nerves, muscles
4. Cell Injury – Degeneration, physical and chemical irritants, ionizing radiations, cellulites.
5. Disturbance of circulation – edema, thrombosis, infarction, embolism.
6. Necrosis, Gangrene
7. Growth and its disorders – atrophy and hypertrophy (pseudo), Hyperplasia
8. Cellular ageing
9. Tumors – definitions, classification, characteristics of being and malignant tumors, etiology and spread of tumors, systemic effects.
10. Infection – Acute, chronic, including AIDS.
11. Blood-Anemia, definition, classification, etiology, lab investigations, blood picture;

Hemorrhagic disorders – causes and classification (hemophilia)

12. Immunity, Hypersensitivity and Auto immune disorders (RA, SLE)

Systemic Pathology:

(Each condition in this section is to be taught under the specific headings of Causes, Development, Gross and Microscopic only).

1. Respiratory System: Pneumonia, Bronchitis, Bronchiectasis, Asthma, Emphysema, Tuberculosis and Carcinoma of Lungs Occupational Lung Diseases
2. Cardiovascular System: Rheumatic Heart diseases, Myocardial infarction, Atherosclerosis and other disease of blood vessels – TAO, Buerger's diseases, Thrombophlebitis, Congenital Heart diseases,
3. Alimentary System: Peptic Ulcer, Ulcerative lesions of intestine
4. Liver: Hepatitis, Cirrhosis
5. CNS: Meningitis, Encephalitis, Cerebral Hemorrhage, CVA, Brief outline of CNS Tumors
6. Peripheral Nerves: Neuritis, Neuralgia, GBS, Neuropathies.
7. Bones and Joints: Osteomyelitis, Osteoarthritis, Septic, Arthritis, Gout, Osteomalacia, Bone Tumors briefly*-Giant Cell tumor, Osteosarcoma, Ewing's
8. Muscles: Disorder of muscles including Poliomyelitis and Myopathies, Volkman's Ischaemic contracture
9. Skin: Scleroderma, Psoriasis, Autoimmune disorders
10. Urinary System: Nephritis, Glomerular Nephritis, Nephrotic Syndrome
11. Endocrine System:Thyroid – Thyroiditis and Thyroid tumors, Diabetes

CourseCode	Course Name	Course Outcome
FPB120101	PATHOLOGY	the candidate will be able to: 1. Acquire the knowledge of concepts of cell injury and changes producedthereby in different tissues and organs; capacity of the body in healing process. 2. Recall the etio-pathogenesis, the pathological effects and the clinical-pathological correlation of common infection and non-infectious disease. 3. Acquire the knowledge of concepts of neoplasia with reference to the etiology, gross and microscopic features, diagnosis and prognosis in different tissues and organs of the body. 4. Correlate normal and altered morphology of different organ systems indifferent Diseases needed to understand the disease process and their clinical significance (with Special emphasis to neuro-musculo skeletal andcardiovascular – respiratory system). 5. Acquire knowledge of common immunological disorders and their resultant effects on The human body. Understand in brief, about the hematological diseases and investigationsnecessary to Diagnose them and determine their prognosis.

2. MICROBIOLOGY (FPB120101)

OBJECTIVES:

At the end of the course the candidate will be able to have sound knowledge of the agentsresponsible for causing human infections pertaining to CNS, CVS, musculoskeletal and Respiratory system.

1. General Bacteriology:
   a) Introduction, historical background, classification of micro – organisms
   b) Morphology of bacteria
   c) Staining of bacteria
   d) Sterilization
   e) Cultivation and culture media
2. Systemic Bacteriology:
   a) Gram-Positive cocci – Streptococci, Pneumococci, Staphylococci
   b) Gram-Negative Cocci – Gono and Meningococci
   c) Gram-Positive Bacilli
   d) Gram-Negative Bacilli-Typhoid, Cholera, Dysentry
   e) Aerobic-Diptheria, T.B., Leprosy
   f) Anaerobic-Tetanus, Gas Gangrene, Botulism
3. Immunology:
   a) Immunity, Antigens
   b) Antibodies, Ag-Ab Reaction
   c) Agglutination, precipitation
   d) Hypersensitivity reactions
4. General Virology:

a) Poliomyelitis
   b) Rabies
   c) Demonstration of test in: diagnosis of AIDS, Hepatitis and Syphilis

5. Parasitology:
   a) Malaria
   b) Amoebiasis
   c) Round worm and loop worm
6. Mycology:
   a) Candidiasis
   b) Ring worm
   c) Scabies
7. Aseptic universal precautions & practices
   Biomedical waste and universal precautions

Topic Distribution

Topic Distribution for Paper Setting	
Section	**Topic Sr. No.**
I (40 Marks)	Pathology
II (40 Marks)	Microbiology

Course Code	Course Name	Course Outcome
FPB120101	MICROBIOLOGY	the candidate will be able to have sound knowledge of the agents responsible for causing human infections pertaining to CNS, CVS, musculoskeletal and Respiratory system. 1. General Bacteriology: a) Introduction, historical background, classification of micro – organisms b) Morphology of bacteria c) Stainingof bacteria d) Sterilization e) Cultivation and culture media 2. Systemic Bacteriology: a) Gram-Positive cocci – Streptococci, Pneumococci, Staphylococci b) Gram-Negative Cocci – Gono and Meningococci c) Gram-Positive Bacilli d) Gram-Negative Bacilli-Typhoid, Cholera, Dysentry e) Aerobic-Diptheria, T.B., Leprosy f) Anaerobic-Tetanus, Gas Gangrene, Botulism 3. Immunology: a) Immunity, Antigens b) Antibodies, Ag-Ab Reaction c) Agglutination, precipitation d) Hypersensitivity reactions 4. General Virology: a) Poliomyelitis b) Rabies c) Demonstration of test in: diagnosis of AIDS, Hepatitis and Syphilis 5. Parasitology: a) Malaria b) Amoebiasis c) Round worm and loop worm 6. Mycology: a) Candidiasis b) Ring worm c) Scabies Aseptic universal precautions & practices Biomedical waste and universal precautions

3.PHARMACOLOGY (FPB120102)

OBJECTIVES:

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

1. Describe pharmacological effects of commonly used drugs by patients referred for physiotherapy; list their adverse reactions, precautions to be taken, contraindications, formulation and root of administration.
2. Identify whether the pharmacological effect to the drug interferes with the therapeutic response of physiotherapy and vice versa
3. Indicate the use of analgesics and anti-inflammatory agents with movement disorders, with consideration of cost efficiency and safety for individual needs.
4. Get the awareness of other essential and commonly used drugs by patients. The basis of their use and common as well as serious adverse reaction.

Syllabus:

1. Chemical character and general action of drugs
2. Principles of drug administration and routes of administration, distribution, metabolism, excretion of drugs, factors influencing drug reaction, dosage and factors modifying it.
3. Drug toxicity including allergy and idiosyncrasy.
4. Definition, action, indication, contraindication, adverse reaction of the following:
   a) Drugs acting as PNS: stimulating and inhibiting, cholinergic and anticholinergics. Drugs acting at NM junction. Muscle relaxants
   b) Drugs acting on CNS: Analgesics, antipyretics, narcotics, anti inflammatory, anti epileptic, sedatives, hypnotics, tranquilizers, anticonvulsants, stimulants, psychotherapeutics, alcohol
   c) Pulmonary effects of general and local anesthetic agents
   d) Drugs acting on CVS: antihypertensive, vasoconstrictors, vasodilators, diuretics, mucolytic agents. Drugs that influence myocardiac contractility and heart rate.
   e) Drugs acting on Respiratory system: bronchodilators, drugs used in inhalation therapy, drugs acting on CNS and cardio respiratory system which influence the physical exercise.
5. Antimicrobial Agents
6. Immunological agents and vaccines
7. Chemotherapeutic agents
8. Endocrine Pharmacology: thyroxin, glucocorticoids, anabolic steroids, calcitonin, insulin and hypoglycemic agents
9. The vitamins
10. Irritants counterirritants

Course Code	Course Name	Course Outcome
FPB120102	PHARMACOLOGY	the candidate will be able to 1. Describe pharmacological effects of commonly used drugs by patients referred for physiotherapy; list their adverse reactions, precautions to be taken, contraindications, formulation and root of administration. 2. Identify whether the pharmacological effect to the drug interferes withthe therapeutic response of physiotherapy and vice versa 3. Indicate the use of analgesics and anti inflammatory agents with movement disorders, with consideration of cost efficiency and safety for individual needs. 4. Get the awareness of other essential and commonly used drugs by patients. The basis of their use and common as well as serious adverse reaction.

4. EXERCISE THERAPY II (FPB120103)

OBJECTIVES:

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

1. Describe the biophysical properties of connective tissue and the effect of biomedical loading and factors which influence the muscle strength and mobility of articular and periarticular soft tissue.
2. Acquire the skill of assessment of isolated & group muscle strength, & Range of motion of the joints subjectively & objectively
3. To demonstrate general fitness, exercise and shall gain fitness for oneself

Syllabus

1. **Passive movements**: Definition, types, technique, effects and uses, CPM unit, comparison of active with passive movements for all joints of exterminates, neck and trunk.
   Stretching: Definitions related to stretching, types of contractures and differentiationproperties of soft tissues affecting elongation and aims of stretching, manual and mechanical stretching, cycle mechanical stretching, indications and aims of stretching, principles and contraindications
   Traction: types, effects, principles of application for cervical and lumbar spine, traction to soft tissues of joints – gliding movements
2. **Mobilization**: causes of restriction of R.O.M., prevention of restrictions, techniques of mobilization of various joints of limbs to mobilize joint R.O.M. through functional diagonal patterns, joint mobilization; manipulation-definition, types; joint shapes, types of motion; stretching, glides, compression, traction, indications, contraindications, precautions and conditions for special precautions.
3. **Advance soft tissue Mobilization:** Basic principles of MET (Muscle Energy Technics), MFR (Myofacial Release Technics), PRT (Positional Release Therapy), NTM (Neural Tissue Mobilization).
4. **M.M.T.:** need of M.M.T., uses, fundamental principles, anatomical and physiological basis, Oxford scale of muscle gradation, principles of isolation, substitution, stabilization, grading procedure for muscles of extremities, neck and trunk. Voluntary control of movement gradation by Bobath, Brunnstrom.
5. **Posture:** Types, factors influencing posture, regulation of posture and posture mechanism, pelvic tilt and postural deviations of spine and its treatment
   Crawling exercises: principles, types, effects and uses of Clapp' crawl
6. **Strengthening of muscles(PRE):** Principles involved to prevent muscle wasting, Rood's technique of initiating muscle contraction, progressive strengtheningof muscles (loads assisted and resisted exercises), use of equipment, reeducation of

muscles and restoration of functions, practice of strengthening of muscles of limbs, neck, trunk and face, emphasis on hand and foot muscles, quadriceps, glutei, triceps, deltoid and face muscles, use of manual and mechanical resistance, contraindications, isometric and isokinetic exercises regime, plyometrics, MET (Muscle Energy Techniques)

7. **Proprioceptive Neuromuscular Facilitation**: Introduction, responses of NM mechanism, basis techniques of PNF patterns of arm, leg, neck, head and trunk (emphasis on straight patterns), specific techniques of emphasis-repeated contractionsslow reversal, contract and relax, hold and relax, rhythmic stabilization, inhibitory techniques, Bobath Rood's and Kabat.
8. **Relaxation:** Muscle tone, postural tone, general and local relaxation techniques of relaxation
9. Neuro Muscular coordination: Factors governing co ordination, principles of re education, Frenkel's exercises and its techniques
10. **Functional Reeducation:** Mat activities for re education of hemiplegics, paraplegics and cerebral palsy, walking re education in neurological and orthopedic conditions.
11. **Aerobic exercises:** Physiological effects and therapeutic uses, fitness testing, stress testing for healthy and convalescent individuals. Pharmacological aspects of exercises.
12. **Breathing exercises:** Mechanisms of normal breathing, muscles of respiration, changes in thoracic cage during the process of respiration, segmental and diaphragmatic breathing exercises, pursed lip breathing, FET, breathing mechanisms and postural drainage, assistive measures, techniques, indications and contraindications
13. **Hydrotherapy:** Physiological properties of water and hydrodynamics, physiological and applications of Bad Ragaz Technique, indications and contraindications

Topic Distribution for Paper Setting	
Section	**Topic Sr. No.**
I (40 Marks)	1-6
II (40 Marks)	7-13

Course Code	Course Name	Course Outcome
FPB120103	EXERCISE THERAPY II	the course the candidate will be able to 1. Describe the biophysical properties of connective tissue and the effectof biomedical loading and factors which influence the muscle strength and mobility of articular and periarticular soft tissue. 2. Acquire the skill of assessment of isolated & group muscle strength, & Range of motion of the joints subjectively & objectively To demonstrate general fitness, exercise and shall gain fitness for oneself

5. KINESIOLOGY (FPB120104)

OBJECTIVES:

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

1. Acquire the skill of assessment of isolated and group muscle strength subjectively and objectively.
2. Analyze normal human posture and its associated problems, its management.
3. Analyze the various normal musculoskeletal movements during breathing, gait and daily living activities and in terms of biomechanical and physiological principles.

Application of

1. **Mechanics of joint motion:** Structure and types of joints and types of movements
2. **Mechanics of muscular action:** Classification of muscles, line of pull, types of contractions, role of muscles and tendons, action of two joint motions, non customary action
3. **Skilled Movements:** Rope climbing, cycling, running, ballistic and volitional movements
4. **Impetus:** Impetus to external objects and receiving impetus
5. **Locomotion:** Normal gait analysis: definition of gait, phases of normal gait, normal gait with kinetic and kinematics, abnormal pathological gaits, gait training
6. **Biomechanics of joints:** Kinetics, kinematics and patho-mechanics of joint – hip , knee, ankle, foot, shoulder, elbow, wrist and hand
7. **Biomechanics of spinal column:** Spinal curves, articulations, non contractile soft tissue of column, IV disc, ligaments, intrinsic equilibrium, movements of spinal column and muscle mechanics
8. **Mechanics of pelvic complex:** Pelvis at rest, in standing body and in motion, patho mechanics of pelvis
9. **Mechanics of thorax:** Movements between ribs and vertebrae, sternum and ribs, patho mechanics of respiration
10. **Postural strain and occupational hazards**: Correct use of body mechanics at home, at school and work, recreation, particular application for patients, physiotherapists and other staff.
11. **Kinetics and kinematics of ADL:** Supine to sitting, Sitting to standing, Squatting, Climbing up and down, pushing, pulling, overhead activities, walking, running, Jogging.

CourseCode	Course Name	Course Outcome
FPB120104	KINESIOLOGY	the course the candidate will be able to 1. Acquire the skill of assessment of isolated and group muscle strength subjectively and objectively. 2. Analyze normal human posture and its associated problems, its management. 3. Analyze the various normal musculoskeletal movements during breathing, gait and daily living activities and in terms of biomechanical and physiological principles.

6. PSYCHIATRY (FPB120105)

OBJECTIVES:-

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

1. Enumerate various psychiatric disorders with special emphasis to movement, pain and ADL & describe the various causative factors and methods of assessment and management
2. Acquire the knowledge in brief about the pathological and etiological factors, common signs and symptoms and management of various psychiatric conditions
3. Describe in brief the various treatment modalities commonly used.

SYLLABUS:-

1. Mental health:

a) Normal Mental Health
b) Criteria of normality or matured personality
c) Factors contributing to normal mental health.

2.Study of Abnormal Personality:

a) Neurotic
b) Hysterical
c) Psychotic
d) Paranoid
e) Schezoid
f) Psychopathic etc.

3.General Etiological Factors:

a) Hereditary
b) Genetical Constitutional
c) Acquired
d) Traumatic
e) Infective
f) Toxic
g) Degenerative
h) Social and Environmental including pathogenic family patterns
i) Precipitating causes
j) Frustration and conflicts.

4. Symptomatology and Treatment of Psychoses:

a) Functional - Functional Schizophrenic, reaction group, simple, paranoid, catatonic, hebephrenic paranoid state, paranoia, juvenile, schizophrenia, autistic thinking, dementia.
b)Organic - Toxic confused states, senile psychoses, arteriosclerotic, degenerative, G.P.I.

Affective Disorders: Dynamics of Mania, hypomania, chronic mania, M.P.D.

Involutional depression, senile depression, postpartum depressive reactions, reactive and neurotic depression, endogenous depression, suicide (egoistic, Altruistic, Anomic) EpilepticDisorders: Epileptic Psychoses.

5. Neurosis :

a) Symptomatology, diagnosis and treatment and psychodynamics of anxiety state, hysteria, conversion reaction, dissociative reaction, dual personality, obsessional neurosis, phobias,hypochondriasis, neurasthenia and mental fatigue.

6. Mental Retardation:

a) Definition,
b) Etiological factors - Prenatal, postnatal, infective, hormonal, congenital.

c) Types of mental retardation, clinical types-microcephaly, hydrocephalus, mongot, family Idiocy, phenylketonuria etc. Symptomatology of various grades of retardation, differential diagnosis and treatments.

7. Child Psychology:

a) Behavior disorders - Nail biting, Enuresis, Truancy, Thumb sucking, Speech difficulties,Pica, Vomiting, Anorexia, delinquency.

8. Introduction to dynamics of Psychophysical disorders:

a) Asthma, skin rashes, hypertension, bowel disorders.
b) Introduction to treatment in psychiatry - E.C.T., Insulin, coma therapy.
c) Drug therapy - Tranquilizer, Mood elevators, hypnotics and sedatives, Psychotherapy - Deep and superficial, individual and group, expressive, suppressive, environmental manipulation, re-educative.
d) Psychodrama
e) Psychoanalysis
f) Play Therapy

Course Code	Course Name	Course Outcome
FPB120105	PSYCHIATRY	the course, the student will be able to 1. Enumerate various psychiatric disorders with special emphasis to movement, pain and ADL & describe the various causative factors and methods of assessment and management 2. Acquire the knowledge in brief about the pathological and etiological factors, common signs and symptoms and management of various psychiatric conditions Describe in brief the various treatment modalities commonly used.

7. ELECTROTHERAPY (FPB120106)

OBJECTIVES

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

1. Recall the Physics – Principles and laws of electricity, Electromagnetic spectrum, Ultrasound
2. Describe the electrical main supply, Electric shock – precautions
3. Describe and identify various types of electrodes used in therapeutics, resistance offered by the skin and significance of various media used to reduce the same
4. Describe the production, physiological effects, therapeutic uses, merits/ demerits, indications and contraindication of various Low, Medium and High frequency currents and modes. Describe the panel diagrams of the machine
5. Acquire the skill of application of Low, Medium and High frequency currents on models for the purpose of treatment
6. Describe the physiological effects and therapeutic uses of various therapeutic ions to be used for the application of Iontophoresis
7. Describe effects of electromagnetic field at the cellular level and risk factors on prolonged exposure
8. Describe the physiological effects and therapeutic uses of various topical pharmacotherapeutic agents to be used for the application of phonophoresis
9. Acquire an ability to select the appropriate mode as per the tissue specific and area specific application.

Syllabus

1. LOW FREQUENCY CURRENTS

a) **Review of physics:** Current, electricity, Ohm's law, Resistance, Rheostats, potentiometers, Electromagnetic induction, capacitors, valves, semiconductors and transistors

b) **Nerve Muscle Physiology:** Resting potential, action potential, propagation of action potential, motor unit, synapse and synaptic transmission of impulses. Effect of negative and positive electrodes on nerve & accommodation

c) **Electric shock:** Causes, severity, treatment and precautions Earth shock and its precautions

d) **Faradic Current:** Definition, characteristic and modified faradic current, sinusoidal current, parameters of faradic stimulation, physiological and therapeutic effects of faradic-stimulation. Indication, contra-indications and precautions, techniques of

Stimulation- group muscle stimulation, faradic foot bath, faradism under pressure and Pelvic floor muscle re-education

Interrupted Direct Current: Introduction & characteristics, Parameters of Stimulation, physiological and therapeutic uses of stimulation, precautions

e) **Galvanic Current:** Introduction & characteristics, Parameters of stimulation, physiological and therapeutic uses of stimulation, precautions

f) **Iontophoresis:** Definition, principles of iontophoresis, physiological and therapeutic uses, indications, techniques of iontophoresis, principles of treatment, contraindicationsand dangers

g) **TENS:** Definition, types, Theories of pain modulation emphasizing on "Pain gate" theory, techniques of treatment, indication and contra –indications

2. MEDIUM FREQUENCY CURRENT

a) **Interferential current:** Definition, characteristics, physiological & therapeutic effects of Interferential current, techniques of application, indications, contraindicationsand precautions

b) Bio-feedback: Introduction, principles of Bio-feedback, therapeutic effects of biofeedback, Indications and contra-indications, techniques of treatment

c) Advanced Electrotherapy: Computerization in electrotherapy, Programming of parameters of treatment, appropriate selections of parameters and combination therapy, Combination therapy-principles, therapeutic uses and indications like, Ultrasound therapy with stimulation or TENS etc.

d) Introduction to Russian current, Dia-dynamic current, HVPGS and Micro currents

e) Electrical currents for Care of the wound

3. HIGH FREQUENCY CURRENT

a) Short Wave Diathermy (SWD): Introduction, physiological effects and Therapeutic effects of SWD, methods of application (capacitor field method and cable method etc.) Techniques of treatment, indication, contra-indications and dangers.

b) Pulsed SWD: Definition, characteristics, mechanism of work, physiological effects and therapeutic effects, indications, techniques of application, principles of treatmentand contra-indications

c) Ultrasonic Therapy: Introduction and characteristics, Ultrasound Therapy parameters, coupling media, therapeutic effects, indications contra-indications and dangers, testing of apparatus, techniques of application & dosage, Phonophoresis

d) Electromagnetic waves: Electromagnetic spectrum, physical properties of electromagnetic radiations-reflection, refraction, absorption penetration, Grothus' law, Cosine law, Inverse square law and its practical application

e) Cellular bio-physics – reception and emission of electromagnetic signals Environmental currents and fields – risk factors on prolonged exposure to electromagnetic field

f) Infra Red Rays (IRR): Production of infra red rays, luminous and non – luminous

generators, penetration, technique of application, physiological effects and therapeutic uses of infra-red rays, duration and frequency of treatment, indications and contra indications, dangers and precautions.

g) Ultra Violet Rays(UVR): Production of UVR, test dose, physiological effects of UVR dosimetry in UVR. PUVA

h) LASER: Introduction and characteristics, effects on tissue, therapeutic effects, principles of application, indications, contra-indications and dangers

i) Microwave Diathermy (MWD): Introduction and characteristics, physiological effects, therapeutics effects, techniques of application and principles of treatment, indications, contra-indications and dangers

Superficial heat modalities: Structure of the apparatus, composition of wax and mineral oils physiological effects and therapeutic uses of wax bath, technique ofapplication

j) Other Heating Modalities: Heating pad, moist heat and fluid therapy

k) Cry therapy: Physiological effects and therapeutic uses of ice therapy, Techniques of application, contra – indication to ice treatment

l) Hydrotherapy: Properties of water buoyancy, effects of buoyancy on movement, Hubbard tank, contrast bath, whirlpool bath

m) Care of the wound: UVR, LASER and Ultrasound

n) Recent advances in Electro-physiotherapy: High intensity laser, Shockwave, PEMF (Pulse Electro Magnetic Energy), Spinal Decompression, Pneumatic Compression therapy, FES, virtual reality training.

Topic Distribution for Paper Setting	
Section	**Topic Sr. No.**
I (40 Marks)	Low & Medium frequency currents
II (40 Marks)	High frequency current

Course Code	Course Name	Course Outcome
FPB12 0106	ELECTROTHERAPY	the course the candidate will be able to 1. Recall the Physics – Principles and laws of electricity, Electromagnetic spectrum, Ultrasound 2. Describe the electrical main supply, Electric shock – precautions 3. Describe and identify various types of electrodes used in therapeutics,resistance offered by the skin and significance of various media used to reduce the same 4. Describe the production, physiological effects, therapeutic uses, merits/ demerits, indications and contraindication of various Low, Medium and High frequency currents and modes. Describe the paneldiagrams of the machine Acquire the skill of application of Low, Medium and High frequency currents on models for the purpose of treatment 6. Describe the physiological effects and therapeutic uses of various

		therapeutic ions to be used for the application of Iontophoresis 7. Describe effects of electromagnetic field at the cellular level and riskfactors on prolonged exposure 8.Describe the physiological effects and therapeutic uses of varioustopical pharmacotherapeutic agents to be used for the application ofphonophoresis Acquire an ability to select the appropriate mode as per the tissuespecific and area specific application.

8. Miscellaneous Medicines

8.1 RADIOLOGY
(Not for University Exam)

OBJECTIVES
At the end of the course the candidate will be able to
1. Identify common chest conditions together with basic traumatic, infective, inflammatory and degenerative conditions and bony skeletal
2. Read CT, MRI of different joints.

Syllabus
1. Introduction to Radiology
2. Importance of Radiology in Physiotherapy
3. X-rays of fractures of different bones in the body
4. X-rays of different stages of fracture healing
5. X-rays of different Orthopedic conditions - Osteoarthritis, Rheumatoid arthritis
6. Cervical & lumbar spondylosis, foot deformities etc.
7. X-rays of common chest conditions
8. C.T Scan, M.R.I., Angiography, 3D reconstruction of bones & joints

8.2 ENT
(Not for University Exam)

OBJECTIVES:
At the end of the course the candidate will be able to:
Identify common ear, nose, throat conditions together with basic traumatic, infective, inflammatory and degenerative conditions and skeletal, muscular or any other structuralabnormalities

SYLLABUS:
1. Anatomy & Physiology of Hearing: Assessment & Management of Hearing Loss
2. Introduction to Disease of ENT: Otitis media, Sinusitis & Rhinitis
3. Facial Nerve Palsy: Causes & Management
4. Larynx & Associated functional paralysis with tracheostomy & Care of tracheostomy
5. Vertigo: Causes, Assessment & Management.

OPTHALMOLOGY
(Not for University Exam)

OBJECTIVES:-
At the end of the course, the students will be able to
1. Acquire knowledge of structure and function of the eye

2. Describe etiology, patho-physiology, sign and symptoms and clinical evaluation of common ophthalmic conditions related to Physiotherapy

SYLLABUS:-

1. Common eye diseases, including Refractory errors, conjunctivitis, and trachoma.
2. Cataract and glaucoma.
3. Squint and ptosis.
4. Eye lesions in leprosy, including causes treatment and complications of lagophthalmos.
5. Causes, clinical features and treatment of disorders of occular movement occurring in diseases such as myasthenia gravis, progressive supranuclear palsy and lower moto neuron diseases.
6. Causes, clinical features, treatment and prognosis in inflammatory disorders, vitamin A deficiency, emphasis on preventable causes and prophylactic measures.
7. Definition of blindness, and visual disability evaluation, investigative procedures used for testing visual failures.

9. ALLIED THERAPEUTICS (Basics only)

(Not for University exam)

OBJECTIVES:-

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

1. Comprehend the use of various allied therapeutic sciences in health care delivery.

SYLLABUS:-

1. Acupuncture and acupressure: definition, principles, techniques, physiological and therapeutic effects, contraindications and dangers
2. Introduction to Naturopathy
3. Magneto therapy
4. Yoga Sana, pranayama and their scientific study
5. Dry needling (DN)
   a) Introduction

10.RECENT TRENDS

(Not for exam)

10.2 PROFESSIONAL PRACTICE & ETHICS

OBJECTIVES:

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

1. Be able to understand the moral values and meaning of ethics
2. Acquire bedside manners and communication skills in relation with patients, peers seniors and other professionals.
3. Be able to develop psychomotor skills for physiotherapist patient relationship.
4. Skill to evaluate and make decision for plan of management based on sociocultural values and referral practice.
5. Be able to develop behavioral kills and humanitarian approach while communicating with patients, relatives, society at large and co-professionals
6. Be able to develop bedside behavior, respect & maintain patients' confidentiality.

SYLLABUS:-

1. Ethical code of concept
2. Communication skills
3. Physiotherapist-patient relationship
4. Interviews – Types of interview, skills of interviewing

10.3 EVIDENCE BASED PRACTICE & ICF

OBJECTIVES:-

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

1. Understand concept of Evidence Based Practice and its implementation in Physiotherapy
2. Search, review and use the evidences in Physiotherapy

SYLLABUS:-

Introduction to Evidence Based Practice

Definitions, Evidence Based Practice, Evidence Based Physiotherapy Practice

Concepts of Evidence based Physiotherapy

Awareness, consultation, judgment, creativity

Development of Evidence based knowledge

The individual professional, professionals within a discipline, professionals across disciplines

Evidence Based Practitioner

The reflective practitioner, the E model

THIRD YEAR BACHELOR OF PHYSIOTHERAPY

1. GENERAL MEDICINE (FPB130101)

OBJECTIVES

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

1. Acquire the knowledge of Etiology, Patho-physiology, signs and symptoms and management in brief,of the infectious diseases, diseases of metabolism especially obesity and other related medical conditions, diseases of hematopoietic system, diseases of GI and urinary tract & endocrine disorders

2. Describe etiology, patho-physiology, sign and symptoms, clinical evaluation and management of the various cardio-vascular and respiratory disorders with interpretation of investigations: chest x-ray, Echocardiography, blood gas analysis, blood investigations and pulmonary function test

3. Acquire the knowledge of auto-immune & rheumatological conditions with special emphasis to those involving musculoskeletal system and skin, with regards to etiology, pathophysiology, signs and symptoms, differential diagnosis and medical management of same

SYLLABUS:-

1. **RespiratoryDiseases:** Lung function tests, pneumonia, ILD, Respiratory failure, pulmonary edema, pulmonary embolism lung abscess, bronchiectasis, asthma, emphysema, pleural effusion, Pneumothorax, empyema, chronic bronchiectasis,
2. **Cardio Vascular Diseases:** Rheumatic fever, valvular lesions, congestive cardiac failure, ischaemic heart diseases (Angina pectoris and myo-cardial infarction) stress test, hypertension, peripheral vascular-diseases (TAO, Raynauds disease).
3. **Endocrinal Disorders:** Diabetes mellitus, obesity, thyrotoxicosis, myxodema.
4. **Gastro-intestinal Disorders:** Peptic ulcer, pancreatitis, dysentries and diarrhea, inflammatory bowel diseases, jaundice, cirrhosis of liver.
5. **Infectious Disease:** Tuberculosis, malaria, typhoid, infective hepatitis, tetanus.
6. **Nutritional Disorder:** Vitamins and its deficiencies, disorders including rickets and osteomalacia,anaemia.
7. **UrogentialSystem:** Structure and functions of kidneys including physiology of micturition, acute andchronic renal failure, glomerulo-nephritis, pyelonephritis.
8. **Rheumatology:** Rheumatoid arthritis, ankylosing spondylitis, gout, osteoarthritis,

Spondyloarthritis,systemic lupus erythromatous, polyarteritisnodosa, mixed connective tissue disorders, scleroderma.

CourseCode	Course Name	Course Outcome
FPB130101	GENERAL MEDICINE	the candidate will be able to 1. Acquire the knowledge of Etiology, Patho-physiology, signs and symptoms and management in brief, of the infectious diseases, diseases ofmetabolism especially obesity and other related medical conditions, diseases of hematopoietic system, diseases of GI and urinary tract & endocrine disorders 2. Describe etiology, patho-physiology, sign and symptoms, clinical evaluation and management of the various cardio-vascular and respiratory disorders with interpretation of investigations: chest x-ray, Echocardiography, blood gas analysis, blood investigations and pulmonary function test 3. Acquire the knowledge of auto-immune & rheumatological conditions with special emphasis to those involving musculoskeletal system and skin,with regards to etiology, pathophysiology, signs and symptoms, differential diagnosis and medical management of same

2. SKIN & V.D. (DERMATOLOGY) (FPB130101)

OBJECTIVES:-

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

1. Acquire knowledge in structure and function of the skin and about various primary, secondary andspecial skin lesions related to systemic disorders
2. Describe etiology, clinical features and management of bacterial, fungal, viral, allergic, autoimmuneskin diseases
3. Acquire knowledge in sexually transmitted diseases and leprosy.

SYLLABUS:-

1. Structure and functions of normal skin, primary and secondary skin lesions.
2. Scabies and pediculosis.
3. Fungal infections of skin: Dermatophytosis, Pityriasisversicolor, Candidiasis.
4. Bacterial infections of skin-Impetigo / Boil.
5. Viral infections of skin-Herpes zoster.
6. Eczema / Dermatitis / Allergies.
7. Psoriasis / Acne / Alopecia / Vitiligo and Leucoderma.
8. Leprosy / Lepra - reaction/Physiotherapy in leprosy.

   Sexually transmitted diseases: Syphillis - primary & secondary, Gonorrhoea, Chancroid, , AIDS.

CourseCode	Course Name	Course Outcome
FPB130101	SKIN & V.D. (DERMATOLOGY)	the course, the students will be able to 1. Acquire knowledge in structure and function of the skin and about various primary, secondary and special skin lesions related to systemic disorders 2. Describe etiology, clinical features and management of bacterial, fungal, viral, allergic, autoimmune skin diseases Acquire knowledge in sexually transmitted diseases and leprosy.

3. NEUROLOGY (FPB130102)

OBJECTIVES:-

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

1. Describe etiology, patho-physiology, sign and symptoms, clinical evaluation and management of the various neurological conditions with interpretation of laboratory & radiological investigations.

SYLLABUS:-

1. Anatomy, Physiology, Lesions and diseases of Pyramidal system, extra-pyramidal system, cerebellar system, spinal cord, upper and lower motor neuron, cranial nerves, brachial plexus, lumbosacral plexus and peripheral nerves.

2. Causes, Clinical features, and management of: Unconscious patient, hemiplegia, paraplegia, quadriplegia, cerebral diplegia, spastic child, foot drop and wrist drop.

3. Disorders of cerebral circulation.

4. Infections: Encephalitis, meningitis, poliomyelitis, transverse myelitis, slow viral diseases.

5. Diseases of Peripheral nerves: Peripheral neuropathy, other neuropathies.

6. Muscle disorders: Myopathy, polymyositis, Muscular dystrophies.

7. Degenerative diseases: Parkinsonism, myasthenia gravis motor neuron diseases, spinocerebellar degenerations and diseases of anterior horn cell, dementia.

8. Costo-clavicular syndrome.

9. Demyelinating disorders including multiple sclerosis.

10. Basic concept of electrophysiology and electromyography.

11. Giddiness and vertigo

CourseCode	Course Name	Course Outcome
FPB130102	NEUROLOGY	the course, the candidate will be able to 1. Describe etiology, patho-physiology, sign and symptoms, clinical evaluation and management of the various neurological conditions withinterpretation of laboratory & radiological investigations.

4. PAEDIATRICS (FPB130102)

OBJECTIVES:-

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

1. Describe normal development and growth of a child, importance of immunization and breast feeding and psychological aspect of development

2. Describe neuro muscular, musculo skeletal and cardio pulmonary conditions related to immunologicalconditions, nutritional deficiencies, infectious disease and genetically transmitted conditions

3. Acquired skill of clinical examination of a neonate / child with respect to neurological, musculoskeletal and respiratory function.

SYLLABUS:-

1. Growth and development of a child from birth to 12 years, including physical, social, adaptive development.

2. The maternal and neonatal factors contributing to high risk pregnancy, the neonate, inherited diseases, maternal infections - viral and bacterial, maternal diseases incidental to pregnancy, induced hypertension, chronic maternal diseases such as heart diseases, renal failure, tuberculosis, diabetes, epilepsy, bleeding in the mother at any trimester.

3. Community programmes: International (WHO), national and local, for prevention of poliomyelitis, blindness, deafness, mental retardation and hypothyroidism, the immunization schedule for children.

4. Cerebral Palsy : Etiology - prenatal, perinatal and postnatal causes, pathogenesis, types of cerebral palsy (classification), findings on examination, general examination, examination of C.N.S., musculoskeletal system, respiratory system, G.I. Tract and nutritional status.

5. Associated defect-downs syndrome, Mental retardation, microcephaly, blindness, hearing and speech impairment, squint and convulsions.

6. Prevention - Appropriate management of high risk pregnancies, prevention of neonatal and postnatalinfections, metabolic problems.
7. Muscular Dystrophy: Various forms, modes of inheritance and clinical manifestation, physical findings in relation to disabilities, progression of various forms and prognosis, treatment goals in forms which are not fatal.
8. Spinabifida, Meningomyelocele : Development, clinical features - lower limbs, bladder and bowel complications - U.T.I. and hydrocephalus, medical management.
9. Still's Disease: Classification, pathology in brief, physical findings, course and prognosis, treatment, prevention and correction of deformity.
10. Acute C.N.S. infections, Classification (Bacterial and Viral), the acute illness, C.N.S. squeal leading to mental retardation, blindness, deafness, speech defect, motor paralysis, bladder and bowel problems, seizure disorder and specific problems such as subdural effusion, hydrocephalus, pressure sores, feeding difficulties.
11. Normal diet of newborn and child: List dietary calorie, fat, Protein, mineral and vitamin requirementin normal child and in a child with malnutrition. Childhood` obesity. Etiology, findings, and treatment of rickets, vitamin D deficiency, and resistant rickets
12. Lung infections: Clinical findings, complications, and medical treatment of bronchiectasis, lung abscess and bronchial asthma.

CourseCode	Course Name	Course Outcome
FPB130102	PAEDIATRICS	the course the candidate will be able to 1. Describe normal development and growth of a child, importance of immunization and breast feeding and psychological aspect of development 2. Describe neuro muscular, musculo skeletal and cardio pulmonary conditions related to immunological conditions, nutritional deficiencies, infectious disease and genetically transmitted conditions Acquired skill of clinical examination of a neonate / child with respectto neurological, musculoskeletal and respiratory function.

5. SURGERY (FPB130103)

5.1 GENERAL SURGERY & PLASTIC SURGERY & NEUROSURGERY

OBJECTIVES:-

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

1. Describe the effects of surgical trauma and anesthesia in general
2. Classify, clinically evaluate and describe the surgical management in brief in

a) wounds-ulcers b) burns

3. Describe pre-operative evaluation, surgical indications and various surgical approaches in various abdominal conditions and peripheral vascular conditions
4. Recall the surgical approaches in the form of line diagram and will be able to describe the components of soft tissues cut to reach the target tissue, and the possible post-operative complications in movement
5. Clinically evaluate post-operative abdominal conditions with special reference to the cardio-vascularand pulmonary function, describe post-operative management in brief.
6. Describe the management of head injury, spinal surgeries, intracranial tumors, peripheral nerve lesions and pain

SYLLABUS:-

1. Acute infections, Inflammatory fever, bacteremia, septicemia, pyemia, toxemia. Specific types - Cellulitis - sites lymphangitis, abscess with special reference to hand infection, carbuncle.
2. Specific types cont'd: Tetanus, gas gangrene, hospital infection, cross infection with modes of spread and prevention, General survey of chronic inflammations, Syphilis (reference to other

venereal diseases) leprosy, actinomycosis.

3. General survey of trauma, pathology and clinical features of wound repair - primary, secondary and tertiary wound healing, Clean wounds, contaminated wounds and infectious wounds, Principles of treatment, survey of factors affecting wound healing, Ulcers and gangrene, Post-operative complications of abdominal surgery specifically chest, wound infection, oedema.

4. Burns as a specific type of severe trauma, classification, early and late complications, management, & reconstructive surgery - skin grafting as an example of plastic procedure.

5. Types of skin grafting - take of grafting - healing of grafting, Post operative care of plastic surgery with specific role of physiotherapy,

6. Outline of surgical disorders of brain - head injuries.

   General survey of surgical disorders of spine and spinal cord problem of paraplegia, malignancy - spread and its behavior, various abdominal incisions, abdominal drainage tubes, catheters and nasogastric tubes, ward demonstration for an hour a day for a period of one week.

7. Anesthesia, O.T. demonstrations.

8. Neck, skin contractures and correction.

9. Problems of trauma to hand and their management, Urinary tract infection.

10. Principles of cineplasty, tendon transplant, cosmetic surgery types of grafts, surgery of hands withemphasis on management of traumatic and leprosy hand.

11. Breast – surgery

12. Neurohysiology- NeuroPhysiology, basis of tone, disorders of tone and posture, bladder control, muscle contraction, movement and pain with clinical features and management of the following

a) a) Congenital and childhood disorders - hydrocephalus spina bifida

b) Trauma - Broad localization, first aid and management of squeal of head injury and spinal

cordinjury.

c) Diseases of the Spinal Cord - Craniovertebral junction anomalies, syringomyelia, cervical and lumbar disc disease, tumors.

d) Peripheral nerve disorders - Peripheral nerve injuries, localization & management. Entrapment neuropathies.

e) Intracranial tumors - Broad classification, signs and symptoms.

f) Pre-operative Assessment and indications and contra - indication for neurosurgery in intracranialtumors

g) Management of pain, electrical stimulation of brain and spinal cord.

h) Miscellaneous.

Clinical: Operation Theator (O.T.) Visit

5.2 CARDIOTHORACIC SURGERY

OBJECTIVES:-

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

1. Describe types of incision, pre and post-operative assessment and complications of Cardio-thoracicsurgery and their management

2. Clinically evaluate post-operative cardio-vascular and pulmonary function status

3. Read and interpret investigations including findings of the x-ray chest, CT scan and MRI scan.

SYLLABUS:-

1. Basic anatomy of chest wall, trachea and bronchial tree, lungs and bronchopulmonary segments,pleura and mediastinum.
2. Physiology and mechanics of breathing and use of mechanical breathing - ventilator : (respirators).
3. Pulmonary function tests.
4. Investigation of lung diseases including endoscopies.
5. Chest injury.
6. Common suppurative diseases of lung - Bronchiectasis, lung abscess.
7. Bronchogenic carcinoma
8. Common surgeries of chest

   Thoracoplasty, pulmonary dissections,

   thoracotomy. Pneumothorax, hydrothorax-

   Pneumothorax, empyema.
9. Common diseases of oesophagus and related conditions causing dysphagia.
10. Surgery of portal hypertension.
11. Surgery of pulmonary tuberculosis.
12. Surgery of heart and great vessels.
13. Basic anatomy of heart, great vessels.
14. Investigation of patient undergoing cardiac surgery.

15. Cardiac arrest, its management.
16. Basic principles of open heart Surgery, Heart lung bypass (Extra Co-portal circulation)
17. Common diseases of heart requiring surgery both congenital and acquired including open heartsurgery.
18. Common drugs used in cardiac surgery, its uses, side effects.
19. Common vascular surgery, Embolectomy, vascular reconstructive surgery, (Thrombosis, Embolism,atherosclerotic and occlusive vascular diseases including coronary artery bypass)

Clinical:

1. Examination of patients as regards chest & heart diseases.
2. Demonstration - Acquaintances with C.T. Surgery,
3. Equipments, I.C.C.U.O.T.
4. Radiology - X-ray studies - X-ray chest in various lung diseases.

CourseCode	Course Name	Course Outcome
FPB130103	SURGERY 1.GENERAL SURGERY & PLASTIC SURGERY & NEUROSURGERY	the course, the student will be able to 1. Describe the effects of surgical trauma and anesthesia in general 2. Classify, clinically evaluate and describe the surgical management inbrief in a) wounds-ulcers b) burns 3. Describe pre-operative evaluation, surgical indications and varioussurgical approaches in various abdominal conditions and peripheral vascular conditions 4. Recall the surgical approaches in the form of line diagram and will beable to describe the components of soft tissues cut to reach the target tissue, and the possible post-operative complications in movement 5. Clinically evaluate post-operative abdominal conditions with specialreference to the cardio-vascular and pulmonary function, describe post- operative

		management in brief. Describe the management of head injury, spinal surgeries, intracranialtumors, peripheral nerve lesions and pain
	2. CARDIOTHORACIC SURGERY	the student will be able to 1. Describe types of incision, pre and post-operative assessment and complications of Cardio-thoracic surgery and their management 2. Clinically evaluate post-operative cardio-vascular and pulmonaryfunction status Read and interpret investigations including findings of the x-ray chest,CT scan and MRI scan.

6. OBSTETRICS AND GYNECOLOGY (FPB130103)

OBJECTIVES:-

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

1. Describe the normal and abnormal physiological events during the puberty, labor,puerperium,post-natal stage and menopause

2. Discuss various complications during pregnancy, labor, puerperium and postnatal stage, pre-andpost-menopausal stage and various aspects of urogenital dysfunction and the management in brief

3. Acquire knowledge in brief about intra uterine development of the fetus

4. Acquire the skill of clinical examination of the pelvic floor

5.Acquire the skill of the clinical examination of pregnant woman

SYLLABUS:-

1. Anatomy and physiology of the female reproductive organs. Puberty dynamics.
2. Physiology of menstrual cycle-ovulation cycle, uterine cycle Cx. cycle, Duration, amount.
3. Hormonal regulation of menstruation.
4. Diagnosis of pregnancy.
5. Abortion
6. Physiological changes during pregnancy.
7. Antenatal care.
8. High risk pregnancy.
9. Normal labour.
10. Normal puerperium and postnatal.
11. Family planning.
12. Medical Termination of pregnancy (MTP).

13. Infection of female genital tract including sexually transmitted diseases, low backache.
14. Prolapse of uterus and vagina.
15. Principles of common gynaec operations Hysterectomy
16. Menopause and its effects
17. Sterility.

Clinical: Operation Theater (O.T.) Visit

CourseCode	**Course Name**	1. **Course Outcome**
FPB130103	OBSTETRICS AND GYNECOLOGY	the student will be able to 1. Describe the normal and abnormal physiological events during the puberty,labor,puerperium,postnatal stage and menopause 2. Discuss various complications during pregnancy, labor, puerperium and postnatal stage, pre-andpostmenopausal stage and various aspects of urogenital dysfunction and the management in brief 3. Acquire knowledge in brief about intra uterine development of the fetus 4. Acquire the skill of clinical examination of the pelvic floor **2.** Acquire the skill of the clinical examination of pregnant woman.

7. PHYSICAL & FUNCTIONAL DIAGNOSIS (FPB130104)

OBJECTIVES: -

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

1. Describe the human development & maturation; with special emphasis to psychomotor development,maturation & alteration during aging process
2. acquire the skill of detection & objective documentation of the neurological, musculoskeletal, cardiovascular & pulmonary dysfunctions such as pain, altered muscle power, mobility, endurance, limb length, posture, gait, hand function & A.D.L. in adult & pediatric conditions & acquire skill & to arrive at the Functional diagnosis as per International Classification of Functioning (ICF)
3. Describe the physiology of nerve impulse, motor unit, its electro-physiological character and acquirethe skill of performance and interpretation of various electro-diagnostic tests in the assessment of peripheral nerve lesions
4. Be able to do interpretation of common investigations used to arrive at the Physical & Functional diagnosis.
5. SYLLABUS:-

2. General principles of Human development & maturation

a) Aspects: physical, motor, sensory, cognitive, emotional, cultural, social
b) Factors influencing human development & growth: Biological, environmental, inherited.
c) Principles of maturation - in general - in anatomical directional pattern cephalo – caudal proximo –distal centero – lateral, mass to specific pattern, gross to fine motor development
d) Reflex maturation tests 5. Development in specific fields: Oromotor development, sensory development, neurodevelopment of hand function.

3. Electro diagnosis

a) Bioelectricity-Physiology of generation & propagation of action potential, volume conduction

b) Therapeutic current-as a tool for electro diagnosis
c) Physiological principles, use of alternating & direct currents in electro-diagnosis such as sensory & Pain threshold, Pain tolerance,-Short & long pulse test, S.D. curves, Chronaxie & Rheobase, accommodation ratio,
d) Principles of nerve conduction studies, late responses *
e) E.M.G. instrumentation, basic components, panel diagram, types of electrodes
f) Principles of Electro- myography, motor unit–Normal characteristics-activity at rest,recruitment/frequency pattern at minimal activity, Interference pattern.

4. Assessment of Neurological dysfunction

a) Higher functions, cranial nerves, sensations & sensory organization, body image, tone, reflexes:superficial & deep, voluntary control, muscle strength, coordination, balance, posture, gait
b) Scales: FRT, Berg's Balance, modified Ashworth, Glasgow Coma, TUG, FIM
c) Functional diagnosis using ICF
d) Interpretation of electro diagnostic findings, routine biochemical investigations

5. Assessment of Musculoskeletal Dysfunction

a) Tightness, deformity, joint mobility, muscle strength, limb length, trick movement, girth, posture,gait, special tests
b) Functional diagnosis using ICF
c) Interpretation of X-ray of extremities & spine, routine bio-chemical investigations, CT scan, MRI
d) Assessment of pelvic floor muscle strength and function i. Digital evaluation of vagina ii. Perineometer iii. Pad test
e) Disability Evaluation – gait and gait parameters, percentage of disability (temporary and permanent)

6. Assessment of cardio -pulmonary dysfunction

a) Vital parameters, chest expansion, chest excursion, breath holding test, breath sounds, rate ofperceived exertion (RPE), peak flow rate
b) Exercise Tolerance: six minutes' walk test, shuttle test, theoretical bases of Bruce's protocol, steptest
c) Ankle Brachial Index, tests for peripheral arterial & venous circulation
d) Functional diagnosis using ICF
e) Interpretation of X-ray chest, routine bio-chemical investigations, ABG, PFT, ECG (normal values)

7. Assessment of pain

a) Intensity & quality
b) Objective assessment & documentation: VAS, Numerical Rating Scale. Other scales

8. Assessment of Hand

a) Sensations, mobility of joints, strength
b) Special tests
c) Hand function: Precision& power grips

9. Assessment of Obesity

a) Classification
b) Assessment – BMI, Waist circumference, Waist – Hip ratio
c) Introduction to Quality of Life Questionnaire

10. Assessment of wounds.

PRACTICALS: Skills to be practiced on peer/model

CourseCode	**Course Name**	3. **Course Outcome**
FPB130104	PHYSICAL & FUNCTIONAL DIAGNOSIS	the candidate will be able to 1. Describe the human development & maturation; with special emphasis to psychomotor development, maturation & alteration during aging process 2. acquire the skill of detection & objective documentation of the neurological, musculoskeletal, cardiovascular & pulmonary dysfunctions such as pain, altered muscle power, mobility, endurance, limb length, posture, gait, hand function & A.D.L. in adult & pediatric conditions & acquire skill & to arrive at the Functional diagnosis as per International Classification of Functioning (ICF) 3. Describe the physiology of nerve impulse, motor unit, its electro-physiological character and acquire the skill of performance and interpretation of various electro-diagnostic tests in the assessment of peripheral nerve lesions **4.** Be able to do interpretation of common investigations used to arrive at the Physical & Functional diagnosis

8. ORTHOPADICS (FPB130105)

8.1 ORTHOPADICS (TRAUMATIC)

OBJECTIVES

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

1. Discuss the clinical manifestations and conservative/surgical management of various traumaticand cold cases of the musculo-skeletal conditions
2. Traumatic including both operative and non-operative
3. Gain the skill of clinical examination and interpretation of the preoperative cases and allthe post-operative cases
4. Read and interpret salient features of the x-ray of the spine and extremities, and correlatethe radiological findings with the clinical findings.

Syllabus

1. **Introduction:** Fracture, dislocation and injuries of the upper limb. Briefly mention general principles of Orthopedic surgery, definition and scope, brief history
2. **Fracture & dislocations:** Causes, types, mechanisms, displacement, general symptoms, healing,principles of treatment, complications, malunion, delayed union, non-union, myositis ossificans, Volkmann's ischemic contracture, Fat embolism, Sudeck'sosteodystrophy
3. **Injuries to the hand:** Types (open, closed), principles of treatment, injuries to the phalanges, sprains, dislocations of MP & IP joints, fractures of the phalanges, metacarpals, Bennet's fracture, mallet finger, tendon injuries (flexor & extensor)

Wrist & Forearm injuries: Wrist dislocation, Colle's fracture, displaced epiphysis, Smith's fracture, Barton's fracture, injuries to carpal, scaphoid and sprains, fractures of forearm bones – greenstick fracture. Infraction injury, both bone

fracture, Galleazi, Monteggia fracturedislocation

4. **Injuries to the elbow:** Traumatic synovitis, sprain, dislocation of elbow joint

5. **Fractures involving elbow joint:** Supracondylar fracture, intercondylar fracture, fracture medial epicondyle, fracture of lateral condyle, myositis ossificans, Volkmann'sischaemic contracture, fracture of the head of the radius, fracture of olecranon

6. **Injuries of shoulder and arm:** Fractures of the proximal end, neck and shaft of humerus, fractures of clavicle, acromioclavicular and sternoclavicular dislocations, fractures of the scapula

7. **Injuries of the spine:** Injuries to the cervical spine (Both upper and lower), atlanto-axial injuriesDorso Lumbar spine: classification, mechanism and types of injuries, stable fracture without paraplegia, fracture dislocation with paraplegia, management of fracture, management of
paraplegia, bedsore, and bladder care

8. **Injuries of the pelvis:** Fractures, its mechanism, classification, management, Fractures ofacetabulum, sacrum and coccyx

9. **Injuries of the lower limb:** Dislocations of the hip joint, intracapsular and trochantric fractures of femur, fractures of the neck of femur, fracture of the shaft of femur, fracture femur in children
Fracture of femoral condyles, tibial condyles and patella. Injuries to extensor mechanism, contusion, haemarthrosis, knee joint dislocation and traumatic dislocation of patella

Fracture and fracture dislocation of ankle, epiphyseal injury lower end of tibia Foot-fracture oftalus, calcaneum, metatarsals, and phalanges

10. **Soft tissue injuries:** Ligamentous injuries of ankle, knee and injury to Muscles.Orthopaedic splints and appliances for injuries to muscles and tendons

11. **Tendon transfer:** Principles, indications, common tendon transfer surgeries

12. Amputation : Types, site, ideal stump, complications, general principles of treatmentUpper extremity and lower extremity amputations – prosthesis and prosthetic service

Principles of operative management,indications,andcontraindications for arthroplasty,osteotomy, arthrodesis, spinal stabilization, arthroscopy

13. Limb reattachment: Principles, indications, technique.

Clinical: Operation Theator (O.T.) Visit

8.2 ORTHOPADICS (NON-TRAUMATIC)

OBJECTIVES

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

1. Discuss the patho-physiology, clinical manifestations and conservative/surgical management of various non-traumatic cases of the musculo-skeletal conditions
2. Non-traumatic including both operative and non-operative
3. Gain the skill of clinical examination and interpretation of the preoperative cases
4. Read and interpret pathological / biochemical studies pertaining to orthopedic conditions andcorrelate the radiological findings with the clinical findings

SYLLABUS

1. General Orthopedics

a) Clinical examination of an orthopedic patient, investigations, radiological and imaging techniques(salient features)

b) Deformities, acquired deformities, causes and principles of management, splinting
c) Traction: procedures, materials
d) Preventive orthopedics
e) Geriatric orthopedics

2.Congenital disorders

a) Torticollis , wry neck, kyphosis, lordosis, scoliosis, spina bifida, myelomeningocele , congenitaldislocation of hip, congenital genu recurvatum, talipesequinovarus
b) Elevation of scapula, madelung's deformity, coxavara
c) Endocranialdystosis, superior radio-ulna dysostosis, sternocleido mastoid tumor

3.Infection of bones &joints

a) Osteomyelitis (acute and chronic), Brody's abscess as a complication of open fracture
b) Skeletal tuberculosis, principles of treatment, T.B. of shoulder, elbow and wrist T.B. of hip, kneeankle, and foot
c) Dactylitis, caries rib

4.Arthritis

a) Acute pyogenic arthritis, septic arthritis of infancy, small pox arthritis, Syphilic infection of joint,Rheumatoid arthritis, osteoarthritis

5.Bone tumors

a) Classification, true bone tumors- osteosarcoma, giant cell tumor, Ewing's sarcoma,chondroblastoma, chondrosarcoma, fibrosarcoma, lymphoma of bone, plasmacytoma
b) Bone metastasis: synovial sarcoma, hemangioma of bone, adamanatinoma of long bones and chondroma
c) Tumor like lesions: osteoid osteoma, benign osteoblastoma, non osteogenic fibroma, osteoma, osteochondroma and enchondroma

6.Neurological and Muscular disorders

a) Definition, causes, clinical feature, complications, management (Multidisciplinary approach)

medical and surgical of the following conditions: Cerebral palsy, Poliomyelitis, Leprosy
b) Muscular dystrophy – types and treatment
c) Injuries to plexus and nerves: Radial, Ulnar, Median, Brachial plexus, Sciatic and Lateral Popliteal

7.Regional conditions of Spine and Lower limb

a) Back: Kyphosis, Scoliosis, Spondylolisthesis, Lumbosacral strain, intervertebral disc prolapse, fibrositis back, Lumbar canal stenosis, sacro iliac strain, spondylosis, spondylolysis
b) Hip: Slipped capital femoral epiphysis, idiopathic chondrolysis of hip
c) Knee: Genu valgum, genu varum, tibia varum, genu recurvatum, quadriceps fibrosis, recurrentdislocation of patella, bursa around the knee, loose bodies in the knee, chondromalacia patella
d) Foot: Painful heel, Plantar fascitis, Posterior heel pain, flat foot, foot strain, pain in forefoot, Halluxvalgus, anterior metatarsalgia

8.Regional conditions of Neck and Upper limb

a) Neck: Cervical spondylosis, intervertebral disc prolapse, Cervical rib, torticollis, Brachialgia
b) Shoulder: Supraspinatus tendinitis, calcification, rupture of rotator cuff, periarthritis shoulder, deltoid fibrosis, subarachnoid bursitis, Bicepital tendinitis
c) Elbow: Tennis elbow, Golfers elbow, recurrent slipping of ulnar nerve, cubitusvarus and valgus
d) Wrist and Hand: Ganglion, De quervains disease, trigger finger, trigger thumb, carpal tunnel syndrome and Dupuytren's contracture
e) Miscellaneous: metabolic disease, rickets, osteomalacia, osteoporosis, parathyroid osteodystrophy,scurvy etc.

Topic Distribution for Paper Setting	
Section	**Topics**
I	Orthopedic (Traumatic)
II	Orthopedic (Non-Traumatic)

CourseCode	**Course Name**	1. **Course Outcome**
FPB130105	ORTHOPADICS	the student will be able to 1. Discuss the clinical manifestations and conservative/surgical management of various traumatic and cold cases of the musculo-skeletal conditions 2. Traumatic including both operative and non-operative 3. Gain the skill of clinical examination and interpretation of the preoperative cases and all the post-operative cases **2.** Read and interpret salient features of the x-ray of the spine and extremities, and correlate the radiological findings with the clinical findings.
(	ORTHOPADICS NON-TRAUMATIC)	the student will be able to 1. Discuss the patho-physiology, clinical manifestations and conservative/surgical management of various non-traumatic cases of the musculo-skeletal conditions 2. Non-traumatic including both operative and non-operative 3. Gain the skill of clinical examination and interpretation of the preoperative cases Read and interpret pathological / biochemical studies pertaining to orthopedic conditions and correlate the radiological findings with the clinical findings

9.PREVENTIVE & SOCIAL MEDICINE(FPB130106)

OBJECTIVES:-

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

1. Describe the concept of health and diseases, natural history of diseases

2. Describe the health administration at various levels (centre and state), health care delivery aturban and rural areas

3. Describe the health problems of vulnerable groups and national

healthProgrammes

4. Explain principles and philosophy of health education and health education tools

5. Describe the role of various health agencies, ngos at international and national level

6. Identify occupational health hazards and its management

SYLLABUS:-

1. General concept of health & disease

With reference to natural history of disease with pre-pathology phase

2. The role of social economics in communities

3. Epidemiology and scope

4. Public health administration

Overall view of the health administration setup and central and state levels.Health caredelivery programs in urban and rural areas, health, and population statistics

5. The national health programs

Highlighting the role of social, economic and cultural factors in the implementation of theNational programs

6. Health problems of vulnerable groups

Pregnant and lactating women, infants and pre-school children, occupationalGroups and geriatrics

7. Occupational health

a) Definition, scope, occupational diseases and hazards

b) Social security and other measures for the protection from occupational hazards,accidents, and diseases

8. Family planning

a)Objectives of national family planning programs and family planning methods

b) General idea of advantages and disadvantages of methods

9. Mental health

Community aspects of mental health: role of physiotherapists / therapists inMental health problems such as mental retardation

10 .Nutrition and Health

Classification of foods, nutritional profiles of principal foods, nutritional problems in publicHealth, community nutrition programmers

11. Environment and Health

Components of environment, water and air pollution and public health:Pollution control, disposal of waste, medical entomology

12. Communicable diseases

13. An overall view of communicable diseases classified according to principal mode ofTransmission.Role of insects and other vectors

14. International health agencies

15. Principles and process of communication

16. IEC (Information Education and Communication)

17. Health education

a) Philosophy, main principles and objectives

b) Methods and tools of health education individual and group methods

c) The role of profession in health education

d) Role of other personal in health education, co-ordination and co-operation,healthEducation with other members of the health team

e) Elements of planning health education programmes

18. Hospital waste management

Sources of hospital waste, health hazards, waste management

19. Disaster Management

Natural and manmade disasters, disaster impact and response, relief phase,Epidemiologic surveillance and disease control, nutrition, rehabilitation, Disaster preparedness

CourseCode	Course Name	1. Course Outcome
FPB130106	PREVENTIVE & SOCIAL MEDICINE	the candidate will be able to 1. Describe the concept of health and diseases, natural history of diseases 2. Describe the health administration at various levels (centre and state), health care delivery at urban and rural areas 3. Describe the health problems of vulnerable groups and national health Programmes 4. Explain principles and philosophy of health education and health education tools 5. Describe the role of various health agencies, ngos at international and national level **2.** Identify occupational health hazards and its management

10. RECENT TRENDS

10.1 PROFESSIONAL PRACTICE & ETHICS

OBJECTIVES:

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

1. be able to understand the moral values and meaning of ethics

2. Acquire bedside manners and communication skills in relation with patients, peers seniors and otherProfessionals.

3. be able to develop psychomotor skills for physiotherapist patient relationship.

4. Skill to evaluate and make decision for plan of management based on sociocultural values and referralpractice.

5. be able to develop behavioral kills and humanitarian approach while communicating with patients,relatives, society at large and co-professionals

6. be able to develop bedside behavior, respect, & maintain patients' confidentiality.

SYLLABUS:-

1. Collecting data on psychosocial factors in Medicine/Surgery/ReproductiveHealth/Pediatrics

2. Inter professional communication

3. Ethics in clinical practice

10.1 EVIDENCE BASED PRACTICE & ICF

OBJECTIVES:-

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

1. Understand concept of Evidence Based Practice and its

implementation inPhysiotherapy

2. Search, review and use the evidences in Physiotherapy

SYLLABUS:-

Finding the Evidence

Measuring outcomes in Evidence Based Practice, measuring health outcomes, measuringclinical outcomes, inferential statistics and causation

Searching for the Evidence

Asking questions, identifying different sources of evidence

Assessing the Evidence

Evaluating the evidence; levels of evidence in research using quantitative methods, levels of evidenceclassification system, outcome measurements, biostatistics, the critical review of research using qualitative methods

Systematically reviewing the evidence

Stages of systematic reviews, Meta analysis, the Cochrane collaboration

Using the evidence

Building evidence in practice, critically appraised topics (CATs)

International Classification of Function, Disability, and Handicap

FINALYEAR BACHELOR OF PHYSIOTHERAPY

1.PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS

OBJECTIVES

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

1. Acquire the knowledge of normal neurodevelopment with specific reference to locomotion.
2. Assess, identify and analyze neuro motor and psychosomatic dysfunction in terms of alteration in the muscle tone, power, coordination, involuntary movements, sensations, perceptions etc.
3. Correlate the assessment findings with provisional diagnosis and investigations such as EMG/NCS and arrive at Physical and functional diagnosis with clinical reasoning in various neuromuscular disorders.
4. Plan, prescribe and execute short term and long-term treatment with special reference to relief of neuropathic and psychosomatic pain and use of various physiotherapeutic techniques/ modalities, including ergonomic advice and parent education in neuro pediatric cases
5. Prescribe appropriate orthoses/splints and fabricate temporary protective and functional splints.

SYLLABUS: -

1. Review of basic neuro anatomy and physiology
2. Physiotherapy techniques to improve tone, voluntary control, co-ordination
3. Neuro physiotherapeutic Techniques: Concepts, principles, techniques and effects of: NDT, PNF, Brainstorm movement therapy, Vojta therapy, Rood's sensory motor

approach, Contemporary task-oriented approach.

4. Application of skills as PNF, co-ordination, functional re- education, balancing exercise by using techniques based on neuro physiological principles.
5. Tools used for neuro rehabilitation like vestibular balls, tilt board etc..
6. Application of transfer, functional re-education exercises & gait training
7. Bladder training.
8. Developing a philosophy for caring.
9. Prescription of appropriate orthotic devices & fabrication of temporary splints
10. Lifting techniques, wheel chair modifications, adaptive devices.
11. Ergonomic advice for prevention/rehabilitation to the patients / parents /caregivers
12. Education about handling of a patient.

13. Pediatric Neuro-physiotherapy

Use of various Neurophysiological approaches & modalities in high-risk babies, minimum brain damage, developmental disorders, Cerebral palsy, Down's syndrome, Hydrocephalus, Spina bifida

14. Assessment & management of brain Disorders

Stroke, Meningitis, Encephalitis, Head Injury, Parkinson's disease, parkinsonism syndromes, Multiple sclerosis, Brain tumors

15. **Assessment & management of spinal cord lesions and bladder dysfunction**

Multiple sclerosis, transverse myelitis, Poliomyelitis/PPRP, syringomyelia, spinal cord injury and sub-acute combined degeneration of spinal cord, Motor neuron disease (ALS, SMA and other types), spinal tumors

16. Assessment & Management of Co-ordination Disorders

Ataxia, Friedriech's ataxia, Cerebellar ataxia, Sensory ataxia

17. Assessment & Management of Muscle Disorders

Muscular dystrophy (DMD) & other myopathies

18. Assessment & Management of disorders of neuromuscular junction

Myasthenia Gravis

19. Assessment & management of neuropathies and nerve injuries

Emphasis on 5th, 7th and 8th cranial nerves, Peripheral nerves, Polyneuropathy- Classification of Polyneuropathies

20. **pre-and post-surgical assessment & management in neuro surgery**

Hydrocephalus and myelomeningocele, C.V. junction anomalies, syringomyelia

21. Electro diagnostic procedures and prognosis in neurological disorders

SD curves, EMG & NCS.

CourseCode	**Course Name**	3. **Course Outcome**
FPB140101	PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS	the candidate will be able to 1. Acquire the knowledge of normal neurodevelopment with specific reference to locomotion. 2. Assess, identify and analyze neuro motor and psychosomatic dysfunction in terms of alteration in the muscle tone, power, coordination, involuntary movements, sensations, perceptions etc. 3. Correlate the assessment findings with provisional diagnosis and investigations such as EMG/NCS and arrive at Physical and functional diagnosis with clinical reasoning in various neuromuscular disorders. 4. Plan, prescribe and execute short term and long-term treatment with special reference to relief of neuropathic and psychosomatic pain and use of various physiotherapeutic techniques/ modalities, including ergonomic advice and parent education in neuro pediatric cases **4.** Prescribe appropriate orthoses/splints and fabricate temporary protective and functional splints.

2. PHYSIOTHERAPY IN MUSCULO-SKELETAL CONDITIONS

OBJECTIVES

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

1. Identify, discuss and analyze the musculoskeletal dysfunction in terms of biomechanical, kinesiological and biophysical basis and correlate the same with the provisional diagnosis, routine radiological and electro physiological investigations and arrive at appropriate physical and functional diagnosis with clinical reasoning

2. Describe as well as acquire the skill of executing short and long term physiotherapy treatment by selecting appropriate modes of mobilization/ manipulation, electrotherapy, therapeutic exercise and appropriate ergonomic advise for the relief of pain, restoration / maintenance of function & / or rehabilitation for maximum functional independence in ADLs at home & workplace

3. Understand the nature of sports injuries, able to evaluate and treat sports injuries, understand the role of physiotherapist in training and rehabilitating a sports person

4. Prescribe appropriate walking aids, orthoses and prosthesis

SYLLABUS: -

Anatomy of bones and soft tissues (musculoskeletal system)

1. Evaluation, interpretation of investigations & functional diagnosis (ICF) with appropriate clinical reasoning for planning & implementation of managementtechniques

2. Planning, Prescription & Implementation of short term & long term goals with clinical reasoning

3. Documentation

4. Different physiotherapeutic techniques for functional restoration/maintenance and prevention of disability

5. Different electro therapeutic techniques for relief of acute and chronic pain, swelling, wound healing, re-education with clinical reasoning

6. Different physiotherapeutic techniques to improve/maintain muscle performance

7. Different physiotherapeutic techniques to increase joint mobility.

8. Different physiotherapeutic strategies for correction / maintenance of good posture

9. Different physiotherapeutic strategies to improve efficiency and safety of gait pattern

10. Prescription of appropriate orthotic & prosthetic devices & fabrication of simple temporary splints.

11. Appropriate Home Program & Ergonomic advice for preventive measures & Functional efficiency at home & work place

12. **Physiotherapy approach in traumatology**
Definition of fracture, classification of fracture, signs and symptoms of fracture, healing process of fracture, factors affecting healing, methods of reduction, complications of fracture

13. **Physiotherapy assessment in fracture cases**
Principles of PT management in fractures - Guidelines for fracture treatment during period of immobilization and guidelines for treatment after immobilization period Physiotherapy assessment and management of upper limb fractures and dislocations, lower limb fracture and dislocations including pelvis and spinal fracture

14.Phyisiotherapy assessment & management of soft tissue injury
Contusion, sprains, strains, ruptures

15.Physiotherapy assessment & management of degenerative conditions
Osteoarthritis (OA) with emphasize on Knee, Hip and Hand cervical spondylosis, lumbar spondylosis

16. Physiotherapy assessment & management of inflammatory conditions

Rheumatoid arthritis (RA), ankylosing spondylitis (AS), Still's disease, gout, periarthritis, bursitis, synovitis, capsulitis, tendinitis, tenosynovitis, fasciitis, Osgood Schlatter disease

17. **Physiotherapy assessment and management of infective Conditions**
Tuberculosis (TB) of spine and other major joints, osteomyelitis, pyogenic arthritis, Septic arthritis

18. **Physiotherapy assessment & management of congenital and acquired deformities**
Congenital - CTEV, CDH, Torticollis, pesplanus, pescavus, Sprengel's scapula Madelung's deformity
Acquired: scoliosis, kyphosis, coxavara, genu varum, valgum and recurvatum, wryneck

19. **Physiotherapy assessment & management of spinal conditions**
Spondylolisthesis, Spinal canal stenosis, Spondylolysis, Intervertebral disc prolapse, Sacro-iliac joint dysfunction, Coccydynia Sacralisation, Lumbarisation, Spina bifida occulta

20. **Physiotherapy assessment & management of amputations**
Definition, indications, types, levels of amputation of lower and upper extremities, pre and post operative assessment and management with emphasize on stump care and bandaging, pre and post prosthetic training and complete rehabilitation

21. **Rehabilitation of patient with orthopedic surgery**
Pre and post-operative management of arthroplasty of all major joints, girdle stonearthroplasty , arthrodesis, arthroscopy, oesteotomy Reattachment of limb

22. **Physiotherapy assessment & management of re-constructive surgery**
Cerebral Palsy, poliomyelitis, leprosy

23. **Physiotherapy assessment & management of hand injury**

24. **Physiotherapy assessment & management of metabolic and hormonal disorders of the bone tissue**

Osteoporosis, rickets, osteomalacia

25.Physiotherapy assessment & management of miscellaneous orthopedic conditions

Mallet finger, trigger finger, Dequerian's disease, metatarsalgia, hallux valgus, Dupuytren's contracture, thoracic outlet syndrome, chondromalacia patellae, ganglion, tennis elbow, plantar fasciitis

26. Sports Medicine

Introduction & classification of sports injury
Aetiological factors
Prevention of sports injury
Frequency and site of injury
Investigation and assessment in sports injury

27.Management of sports injuries

Pharmacology in sports
Rehabilitation in sports

Topic Distribution for Paper Setting	
Section	**Topic Sr. No.**
I (40 Marks)	1-20
II (40 Marks)	21-27

CourseCode	Course Name	5. Course Outcome
FPB140102	PHYSIOTHERAPY IN MUSCULO-SKELETAL CONDITIONS	the candidate will be able to 1. Identify, discuss and analyze the musculoskeletal dysfunction in terms of biomechanical, kinesiological and biophysical basis and correlate the same with the provisional diagnosis, routine radiological and electro physiological investigations and arrive at appropriate physical and functional diagnosis with clinical reasoning 2. Describe as well as acquire the skill of executing short and long term physiotherapy treatment by selecting appropriate modes of mobilization/ manipulation, electrotherapy, therapeutic exercise and appropriate ergonomic advise for the relief of pain, restoration / maintenance of function & / or rehabilitation for maximum functional independence in ADLs at home & workplace 3. Understand the nature of sports injuries, able to evaluate and treat sports injuries, understand the role of physiotherapist in training and rehabilitating a sports person **6.** Prescribe appropriate walking aids, orthoses and prosthesis

3. PHYSIOTHERAPY IN CARDIO RESPIRATORY & MEDICAL SURGICAL CONDITIONS

3.1 PHYSIOTHERAPY IN CARDIO-PULMONARY CONDITIONS

OBJECTIVES

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

1. Identify, discuss and analyze cardio vascular and pulmonary dysfunction based on pathophysiological principles and arrive at the appropriate physical and functional diagnosis.
2. Select strategies for cure, care and prevention to adopt restorative and rehabilitative measures for maximum possible functional independence of a patient at home, work place and in community

3. Execute the effective physiotherapeutic measures (with appropriate clinical reasoning) with special emphasis to breathing retraining, nebulization, humidification, bronchial hygiene, general mobilization and exercise conditioning in general medical and surgical conditions

4. Acquire knowledge of the overview of patients care at the intensive care area, artificial ventilation, suctioning, positioning for bronchial hygiene and continuous monitoringof the patient at the intensive care area

5. Acquire the skill of evaluation and interpretation of functional capacity using simple exercise tolerance tests, symptom limited tests

6. Acquire the skill of basic cardiopulmonary resuscitation

SYLLABUS: -

1) **Anatomy and physiology of respiratory & cardiac system**
Anatomy of thorax, biomechanics of thoracic cage, muscles of respiration, ventilation perfusion matching /mismatching, compliance

2) **Investigations and tests**
Sub maximal /maximal exercise tolerance testing, Cardiac & Pulmonary radiographs, PFT, ABG, ECG, hematological and biochemical Tests

3) **Physiotherapy techniques to increase lung volume**
Positioning, breathing exercises, Neurophysiological facilitation of respiration, mechanical aids - Incentive spirometry, CPAP, IPPB

4) **Physiotherapy techniques to decrease the work of breathing**
Measures to optimize the balance between energy supply and demand, positioning, Breathing re-education – Breathing control techniques, mechanical aids: IPPB, CPAP,BIPAP

5) **Physiotherapy techniques to clear secretions**
Hydration, Humidification & Nebulization, Mobilization and breathing exercises, postural drainage, Manual techniques: Percussion, vibration and shaking, ACBT, Autogenic Drainage, Mechanical aids: PEP, Flutter, IPPB, facilitation of cough and huff, suctioning

6) **Physiotherapy in common complications following surgery And Drug therapy**
Drugs to prevent and treat inflammation, drugs to treat bronchospasm, drugs to treat breathlessness, drugs to help sputum clearance, drugs to inhibit coughing, drugs to improve ventilation, drugs to reduce pulmonary hypertension, drug delivery doses, inhalers and nebulizers

7) **Introduction to ICU & mechanical ventilator**
ICU monitoring – apparatus, airways and tubes used in the ICU - Physiotherapy in theICU – common conditions in the ICU. Mechanical ventilator: types, modes of ventilator, advantages and disadvantages Oxygen therapy, CPR, aseptic precautions

advantages and disadvantages Oxygen therapy, CPR, aseptic precautions

8) Physiotherapy assessment & management techniques in Obstructive lung conditions

Chronic bronchitis, emphysema, asthma, bronchiectasis, cystic fibros

9) Physiotherapy assessment & management techniques in Restrictive lung conditions

Rib fracture, Pleural effusion, pleurisy and empyema, pulmonary embolism, pulmonary tuberculosis, atelectasis, pneumothorax, bronchopulmonary fistula, pneumonia, ARDS

10) Physiotherapy following Lung surgeries

Pre and post operative physiotherapy assessment and management in Lobectomy, Pneumonectomy, decortication, thoracoplasty

11) Pulmonary Rehabilitation

Definition, aims and objectives, team members, benefits, principles of exercise prescription and techniques of rehabilitation

12) Anatomy and physiology of cardiovascular system

Anatomy, blood supply and conduction system of heart

13) Physiotherapy assessment & management for cardiovascular disorders

Cardiovascular disease, congestive heart failure, myocardial infarction, valvular diseases of heart, cyanotic and acyanotic congenital heart diseases, endocarditis

14) Cardiac Rehabilitation

Definition, aims and objectives, team members, benefits, principles of Exercise prescription and techniques of rehabilitation

15) Physiotherapy assessment & management of vascular diseases

Venous: Thrombosis, phlebitis and phlebo-thrombosis, varicose veins, DVT, venous Ulcers Arterial: Berger's disease, acute and chronic arterial occlusion, lymphedema

3.2 PHYSIOTHERAPY IN GENERAL MEDICAL-SURGICAL CONDITIONS

OBJECTIVES: -

1. Acquire knowledge of rationale of basic investigative approaches in the medical

system
and surgical intervention regimes related to cardio vascular and pulmonary impairment

2. Select strategies for cure, care and prevention to adopt restorative and rehabilitative measures for maximum possible functional independence of a patient at home, work place and in community

3. Acquire the knowledge of evaluation and physiotherapy treatment for obstetrics and gynecological surgical conditions

4. Acquire the knowledge of various conditions where physiotherapy plays a vital role in
the rehabilitation (psychiatry, dermatology and ENT conditions)

5. Assess the various degrees of burns, plan and implement physiotherapy techniques for
the rehabilitation of a burn and wound patient.

1) Physiotherapy assessment & management for abdominal surgeries
surgeries on upper gastro- intestinal tract - oesophagus- stomach- duodenum, surgery on large and small intestine – apendicectomy, cholecystectomy, partial colectomy, illieostomy, nephrectomy

2) Physiotherapy Assessment & management in onco surgeries
Mastectomy: simple, radical. Hysterectomy, prostatectomy, neck dissection

3) Physiotherapy in obstetrics and gynecology surgeries
Electrotherapy and exercise therapy measures following pelvic repair and caesarean section.

4) Wounds, local infections, ulcers, pressure sores
UVR and other electrotherapeutic modalities for healing of wound, prevention of hypergranulated scars, relief of pain and mobilization

5) Physiotherapy in burns, skin grafts and re-constructive plastic surgery

6) Physiotherapy in ENT conditions
Nonsuppurative otitis media, chronic suppurative otitis media, otosclerosis, labyrinthitis and

mastoidectomy resulting into facial palsy, laryngectomy, pharyngeo – laryngectomy, tracheostomy and its care, sinusitis

7) Physiotherapy in skin conditions

Leprosy, acne, alopecia, psoriasis, syphilis

8) Physiotherapy in psychiatric conditions

Schizophrenia, depression, psychosis, anxiety

9) Emergency Care

Basic Life Support, First aid & emergency care, Biomedical waste management

Topic Distribution for Paper Setting	
Section	**Topics**
I (55 marks)	Cardiorespiratory conditions
II (25 marks)	Medical surgical conditions

CourseCode	**Course Name**	7. **Course Outcome**
FPB140103	PHYSIOTHERAPY IN CARDIO RESPIRATORY & MEDICAL SURGICAL CONDITIONS	the course the candidate will be able to 1. Identify, discuss and analyze cardio vascular and pulmonary dysfunction based on pathophysiological principles and arrive at the appropriate physical and functional diagnosis. 2. Select strategies for cure, care and prevention to adopt restorative and rehabilitative measures for maximum possible functional independence of a patient at home, work place and in community 3. Execute the effective physiotherapeutic measures (with appropriate clinical reasoning) with special emphasis to breathing retraining, nebulization, humidification, bronchial hygiene, general mobilization and exercise conditioning in general medical and surgical conditions 4. Acquire knowledge of the overview of patients care at the intensive care area, artificial ventilation, suctioning, positioning for bronchial hygiene and continuous monitoringof the patient at the intensive care area 5. Acquire the skill of evaluation and interpretation of functional capacity **8.** using simple exercise tolerance tests, symptom limited tests 6. Acquire the skill of basic cardiopulmonary resuscitation

4.COMMUNITY PHYSIOTHERAPY REHABILITATION AND ASSISTIVE TECHNOLOGIES

4.1 COMMUNITY PHYSIOTHERAPY REHABILITATION

OBJECTIVES: -

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

1. Describe the general concepts about Health, Disease & Physical fitness
2. Describe policies for the rehabilitation of disabled and Role of Council to promote physiotherapy as a health delivery system
3. Describe the strategies to assess prevalence & incidence of various conditions responsible for increasing morbidity in the specific community, role of physiotherapy in reducing morbidity, expected clinical & functional recovery, reasons for non-compliance in specific community & Environmental solution for the same
4. Describe the evaluation of disability & planning for prevention & rehabilitation
5. Describe CBR in urban & rural set up, WHO policies, concept of team work, role ofmulti-purpose health worker
6. (cultural) factors, causing high risk, responsible for various dysfunctions & morbidity related to lifestyle & specific community like women, aged, industrial workers & describe planning strategies of interventional policies to combat such problems.

SYLLABUS: -

1) Concepts of community health

Preventive, promotive, restorative and rehabilitative
WHO definition of health and disease
Health delivery system - 3 tier

2) Disability types

Physical &Psychological Evaluation, prevention & Legislation related to Persons with Disability (PWD)

3) CBR

Definition, principles, types (institutional, reach out and community), concepts, WHO policies

Principles of Team work of medical practitioner, Physiotherapist, Occupational Therapist, Speech & Audiology Therapist, Prosthetist & Orthotist, Clinical psychologist, vocational counselor and social worker. Role of Physiotherapy in team, concept of multipurposehealth worker, role of Physiotherapy and strategies in 3 tier Health delivery system, communication strategies.

4) Health Care

a) Prevention, Promotion & Restoration
b) In peri-pubertal age group
c) In women-pregnancy and menopause
d) In Geriatrics-neuromusculoskeletal, cardiovascular, pulmonary, metabolic and degenerative conditions
e) In Obese / over weight
f) In Cardiovascular and Pulmonary conditions
g) In Diabetes
h) Health promotion for all

5) Women and child care

a) Antenatal exercises, Specific Breathing exercises, Relaxation, Postural training, Pelvic floor strengthening exercises with clinical reasoning
b) Physiotherapy during labor
c) Postnatal exercises program after normal labor / labor with invasive procedures with clinical reasoning
d) Menopause - Osteoporosis, Mental health, Physiotherapy management
e) Preterm babies
f) Adolescent age group
g) Nutritional disorders in women and children

6) Geriatrics

Physiology of aging, environmental changes and adaptations, balance and falls
Role of Physiotherapy in geriatric population.

7) Physical fitness

Energy system, Endurance, Aerobic Exercise, pacing of activity.

8) Ergonomics

9) IQ Testing

4.2 REHABILITATION AND ASSISITIVE TECHNOLOGIES

OBJECTIVES: -

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

1. Acquire knowledge about biomechanical principles of application of variety of aids & appliances used for ambulation, protection & prevention
2. Acquire in brief knowledge about various materials used for splints/Orthosis& Prostheses and selection criteria for splints/Orthosis& Prostheses
3. Acquire the skill of fabrication of simple splints made out of low cost material.

SYLLABUS: -

1. Introduction and terminology: prosthesis and orthosis
2. Classification of orthosis and prostheses
3. Bio-mechanical principles of orthotic application
4. Bio-mechanical principles of prosthetic application
5. Orthotic appliances for Hip, Knee, Ankle& foot - Prescription and design & modification
6. Spinal conditions inclusive of fractures, spondylolisthesis, kyphosis, scoliosis etc.
7. Upper limb conditions – splinting prescriptions with principles
8. Prosthesis –
a. Upper & lower limb; endo skeletal & exo skeletal,
b. Hip, knee & foot prosthetic components with k-levels
c. Upper limbs: cosmetic restoration, terminal devices (body powered), self help devices (adl equipments), myoelectric, microprocessor / sensor cotrolled (externally powered)
d. Adaptive devices
9. Psychological & Physiological aspects of orthotic and prosthetic application
10. Material used in favbrication of Prosthetiscs & Orthotics briefly.
11. Mobility aids:
canes, crutches, walking frames, walkers, wheel chairs manual / electrically powered.

Topic Distribution for Paper Setting	
Section	**Topics**
I (55 marks)	**Community Physiotherapy Rehabilitation**
II (25 marks)	**Assistive technologies**

CourseCode	Course Name	9. Course Outcome
FPB140104	COMMUNITY PHYSIOTHERAPY REHABILITATIONAND ASSISTIVE TECHNOLOGIES	the course, the candidate will be able to 1. Describe the general concepts about Health, Disease & Physical fitness 2. Describe policies for the rehabilitation of disabled and Role of Councilto promote physiotherapy as a health delivery system 3. Describe the strategies to assess prevalence & incidence of various conditions responsible for increasing morbidity in the specific community, role of physiotherapy in reducing morbidity, expected clinical& functional recovery, reasons for non-compliance in specific community& Environmental solution for the same 4. Describe the evaluation of disability & planning for prevention & rehabilitation 5. Describe CBR in urban & rural set up, WHO policies, concept of team work, role ofmulti- purpose health worker 6. (cultural) factors, causing high risk, responsible for various dysfunctions & morbidity related to lifestyle & specific community like women, aged, industrial workers & describe planning strategies of interventional policies to combat such problems.
	REHABILITATION AND ASSISITIVE TECHNOLOGIES	the course, the candidate will be able to 1. Acquire knowledge about biomechanical principles of application of variety of aids & appliances used for ambulation, protection & prevention 2. Acquire in brief knowledge about various materials used for splints/Orthosis& Prostheses and selection criteria for splints/Orthosis& Prostheses 3. Acquire the skill of fabrication of simple splints made out of low cost material.

5. ETHICS AND MANAGEMENT

5.1 ETHICS

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

1. Understand the moral values and meaning of ethics.
2. Acquire bedside manners and communication skills in relation with patients, peers
seniors and other professionals.
3. Develop psychomotor skills for physiotherapist patient relationship.
4. Develop skill to evaluate and make decision for plan of management based on sociocultural values and referral practice.
5. Develop behavioral skills and humanitarian approach while communicating with
patients, relatives, society at large and co-professionals.
6. Develop bedside behavior, respect & maintain patients' confidentiality.
7. Understand the importance of council, its functioning and Act.

SYLLABUS: -

1. Outlines of Gujarat State Council for Physiotherapists (GSCPT) Act 2011 with more emphasis on
formation, functions of council, importance for registration etc.
2. Ethical principles in health care services, research, teaching related to physiotherapy.
3. Scope of practice as patient manager, consultant, critical inquirer, educator, administrator.
4. Rules of professional conduct
- Physiotherapy as a profession
- Relationship with patients
- Relationship at health care institution i.e. hospital, clinic etc.
- Relationship with colleagues and peers
- Relationship with medical and other professionals

5. Confidentiality and responsibility
6. Malpractice and negligence

7. Professional development, competence and expertise
8. Sale of goods: personal and professional standards
9. Legal aspects: legal responsibility of physiotherapists for their action in the professional
context understanding liability and obligations in case of medico legal action.

5.2 ADMINISTRATION, MANAGEMENT & MARKETING

OBJECTIVES:
At the end of course the student will be able to:
1. Learn the management basics in fields of clinical practice, teaching, research and physiotherapy
practice in the community.
2. Acquire communication skills in relation with patients, peers, seniors and other professionals &
the community.
3. Acquire the knowledge of the basics in managerial & management skills, & use of information technology in professional practice.
4. Develop psychomotor skills for physiotherapy practice.
5. Develop skill to evaluate and make decision for plan of management based on sociocultural values and referral practice.
6. Develop behavioral skill and humanitarian approach while communicating with
patients, relatives, society at large and co-professionals

SYLLABUS:

1. Management studies related to local health care organization management & structure, planning delivery with quality assurance & funding of service delivery, information
technology and career development in physiotherapy.
2. Administration-principles-based on the goal & functions at large hospital set up/domiciliary services/private clinic/ academics.

3. Budget-planning.

4. Performance analysis- physical structure/ reporting system (man power, status, functions, quantity & quality of services, turn over, cost benefit revenue contribution)

5. Setting up therapeutic gymnasium, fitness clinics, cardiac and pulmonary rehab centers etc

6. Time management

CourseCode	**Course Name**	10. **Course Outcome**
FPB140105	ETHICS AND MANAGEMENT	the course the candidate will be able to: 1. Understand the moral values and meaning of ethics. 2. Acquire bedside manners and communication skills in relation with patients, peers seniors and other professionals. 3. Develop psychomotor skills for physiotherapist patient relationship. 4 Develop skill to evaluate and make decision for plan of managementbased on sociocultural values and referral practice. 5. Develop behavioral skills and humanitarian approach while communicating with patients, relatives, society at large and co-professionals. 6. Develop bedside behavior, respect & maintain patients' confidentiality. 7. Understand the importance of council, its functioning and Act.
	ADMINISTRATION, MANAGEMENT & MARKETING	. the student will be able to: 1. Learn the management basics in fields of clinical practice, teaching, research and physiotherapy practice in the community. 2. Acquire communication skills in relation with patients, peers, seniors and other professionals & the community. 3. Acquire the knowledge of the basics in managerial & management skills, & use of information technology in professional practice. 4. Develop psychomotor skills for physiotherapy practice. 5. Develop skill to evaluate and make decision for plan of management based on sociocultural values and referral practice. Develop behavioral skill and humanitarian approach while communicating with patients, relatives, society at large and co-professionals

6. BIO-STATISTICS & RESEARCH METHODOLOGY

6.1 BIO-STATISTICS

OBJECTIVES: -

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

1. Recognize different variables as per their types and should be able to decide on how to treat them differently as per requirement
2. Differentiate complete enumeration and various forms of sampling (random: Simple, stratified, cluster, multi stage; non random: snow ball, quota, purposive, convenient) with understanding of merits and demerits of them
3. Decide when to apply what test or a measure of central tendency according to the need of the data and OBJECTIVES
4. Interpret a given output of regression or ANOVA according to the context.

SYLLABUS: -

1. Introduction to statistics in physiotherapy.
2. Understanding 'Data' and its types.
3. Presentation of various data: tables, graphs and descriptive statistics.
4. Measures of central tendencies (CT): mean, median, mode; merits and demerits; when to apply which measure of CT for the given data.
5. Measures of dispersion: range, mean deviation, standard deviation, coefficient of variance
6. Application of normal distribution and its properties.
7. Testing of hypothesis (measuring change):one sample with population, comparing two samples(Z test for proportion, difference of two proportion, independent sample 't' test, paired 't' test, chi square test.
8. Conceptual understanding of correlation, linear and multiple regression, analysis of variance (ANOVA) and analysis of co-variance (ANCOVA).

9. Complete enumeration and sampling methods: random: simple, stratified, cluster, multi stage;
non random: snow ball, quota, purposive, convenient.
10. Simple statistical analysis through excel.

6.2 RESEARCH METHODOLOGY

OBJECTIVES:
At the end of the course the candidate will be able to
1. Understand and differentiate various study designs.
2. List the need of methodical and regular literature search in research
3. Plan a study choosing an appropriate design for a given problem according to
given objectives.

SYLLABUS: -
1. What is research? Why research?
2. Types of epidemiological studies & measurements of various indications.
3. Possible errors that may generate due to study design & how to overcome them.
4. How to read and what to read from journals.
5. Role of research in Physiotherapy.
6. Components of research proposal – introduction and rationale, material & methods, results and discussion.
7. Where to look for good literature and why.
8. The Evidence Based Practice.

CourseCode	Course Name	11. Course Outcome
FPB140106	BIO-STATISTICS &RESEARCH METHODOLOGY	the candidate will be able to 1. Recognize different variables as per their types and should be able to decide on how to treat them differently as per requirement 2. Differentiate complete enumeration and various forms of sampling (random: Simple, stratified, cluster, multi stage; non random: snow ball, quota, purposive, convenient) with understanding of merits and demeritsof them 3. Decide when to apply what test or a measure of central tendency according to the need of the data and OBJECTIVES 8. Interpret a given output of regression or ANOVA according to the context.
	RESEARCH METHODOLOGY	Understand and differentiate various study designs. 2. List the need of methodical and regular literature search in research 3. Plan a study choosing an appropriate design for a given problem according to givenobjectives.