SCHEME & SYLLABUS
B.P.T (2017)

Department of Physiotherapy

Sant Baba Bhag Singh University

INDEX

21	PTY201	Electrotherapy-III	3	35-36
22	PTY205	Exercisetherapy-III	3	37-39
23	PTY209	Biomechanics & Kinesiology-I	3	40-41
24	PTY213	Sociology	3	42-44
25	PTY215	Psychology	3	45-46
26	PTY217	Pharmacology	3	47
27	PTY203	Electrotherapy-III Lab	3	48
28	PTY207	Exercisetherapy- III Lab	3	49
29	PTY211	Biomechanics & Kinesiology-I Lab	3	50
30	PT201/PT203/PT205	Physical Training (NSO/NCC/NSS)	3	-
31	PTY202	Electrotherapy-IV	4	52-53
32	PTY206	Exercisetherapy-IV	4	54-56
33	PTY210	Biomechanics and kinesiology-II	4	57-58
34	PTY214	Pathology	4	59-60
35	EVS101	Environmental Sciences	4	61-62
36	PTY204	Electrotherapy-IV Lab	4	63
37	PTY208	Exercisetherapy-IV Lab	4	64
38	PTY212	Biomechanics & kinesiology-II Lab	4	65
39	PT202/PT204/PT206	Physical Training (NSO/NCC/NSS)	4	-
40	PTY301	Orthopaedics-I	5	67-69
41	PTY305	General medicine-I	5	70-71
42	PTY311	Physiotherapy in Orthopaedics Conditions-I	5	72-73

66	PTY407	Neurology-I Lab	7	112-113
67	PTY411	Physiotherapy in Neurological Conditions Lab	7	114
68	CT-3	Clinical Training	7	-
69	PTY402	General Surgery-II	8	116-117
70	PTY406	Neurology-II	8	118-119
71	PTY410	Physiotherapy in Surgical Conditions	8	120
72	PTY414	Physiotherapy in Sports Conditions-II	8	121
73	PTY404	General Surgery-II Lab	8	122
74	PTY408	Neurology-II Lab	8	123
75	PTY412	Physiotherapy in Surgical Conditions Lab	8	124
76	PTY416	Physiotherapy in Sports Conditions-II Lab	8	125
77	CT-4	Clinical Training	8	-

Course scheme

Scheme for B.P.T

SEMESTER- I

I.Theory subjects

Sr. No	Subject code	Subject name	Contact hours (L:T:P)	Credits hours (L:T:P)	Total contact hours	Total credits hours
1	BPT101	Anatomy-I	4:0:0	4:0:0	4	4
2	BPT105	Physiology –I	4:0:0	4:0:0	4	4
3	BPT109	Electrotherapy –I	4:0:0	4:0:0	4	4
4	BPT113	Exercise therapy-I	4:0:0	4:0:0	4	4
5	MLS109	General Microbiology	4:0:0	4:0:0	4	4

II.Practical subjects

Sr. No	Subject code	Subject name	Contact hours (L:T:P)	Credits hours (L:T:P)	Total contact hours	Total credits hours
1	BPT103	Anatomy-I Lab	0:0:2	0:0:1	2	1
2	BPT107	Physiology-I Lab	0:0:2	0:0:1	2	1
3	BPT111	Electrotherapy-I Lab	0:0:2	0:0:1.	2	1.
4	BPT115	Exercisetherapy-I Lab	0:0:2	0:0:1	2	1
5	MLS111	General Microbiology Lab	0:0:3	0:0:1.5	3	1.5

Total contact hours- 31

Total credits hours-25.50

SEMESTER- II

I.Theory subjects

Sr. No	Subject code	Subject name	Contact hours (L:T:P)	Credits hours (L:T:P)	Total contact hours	Total credits hours
1	BPT102	Anatomy-II	4:0:0	4:0:0	4	4
2	BPT106	Physiology-II	4:0:0	4:0:0	4	4
3	BPT110	Electrotherapy-II	4:0:0	4:0:0	4	4
4	BPT114	Exercise therapy-II	4:0:0	4:0:0	4	4
5	BPT118	Biochemistry	4:0:0	4:0:0	4	4

II.Practical subjects

Sr. No	Subject code	Subject name	Contact hours (L:T:P)	Credits hours (L:T:P)	Total contact hours	Total credits hours
1	BPT104	Anatomy-II Lab	0:0:2	0:0:1	2	1
2	BPT108	Physiology-II Lab	0:0:2	0:0:1	2	1
3	BPT112	Electrotherapy-II Lab	0:0:2	0:0:1.	2	1
4	BPT116	Exercisetherapy-II Lab	0:0:2	0:0:1	2	1
5	PT102/PT104/ PT106	Physical Training (NSO/NCC/NSS	0:0:2	Non-credits	2	NC

Total contact hours- 30

Total credits hours- 24

SEMESTER- III

I.Theory subjects

Sr. No	Subject code	Subject name	Contact hours (L:T:P)	Credits hours (L:T:P)	Total contact hours	Total credits hours
1	PTY201	Electrotherapy-III	4:0:0	4:0:0	4	4
2	PTY205	Exercisetherapy-III	4:0:0	4:0:0	4	4
3	PTY209	Biomechanics & Kinesiology-I	4:0:0	4:0:0	4	4
4	PTY213	Sociology	4:0:0	4:0:0	4	4
5	PTY215	Psychology	4:0:0	4:0:0	4	4
6	PTY217	Pharmacology	4:0:0	4:0:0	4	4

II.Practical subjects

Sr. No	Subject code	Subject name	Contact hours (L:T:P)	Credits hours (L:T:P)	Total contact hours	Total credits hours
1	PTY203	Electrotherapy-III Lab	0:0:2	0:0:1	2	1
2	PTY207	Exercisetherapy- III Lab	0:0:2	0:0:1	2	1
3	PTY211	Biomechanics & Kinesiology-I Lab	0:0:2	0:0:1	2	1
4	PT201/PT203/PT205	Physical Training (NSO/NCC/NSS)	0:0:2	Non-credits	2	NC

Total contact hours- 32

Total credits hours- 27

SEMESTER- IV

I.Theory subjects

Sr. No	Subject code	Subject name	Contact hours (L:T:P)	Credits hours (L:T:P)	Total contact hours	Total credits hours
1	PTY202	Electrotherapy-IV	4:0:0	4:0:0	4	4
2	PTY206	Exercisetherapy-IV	4:0:0	4:0:0	4	4
3	PTY210	Biomechanics and kinesiology-II	4:0:0	4:0:0	4	4
4	PTY214	Pathology	4:0:0	4:0:0	4	4
5	EVS101	Environmental sciences	3:0:0	3:0:0	3	3

II.Practical subjects

Sr. No	Subject code	Subject name	Contact hours (L:T:P)	Credits hours (L:T:P)	Total contact hours	Total credits hours
1	PTY204	Electrotherapy-IV Lab	0:0:2	0:0:1	2	1
2	PTY208	Exercisetherapy-IV Lab	0:0:2	0:0:1	2	1
3	PTY212	Biomechanics & kinesiology-II Lab	0:0:2	0:0:1.	2	1
4	PT202/PT204/PT206	PhysicalTraining (NSO/NCC/NSS)	0:0:2	Non-credits	2	NC

Total contact hours- 27

Total Credits hours-22

SEMESTER- V

I.Theory subjects

Sr. No	Subject code	Subject name	Contact hours (L:T:P)	Credits hours (L:T:P)	Total contact hours	Total credits hours
1	PTY301	Orthopaedics-I	4:0:0	4:0:0	4	4
2	PTY305	General medicine-I	4:0:0	4:0:0	4	4
3	PTY311	Physiotherapy in orthopaedics Conditions-I	4:0:0	4:0:0	4	4
4	ENG307	Professional communication skills	3:0:0	3:0:0	3	3
5	CSE391	Basic of computer sciences	2:0:0	2:0:0	2	2

II. Practical subjects

Sr. No	Subject code	Subject name	Contact hours (L:T:P)	Credits hours (L:T:P)	Total contact hours	Total credits hours
1	PTY303	Orthopaedics-I Lab	0:0:2	0:0:1	2	1
2	PTY309	General medicine-I Lab	0:0:2	0:0:1	2	1
3	PTY313	Physiotherapy in orthopaedics Conditions-I Lab	0:0:2	0:0:1	2	1
4	CSE393	Basic of computer sciences	0:0:2	0:0:1	2	1
5	CT-1	Clinical Training	0:0:5	Non Credits	5	NC

Total contact hours- 30

Total credits hours- 21

SEMESTER- VI

I.Theory subjects

Sr. No	Subject code	Subject name	Contact hours (L:T:P)	Credits hours (L:T:P)	Total contact hours	Total credits hours
1	PTY302	Orthopaedics- II	4:0:0	4:0:0	4	4
2	PTY306	Physiotherapy in ortho conditions-II	4:0:0	4:0:0	4	4
3	PTY310	General medicine-II	4:0:0	4:0:0	4	4
4	PTY314	Physiotherapy in Medical Conditions	4:0:0	4:0:0	4	4
5	PTY318	Ethics and Pedagogy in Physiotherapy	3:0:0	3:0:0	3	3

II.Practical subjects

Sr. No	Subject code	Subject name	Contact hours (L:T:P)	Credits hours (L:T:P)	Total contact hours	Total credits hours
1	PTY304	Orthopaedics-II Lab	0:0:2	0:0:1	2	1
2	PTY308	Physiotherapy in ortho conditions-II Lab	0:0:2	0:0:1	2	1
3	PTY312	General Medicine-II Lab	0:0:2	0:0:1.	2	1
4	PTY316	Physiotherapy in Medical Conditions Lab	0:0:2	0:0:1	2	1
5	CT-2	Clinical Training	0:0:8	0:0:4	8	4

Total contact hours- 35
Total credits hours-27

SEMESTER- VII

I.Theory subjects

Sr. No	Subject code	Subject name	Contact hours (L:T:P)	Credits hours (L:T:P)	Total contact hours	Total credits hours
1	PTY401	General Surgery-I	4:0:0	4:0:0	4	4
2	PTY405	Neurology-I	4:0:0	4:0:0	4	4
3	PTY409	Physiotherapy in Neurological Conditions	4:0:0	4:0:0	4	4
4	PTY413	Physiotherapy in Sports Conditions-I	4:0:0	4:0:0	4	4
5	PTY415	Research Methodology and Biostatistics	4:0:0	4:0:0	4	4

II. Practical subjects

Sr. No	Subject code	Subject name	Contact hours (L:T:P)	Credits hours (L:T:P)	Total contact hours	Total credits hours
1	PTY403	General Surgery-I Lab	0:0:2	0:0:1	2	1
2	PTY407	Neurology-I Lab	0:0:2	0:0:1	2	1
3	PTY411	Physiotherapy in Neurological Conditions Lab	0:0:2	0:0:1	2	1
4	CT-3	Clinical Training	0:0:5	Non Credits	5	NC

Total contact hours 31

Total credits hours-23

SEMESTER- VIII

I.Theory subjects

Sr. No	Subject code	Subject name	Contact hours (L:T:P)	Credits hours (L:T:P)	Total contact hours	Total credits hours
1	PTY402	General Surgery-II	4:0:0	4:0:0	4	4
2	PTY406	Neurology-II	4:0:0	4:0:0	4	4
3	PTY410	Physiotherapy in Surgical Conditions	4:0:0	4:0:0	4	4
4	PTY414	Physiotherapy in Sports Conditions-II	4:0:0	4:0:0	4	4

II. Practical subjects

1	PTY404	General Surgery-II Lab	0:0:2	0:0:2	2	1
2	PTY408	Neurology-II Lab	0:0:2	0:0:2	2	1
3	PTY412	Physiotherapy in Surgical Conditions Lab	0:0:2	0:0:2	2	1
4	PTY416	Physiotherapy in Sports Conditions-II Lab	0:0:2	0:0:2	2	1
5	CT-4	Clinical Training	0:0:8	Non Credits	8	NC

Total contact hours- 32

Total credits hours- 20

Course Scheme Summary

Sem	L	T	P	Contact hrs/wk	Credits
1	20	0	11	31	25.50
2	20	0	10	30	24
3	24	0	8	32	27
4	19	0	8	27	22
5	17	0	13	30	21
6	19	0	16	35	27
7	20	0	11	31	23
8	16	0	16	32	20

Compulsory Rotatory Internship for Partial Fulfillment of Bachelor of Physiotherapy Degree (Six months).

Total Contact hrs for I-VIII semester: 248

Total Credit Hours for I-VIII semester: 189.5

First Semester

ANATOMY- I

Course code	**BPT101**
Type of course	**Anatomy- I**
LTP	4 0 0
Credits	4
Course prerequisite	B.P.T
Course objective (CO)	Our human anatomy program aims to educate students to become professionals with in- depth knowledge and skills in anatomy to understand structure of body parts, to research, design and solve problems, and to provide the foundation for graduate study and lifelong learning.

UNIT-I

General and Systemic Anatomy: Introduction, Definition & Scope of Anatomy, Anatomical Position, anatomical Terminology, Composition of bones , Functions, Classification based on Morphology, Development and Structure, Formation / Development of Bones esp. Long Bones; Parts of Long Bones; Blood Supply of Bones, Types of cartilage and Features

Joints: Definition, types, features of fibrous, Cartilaginous & Synovial joints, sub-types of synovial joints, movements of joints, factors permitting and limiting these movements; blood supply of joints; applied aspects.

UNIT- II

Muscles : Definition, Types, Comparative Feature of Skeletal, Smooth and Cardiac Muscles, parts & structure of Skeletal Muscle including fascicular architecture thereof, Blood supply and nerve supply of Skeletal Muscle; Motor Unit, Types of Skeletal Muscles based on their action i.e. Agonists, Antagonists, Fixators, Synergists, Origin & Insertion, Tendon , Isometric & Isotonic contractions; Applied Aspects, Connective Tissue, Introduction; Composition i.e. Cellular & Non-Cellular components; Types of connective tissue, Functions; Ligaments; Applied Aspects. General Embryology**,** Cell, Male and Female Gametes;

Fertilization, Germ Layers; Differentiation into various organs / systems; (outline only details not required).

UNIT-III

Systemic Anatomy : Cardiovascular System **–** General anatomy of heart, **Respiratory System** – Outline of respiratory track as a whole, trachea, bronchi, pleura broncho pulmonary segments of lungs**. Digestive System** – General anatomy of digestive system. **Urogenital System**– A general anatomy of urogenital system of male and female, Integumentary System, Structure of skin and its appendages

UNIT-IV

Regional Anatomy: Head & Neck**,** Cranial bones, cervical vertebrae, temporo-mandibular joint, atlanto occipital joint, atlanto axial joint, scalp, fascial muscles, triangles of neck, Thorax Ribs, Vertebrae, Inter costal space, joints of thorax, mediastinum, inter costal nerves, muscles and fascia as related to vertebral column, diaphragm**,** Superior extremity**,** Bones in detail, muscles origin insertion action nerve supply, joints and their applied anatomy, Breast, axilla, cubital fossa, important spaces, brachial plexus, course of nerves & arteries of the upper extremity, lymphatic and venous drainage

Text and Reference Books

S.No	Name	Author (S)	Publisher
1	Gray's anatomy	L.williams & warwick	Churchill livingstone
2	Textbook of anatomy with colour atlas (Vol 1,2,3)	Inderbir singh	Jaypee brothers
3	Human anatomy (Vol 1,2,3)	B.D Chaurasia	CBS publishers & distributors
4	Regional &Applied	Mcminin' last's anatomy	Churchill livingstone

5	A colour atlas of human anatomy	Mcminn et al	Mosby
6	A textbook on human neuro anatomy	Inderbir singh	Jaypee brothers
7	Clinical anatomy	Snell	Lippin cott

PHYSIOLOGY-1

Course code	**BPT105**
Type of course	**Physiology- 1**
LTP	4 0 0
Credits	4
Course prerequisite	B.P.T
Course objective (CO)	Our human physiology program aims to educate students to become professionals with in depth knowledge and skills in physiology to understand functions of the body, to research, design and solve problems, and to provide the foundation for graduate study and life long learning.

UNIT-I

General Physiology:

Cell: Structure and organelles, Blood Composition of blood, plasma, proteins formation and their function.

Blood and body fluids: Structure, formation and functions of R.B.C, Structure, formation and functions of W.B.C.s and platelets, Coagulation and its defects, Bleeding and Clotting time, Blood groups and their significance, Rh Factor, Blood transfusion, Reticulo Endothelial system, jaundice Structure and functions of spleen, Haemoglobin and E.S.R.

UNIT-II

Cardiovascular System: Structure, properties of Heart muscle and nerve supply of Heart, Structure and function of Arteries, arterioles, capillaries and vein, Cardiac cycle and heart sounds, Cardiac output, measurement factors affecting cardiac output, Heart rate and its regulation,Cardiovascular reflexes, Blood Pressure its regulations and physiological variations, Haemorrhage, E.C.G, Changes in Muscular exercises.

Respiratory System: Mechanics of respiration, Intra Pleural and Intra Pulmonary Pressure, Lung Volumes and capacities, O_2 and CO_2 carriage and their exchange in tissues

and lungs, Nervous and chemical regulation of respiration-respiratory centres, respiratory states, anoxia, asphyxia, cyanosis and acclimatization.

UNIT-III

Digestive System: General outline and salivary digestion, Gastric secretion and its mechanism of secretion and functions, Mechanism of secretion of mucous, intestinal and pancreatic secretions and their functions, Structure, secretions and functions of liver

Endocrine System: Anterior pituitary post pituitary and parathyroid thyroid, Adrenal cortex, Adrenal Medulla, Thymus Pancreas and Blood sugar regulation.

UNIT-IV

Reproductive System: Male sex hormones and their functions, spermatogenesis. Female sex hormones and functions, menstrual cycle, ovulation and contraception, Pregnancy, functions of placenta,

Renal Physiology and Excretory System, Structure and Functions of Kidney Renal Circulation, Auto regulation, G.F.R. Re-absorption of substances by renal tubule, counter current hypothesis, Renal function Tests, Physiology of micturition.

Text and Reference Books

S.No	Name	Author (S)	Publisher
1	Textbook of physiology	Anand & Manchanda	Tata mcgraw hill
2	Human physiology (vol 1,2)	Chatterjee.cc, calcutia	Medical allied
3	Concise medical physiology	Chaudhari,s.k	New agency, central calcutta

4	Principles of anatomy & physiology	Tortora & grabowski	Harper collinis

ELECTROTHERAPY –I

Course code	**BPT109**
Type of course	**Electrotherapy - 1**
LTP	4 0 0
Credits	4
Course prerequisite	B.P.T
Course objective (CO)	Our electrotherapy program aims to educate students to become professionals with in-depth knowledge and skills in electrotherapy to understand various eletrotherapy modalities; to research, design and solve problems, and to provide the foundation for graduate study and lifelong learning.

UNIT-I

Physical Principles In Relation to Physiotherapy: Structure and Properties of matter-solids, liquids and gases, adhesion, surface tension, viscosity, density and elasticity, Structure of atoms, molecules, elements and compounds, election theory, static and current electricity, Conduction, Insulators, Potential difference, Resistance and Intensity, Ohm's Law its application to AC and DC currents. Rectifying Devices-Thermionic valves, semiconductors, Transistors, Amplifiers, Transducers, Oscillator Circuits. Capacitance, Condensers in DC and AC circuits, Display devices and indicators-analogue & digital.

UNIT-II

Effects Of Current Electricity: Chemical effects- ions and electrolytes, ionization, production of E.M.F by chemical actions, Magnetic effects, Molecular theory of Magnetism, Magnetic fields, electromagnetic induction, Milli ammeter and voltmeter, transformers and chose coil, thermal effects-joules law and heat production, Physical principles of light and its properties,

Physical principles of sound and its properties, Electromagnetic spectrum-biophysical application.

UNIT-III

Electrical Supply: Brief outline of main supply of electric current, Dangers short circuits, electric shocks, Precautions safety devices, earthing, fuses etc, First and initial management of electric shock.

UNIT-IV

Low Frequency Currents: Introduction to direct, alternating and modified currents, Iontophoresis, Biophysics, principles, therapeutic uses, indications, contra-indications, operational skills of equipment and patient preparation, Faradic current**,** Biophysics, principles, therapeutic uses, indications, contra-indications, operational skills of equipment and patient preparation**,** Interrupted direct current**,** Biophysics, principles, therapeutic uses, indications, contra-indications, operational skills of equipment and patient preparation, Transcutaneous Electrical Nerve Stimulations (TENS), Types of low frequency, pulse widths, frequencies and intensities used as TENS applications, Theories of pain relief by TENS, Principles of clinical application, effects and uses, indications, contraindications, precautions. Operational skills of equipment and patient preparation.

Text and Reference Books

S.No	Name	Author (S)	Publisher
1	Electrotherapy explained principles & practice	Low&reed	Butterworth heinemann
2	Claytons electrotherapy	Clayton	Forster & palastange baillier tindal
3	Therapeutic heat & cold	Lehmann	Willians & wilkins
4	Principles & practice of electrotherapy	Kahn	Churchill livingstone

EXERCISETHERAPY-I

Course code	**BPT113**
Type of course	**Exercisetherapy-1**
LTP	4 0 0
Credits	4
Course prerequisite	B.P.T
Course objective (CO)	Our exercise therapy programm aims to educate students to become professionals with in- depth knowledge and skills in physiotherapy to understand the planned and purposeful activity, to research, design, and solve problems, and to provide the foundation for graduate study and life long learning.

UNIT-I

Introduction to therapeutic exercises: Review of the principles of mechanics applied to Exercise Therapy, Force, Composition, Resolution, Equilibrium stable, unstable, neutral gravity-LOG-COG, levers-types, application in physiotherapy. Speed, velocity, work, energy, power, acceleration, momentum, friction and inertia, Muscle work group action of muscles, angle of pull and mechanical efficiency of the muscles.

UNIT-II

Starting Positions: Describe the following starting positions, their muscle work, effects and uses. Specify the importance and derived position for each, Standing, Kneeling, Sitting, Lying and Hanging.

UNIT-III

Classification of therapeutic exercises: Technique, effects, therapeutic uses, Active exercise, (free, active, active assisted, resisted). Passive exercises: Relaxed passive movement, forced passive movement. Mobilisation exercises of the joints region-wise- passive, active.

UNIT-IV

Goniometry: Different methods of measuring range of motion (ROM), Reliability and validity of goniometry. Functional ROM and normal range of motion of various joint, Technique of Goniometry, Demonstration of measurement of individual joint's ROM using goniometer.

Text and Reference Books

S.No	Name	Author (S)	Publisher
1	Practical Exercise Therapy	Hollis	Blackwell Scientific Publications
2	Therapeutic Exercises	Basmajian	Williams and Wilkins
3	Therapeutic Exercises Foundations and Techniques	Kisner and Colby	F.A. Davis.
4	Proprioceptive Neuromuscular Facilitation	Voss et al	Williams and Wilkins.
5	Principle of Exercise Therapy	Gardiner	C.B.S. Delhi
6	Principles and practices of therapeutic massage	Sinha	Jaypee brothers Delhi

GENERAL MICROBIOLOGY

Course Code	**MLS109**
Course Title	**General Microbiology**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	B.P.T
Course Objective (CO)	To introduce basic principles and core concepts of microbiology, including the evolution and diversity of microbes; cell structure and function; metabolism; information flow and the role of microbes.

UNIT-I

Introduction: Nomenclature & Classification of micro-organisms, Historical review (Contributions of E. Jenner, L. Pastuer, Robert Koch and postulates, Anton van Leeuwenhoek, Alexander Fleming) and scope of microbiology**,** Role of medical microbiology in diagnosis and control of infections.

UNIT-II

Safety measures in Medical Microbiology: Introduction- Care and handling of glassware, cleaning of glassware

Equipments used in clinical Microbiology Laboratory: Introduction - Care and maintenance, Autoclaves: types, principle, operational procedure, precautions and applications Incubators: types, design, principle, operational procedure, precautions and applications, Laminar air flow: principle, operational procedure, precautions and applications Quebec colony counter: principle, operational procedure, precautions and applications

UNIT-III

Principle and uses of various microscopes: Compound, Light, Darkfield, Brightfield, phase-contrast, Fluorescent and Electron- SEM & TEM

Sterilization and disinfection methods: Classification of sterilization and Disinfection, Different methods of sterilization: Heat, radiation, filtration, chemical methods, antisepsis and asepsis. Pasteurization and serum inspissrator

Staining methods: Types of stains; acidophilic, basophilic and neutral Staining procedures: principle, procedures, uses, advantages and disadvantages of simple staining, Gram staining, negative staining**,** fluorochrome staining, stains for spirochetes and spores.

UNIT-IV

Morphology of bacteria: structure and function of bacterial cell, anatomy of bacterial cell including collection, transport and processing of specimens.

Growth and nutrition: Culture media and culture methods-aerobic and anaerobic, Metabolism of bacteria, growth curve of bacteria, use of culture media in diagnostic bacteriology, Bacterial toxins, Anti- microbial agents, Antimicrobial susceptibility tests, Quality control and safety.

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Practical Medical Microbiology Volume 1 and Volume 2	Mackie & MacCartney	Churchill Living Stone
2	Text book of Microbiology	Ananthanereyan and Paniker	Universities Press
3	Medical Microbiology	Paniker &Satish Gupte	Universities Press
4	Text book of Microbiology	Michael J. Pelczar, JR. E.C.S Chan & Noel R. Krieg	Tata McGraw Hill
5.	Text book of Microbiology	D.R Arora & B. Arora	CBS Publishers

ANATOMY-I LAB

Course code	**BPT103**
Type of course	**Anatomy- I Lab**
LTP	0 0 2
Credits	1
Course prerequisite	B.P.T
Course objective (CO)	Our human anatomy program aims to educate students to become professionals with in- depth knowledge and skills in anatomy to understand structure of body parts, to research, design and solve problems, and to provide the foundation for graduate study and lifelong learning.

List of Experiments

1. Surface Anatomy: To study, identify and mark the surface landmarks on human body.

2. To study the muscles of trunk, lower and upper extremities and face on a dissected human body.

3. To study the bones of human body with special emphasis on origin on a dissected human muscles and ligaments.

4. To study the anatomy of joints of upper and lower extremities and vertebral column on a dissected human body. (Interactive CD)

5. To study the anatomy of C.N.S. and P.N.S. on a dissected human body. (Interactive CD)

6. To study the gross anatomy of Respiratory, Digestive, Endocrine, Urinary and Genital system on a dissected human body/ interactive CD.

PHYSIOLOGY-1 LAB

Course code	**BPT107**
Type of course	**Physiology-I Lab**
LTP	0 0 2
Credits	1
Course prerequisite	B.P.T
Course objective (CO)	Our human physiology program aims to educate students to become professionals with in depth knowledge and skills in physiology to understand functions of the body, to research, design and solve problems, and to provide the foundation for graduate study and life long learning.

To study the following Physiological Phenomenon: -

1. Identification of blood cells and different counts.

2. W.B.C. Count.

3. R.B.C. Count.

4. Haemoglobin percentage and color index.

5. E.S.R. and Blood groups.

6. Bleeding time and clotting time.

7. Cardio - Respiratory efficiency tests.

8. Artificial respiration and C.P.R.

9. Pulse rate, Heart rate and measurement of Blood Pressure.

10. Respiratory rate and Auscultation.

11. Normal E.C.G.

ELECTROTHERAPY-1 LAB

Course code	**BPT111**
Type of course	**Electrotherapy – 1 Lab**
LTP	0 0 2
Credits	1
Course prerequisite	B.P.T
Course objective (CO)	Our electrotherapy program aims to educate students to become professionals with in-depth knowledge and skills in electrotherapy to understand various eletrotherapy modalities; to research, design and solve problems, and to provide the foundation for graduate study and lifelong learning.

List of Experiments

1. To study the basic operation of electric supply to the equipment and safety devices.
2. To experience sensory and motor stimulation of nerves and muscles by various types of low frequency cuurents.
3. To locate and stimulate different motor points region wise including the upper and lower limb, trunk and face.
4. Therapeutic application of different low frequency current, faradic foot bath and faradism under pressure.
5. Iontophoresis.

EXERCISETHERAPY-1 LAB

Course code	**BPT115**
Type of course	**Exercisetherapy-1 Lab**
LTP	0 0 2
Credits	1
Course prerequisite	B.P.T
Course objective (CO)	Our exercise therapy program aims to educate students to become professionals with in- depth knowledge and skills in physiotherapy to understand the planned and purposeful activity, to research, design, and solve problems, and to provide the foundation for graduate study and life long learning.

List of Experiments

1. To study the therapeutic exercises, its classifications, indications and containdications.
2. To practice the measurement of ROM of joints- upper limb, Lower limbs and trunk.
3. To study the position of joints, muscle work and stability of various fundamental and derived positions.
4. To study the different types of muscle contraction, muscle work, group action of muscles and co-coordinted movements.

GENERAL MICROBIOLOGY LAB

Course Code	**MLS111**
Course Title	**General Microbiology Lab**
Type of course	Practical
L T P	0 0 3
Credits	1.5
Course prerequisite	B.P.T
Course Objective (CO)	To impart skills in essential microbiological techniques and to demonstrate the principle and working of various equipment used in microbiology To provide hands on training to perform various microbiological tests in medical microbiology laboratory.

List of Experiments

1. To demonstrate safe code of practice for a Microbiology laboratory.
2. To prepare cleaning agents & to study the technique for cleaning & sterilization of glassware.
3. To demonstrate the theory, principle, working, maintenance and precautions of following equipments:
   i) Compound Microscope
   ii) Autoclave
   iii) Hot Air Oven
   iv) Laminar Air Flow
   v) Incubators & Shakers
4. Preparation of Microbial media (bacteria, yeast, mold, algae, protozoa)
5. To culture bacteria by agar spread plate method.
6. To obtain isolated pure colonies using different streaking formats.
7. To prepare agar slants and agar deeps for culturing microorganisms.
8. To culture bacteria by agar pour plate method.
9. To perform a bacterial smear and perform simple staining.
10. To perform negative staining of bacteria.

Note: Wherever wet lab experiments are not possible the principles and concepts can be demonstrated through any other material or medium including videos

Second Semester

ANATOMY- II

Course code	**BPT102**
Type of course	**Anatomy- II**
LTP	4 0 0
Credits	4
Course prerequisite	B.P.T
Course objective (CO)	Our human anatomy program aims to educate students to become professionals with in- depth knowledge and skills in anatomy to understand structure of body parts, to research, design and solve problems, and to provide the foundation for graduate study and lifelong learning.

UNIT-I

Inferior extremity: Bones in detail, muscles origin, insertion, action, nerve supply, joints and their applied anatomy, Arches of foot and its applied anatomy, femoral triangle, popliteal fossa, Greater & Lesser Sciatic Foramen; lumber plexus, sacral plexus, course of nerves & arteries of the lower extremity, lymphatic and venous drainage.

Joints of upper limb and lower limb.

UNIT- II

Abdomen and pelvis: Lumbar vertebra sacrum, bony pelvis, anterior abdominal wall, inguinal canal, liver, Gall bladder, Kidney, ureter, supra renal gland, urethra, joints of pelvis

UNIT-III

Neuro-Anatomy: Peripheral Nerves, Neuromuscular Junction, Sensory End Organs**,** Spinal Cord Segments & Areas, Brainstem, Cerebellum, Inferior colliculi. Superior Colliculi, Diencephalon, Hypothalamus, Epithalamus, Thalamus Cerebral hemispheres. Corpus striatum.

UNIT- IV

Brain structure: Rhinencephalon, Lateral ventricles, Fourth ventricle, CSF circulation, Meninges, Blood supply of the brain Internal Capsule, Thalamocortical radiations. Pyramidal systems. Extrapyramidal systems. Anatomic integration, Intra – cortical integration, Sympathetic system. Para-sympathetic system, Cranial nerves.

Text and Reference books

S.No	Name	Author (S)	Publisher
1	Gray's anatomy	L.williams & warwick	Churchill livingstone
2	Textbook of anatomy with colour atlas (Vol 1,2,3)	Inderbir singh	Jaypee brothers
3	Human anatomy (Vol 1,2,3)	B.D Chaurasia	CBS publishers & distributors
4	Regional &Applied	Mcminin' last's anatomy	Churchill livingstone
5	A colour atlas of human anatomy	Mcminn et al	Mosby
6	A textbook on human neuro anatomy	Inderbir singh	Jaypee brothers
7	Clinical anatomy	Snell	Lippin cott

PHYSIOLOGY-II

Course code	**BPT106**
Type of course	**Physiology-II**
LTP	4 0 0
Credits	4
Course prerequisite	B.P.T
Course objective (CO)	Our human physiology program aims to educate students to become professionals with in depth knowledge and skills in physiology to understand functions of the body, to research, design and solve problems, and to provide the foundation for graduate study and life long learning.

UNIT-I

Muscle physiology: Types of muscle, Microscopic structure of Muscle, Properties of Muscle, comparison of various types. Sarcomere, Mechanism of muscular contraction. Thermal and chemical changes during muscular contraction. Starlings law, isotonic, Isometric contractions, Chronaxie, Rheobase. Action potential. Motor units and its properties clonus, tetanus, fatigue, summation, all or none law beneficial effect. Electromyography applied aspects.

UNIT-II

Nerve physiology: Nerve fibers- Classification, spread of impulse. Velocity of nerve conduction, factors affecting velocity. Saltatory conduction, neuromuscular junction, Drugs acting on it, Myasthenia gravis, atrophy, hypotrophy and hypertrophy. Degeneration and regeneration of Nerve fiber, Wallerian Degeneration, Electrotonus Pflugar's Law.

UNIT III

Special senses: Hearing, Vision, Taste, Smell and Touch or speech Disorders.

UNIT IV

Nervous System:Types and properties of Receptors, Types of sensations, Structure of synapse, Reflex arc and its properties, occlusion summation, sub minimal fringe etc, Sensory Tracts of Spinal cord, Motor Tracts, Pyramidal and Extra pyramidal, Hemi section and

complete section of spinal cord, upper and lower motor neuron lesions, Cerebral Cortex, areas and functions, E.E.G, Structure, connections and functions of Cerebellum and Hypothalamus, Basal ganglia and Thalamus, connection and functions, Reticular formation tone, Posture and Vestibular apparatus, Automatic Nervous System.

Text and References Books

S.No	Name	Author (S)	Publisher
1	Textbook of physiology	Anand & Manchanda	Tata mcgraw hill
2	Human physiology (vol 1,2)	Chatterjee.cc, calcutia	Medical allied
3	Concise medical physiology	Chaudhari,s.k	New agency, central calcutta
4	Principles of anatomy & physiology	Tortora & grabowski	Harper collinis
5	Textbook of practical physiology	Ghai	Jaypee

ELECTROTHERAPY-II

Course code	**BPT110**
Type of course	**Electrotherapy – II**
LTP	4 0 0
Credits	4
Course prerequisite	B.P.T
Course objective (CO)	Our electrotherapy program aims to educate students to become professionals with in-depth knowledge and skills in electrotherapy to understand various eletrotherapy modalities; to research, design and solve problems, and to provide the foundation for graduate study and lifelong learning.

UNIT-I

Electrical Reactions and Electro-Diagnostic Tests: Electrical stimuli and normal behavior of nerve and muscle tissue, Types of lesion and development of reaction of degeneration, Faradic/Intermittent direct current test,S.D. Curve and its application, Chronaxie, Rheobase and pulse ratio.

UNIT-II

Infrared rays: Wavelength, frequency, types and sources of IRR generation techniques of irradiation, physiological and therapeutic effects indications, contraindications, precautions, Operational skills of equipment and patient Preparation.

UNIT-III

Ultra Violet Rays (UVR): Wavelength, frequency, types& sources of UVR, generation techniques of irradiation, physiological and therapeutic effects, indications, contraindications. Precautions, Operational skills of equipment and patient preparation, Dosimetry of UVR.

Unit- IV

Superficial Heat: Paraffin wax bath, Moist heat, electrical heating pads, Mechanism of production, Mode of heat transfer, Physiological & therapeutic effects, Indications, contraindications, precautions, operational skills of equipment and patient preparation.

Text and Reference Books

S.No	Name	Author (S)	Publisher
1	Electrotherapy explained principles & practice	Low&reed	Butterworth heinemann
2	Claytons electrotherapy	Clayton	Forster & palastange baillier tindal
3	Therapeutic heat & cold	Lehmann	Willians & wilkins
4	Principles & practice of electrotherapy	Kahn	Churchill livingstone

EXERCISETHERAPY-II

Course code	**BPT114**
Type of course	**Exercise-therapy-II**
LTP	4 0 0
Credits	4
Course prerequisite	B.P.T
Course objective (CO)	Our exercise therapy programm aims to educate students to become professionals with in- depth knowledge and skills in physiotherapy to understand the planned and purposeful activity, to research, design, and solve problems, and to provide the foundation for graduate study and life long learning.

UNIT-I

Manual muscle testing (MMT): Basics of muscle testing, describe the testing of the muscles of the upper extremities, Lower extremities, Trunk, Fac

UNIT-II

Soft tissue manipulation: Definition and classification of various types of soft tissue manipulation techniques, Physiological effects, therapeutic effects and contraindications of soft tissue manipulation.

UNIT-IIII

Traction:Definition and classification of traction.Therapeutic effects and containdication.

Unit-IV

Massage: Classify, define and describe: effleurage, stroking, kneading, petrissage, deep friction, vibration and shaking etc Techniques, sequence and preparation for massage of upper limb, lower limb, back and face.

Text and Reference Books

S.No	Name	Author (S)	Publisher
1	Practical Exercise Therapy	Hollis	Blackwell Scientific Publications
2	Therapeutic Exercises	Basmajian	Williams and Wilkins
3	Therapeutic Exercises Foundations and Techniques	Kisner and Colby	F.A. Davis.
4	Proprioceptive Neuromuscular Facilitation	Voss et al	Williams and Wilkins.
5	Principle of Exercise Therapy	Gardiner	C.B.S. Delhi
6	Principles and practices of therapeutic massage	Sinha	Jaypee brothers Delhi
7	Textbook of Massage	Margaret Hollis	Wiley
8	Motor Control: Theory and Practical Applications Shummway	Cook & Woollacott	Lippincott.

BIOCHEMISTRY

Course code	**BPT118**
Type of course	**Biochemistry**
LTP	4 0 0
Credits	4
Course prerequisite	B.P.T
Course objective (CO)	Our biochenistry subjects program aims to educate students to become professionals with in depth knowledge and skills in biochemistry to understand the molecular and functional organization of a cell and list its subcellular components.

UNIT-I

Concepts of pH and buffers, acid base equilibrium osmotic pressure and its physiological application. Cell (morphology, structure, cell membrane, Nucleus, chromation, Mitochondria, Endoplasmic Reticulum, Ribosomes).Carbohydrates Definition, functions, sources, monosaccharides, Disaccharides, Polysaccharides, mucopolysaccharide and its importance. Lipids Definition, function, sources classification, simple lipid, compound lipid, derived lipid, unsaturated and saturated fatty acid, Essential fatty acids and their importance. Proteins:Definition, sources, Classification, simple protein conjugated protein, derived proteins, properties and varieties of proteins.

UNIT-II

Bioenergetics: Concept of free energy charge, Exogenic and endogenic reactions, concepts regarding energy rich compounds. Respiratory chain and Biological oxidation. Carbohydrate Metabolism Glycolysis, HMP shunt pathway, TCA cycle, glycogenesis, glycogenolysis,

Glucogenesis, Maintenance of Blood glucose, inter conversions of different sugars. Lipid Metabolism Fatty acid oxidation, fatty acid synthesis, Metabolism of cholesterol, Ketone bodies, Atherosclerosis and obesity.

UNIT-III

Protein Metabolism Transamination, Deamination, Fate of ammonia, urea synthesis and synthesis of creatine, inborn errors of metabolism. Nucleic acid Structure and function of DNA and RNA. Nucleosides, nucleotides, Genetic code, biologically important nucleotides. Gene Therapy. Enzymes Definitions, mode of action, factor affecting enzyme action, clinical importance of enzyme.Vitamins Classification, fat soluble vitamins, A, D, E & K water soluble vit. B complex & C, Daily Requirements Physiological functions and diseases of Vitamin deficiency. Hormones General Characteristics and mechanism of Hormone action insulin, glucagons. Thyroid and parathyroid hormones.

UNIT-IV

Isotopes and their role in treatment and diagnosis of diseases, Liver & Renal Function test, Connective tissue Mucopolysaccharide connective tissue proteins, glycoprotein, chemistry & Metabolism of bone and tooth, metabolism of skin. Nerve tissue Composition, metabolism, chemical mediators of Nerve activity. Water and Electrolyte Fluid compartment, daily intake and output sodium and potassium metabolism. Nutrition Balance, diet, metabolism in exercise and injury. Diet for chronically ill and terminally ill patients, Nitrogen equilibrium, biological value of protein, special dynamic action. Dietary Management of Acute & chronic diseases viz. Heart, Hypertension, Diabetes mellitus, Atherosclerosis, Cancer, Allergies Stomach, Liver, Gall bladder.

Text and Reference Books

S.No	Name	Author (S)	Publisher
1	Textbook of biochemistry	Chatterjee M.N.	Jaypee brothers
2	Textbook of biochemistry for medical students	Vasudeval D.M.	Jaypee brothers
3	Clinical biochemistry- metabolic & clinical aspects	Marshall & Bangert	Churchill livingstone

ANATOMY-II LAB

Course code	**BPT104**
Type of course	**Anatomy- II Lab**
LTP	0 0 2
Credits	1
Course prerequisite	B.P.T
Course objective (CO)	Our human anatomy program aims to educate students to become professionals with in- depth knowledge and skills in anatomy to understand structure of body parts, to research, design and solve problems, and to provide the foundation for graduate study and lifelong learning.

List of Experiments

1. To identify the lower limbs bones with muscle origin & Insertion, blood supply , nerve supply.
2. To study the dissected specimen of Abdomen/Pelvis, Blood supply and nerve supply.
3. To identify the bones of skull, blood supply, nerves and muscles.
4. To study the tracts of central nervous system, Pain gate theory.

PHYSIOLOGY-II LAB

Course code	**BPT108**
Type of course	**Physiology-II Lab**
LTP	0 0 2
Credits	1
Course prerequisite	B.P.T
Course objective (CO)	Our human physiology program aims to educate students to become professionals with in depth knowledge and skills in physiology to understand functions of the body, to research, design and solve problems, and to provide the foundation for graduate study and life long learning.

List of Experiments

1. To study the classification of muscles, different types of structure of muscles (Skeletal muscles and smooth muscles).
2. To study the structure of neuron, neuralgia, synapse or internal capsule.
3. To study the Sensory or Neurological examination.

ELECTROTHERAPY-II LAB

Course code	**BPT112**
Type of course	**Electrotherapy - II Lab**
LTP	0 0 2
Credits	1
Course prerequisite	B.P.T
Course objective (CO)	Our electrotherapy program aims to educate students to become professionals with in-depth knowledge and skills in electrotherapy to understand various eletrotherapy modalities; to research, design and solve problems, and to provide the foundation for graduate study and lifelong learning.

List of Experiments

1. To plot strength duration curve.
2. To find chronaxie and rheobase.
3. To study the various types of IR lamps and their application to body region wise.
4. To study superficial heat like paraffin wax bath unit, electrical heating pads, mechamism of production, mode of heat transfer and different methods of application: region wise.

EXERCISETHERAPY-II LAB

Course code	**BPT116**
Type of course	**Exercisetherapy-II Lab**
LTP	0 0 2
Credits	1
Course prerequisite	B.P.T
Course objective (CO)	Our exercise therapy programm aims to educate students to become professionals with in- depth knowledge and skills in physiotherapy to understand the planned and purposeful activity, to research, design, and solve problems, and to provide the foundation for graduate study and life long learning.

List of Experiments

1. To practice the grading of muscle strength region wise: upper limb, lower limb and trunk.
2. To practice all the soft tissue manipulative techniques region wise: upper limb, lower limb, neck, back and face.
3. To study traction, classification of traction and its principles, methods of application of traction, therapeutic effects, indications and containdications.

.

Third Semester

ELECTROTHERAPY –III

Course code	**PTY201**
Type of course	**Electrotherapy - III**
LTP	4 0 0
Credits	4
Course prerequisite	B.P.T
Course objective (CO)	Our electrotherapy programme aims to educate students to become professionals with in-depth knowledge and skills in electrotherapy to understand various electrotherapy modalities; to research, design and solve problems, and to provide the foundation for graduate study and lifelong learning.

UNIT-I

High frequency currents: (SWD, MWD) Production, Biophysical effects, types, therapeutic effects, techniques of application, indication, contraindications, precautions, operational skills and patient preparation. Physiological responses to heat gain or loss on various tissues of the body.

Therapeutic effects of heat, cold and electrical currents.

UNIT-II

Medium frequency currents (Russian currents, interferential therapy)- Conceptual framework of medium frequency currents therapy, production, biophysical effects ,types, therapeutic effects techniques of applications, indications, contraindications, precautions, operational skills and patient preparation. Physical principles of electromagnetic radiation.

Physics of sound including characteristics and propagation.

UNIT-III

High frequency sound waves (therapeutic Ultrasound) -Production, biophysical effects, types, therapeutics types, technique of application, indication, contraindication, precautions, operational skills and patient preparation.

UNIT-IV

Therapeutic effects of heat & cold on Inflammation & wound healing

Text and Reference Books

S.No	Name	Author (S)	Publisher
1	Electrotherapy explained principles & practice	Low&reed	Butterworth heinemann
2	Claytons electrotherapy	Clayton	Forster & palastange baillier tindal
3	Therapeutic heat & cold	Lehmann	Willians & wilkins
4	Principles & practice of electrotherapy	Kahn	Churchill livingstone
5	Electrotherapy: Clinics in Physical therapy	Wolf	Churchill Livingstone.

EXERCISETHERAPY-III

Course code	**PTY205**
Type of course	**Exercisetherapy-III**
LTP	4 0 0
Credits	4
Course prerequisite	B.P.T
Course objective (CO)	Our exercise therapy programme aims to educate students to become professionals with in- depth knowledge and skills in physiotherapy to understand the planned and purposeful activity, to research, design, and solve problems, and to provide the foundation for graduate study and life long learning.

UNIT-I

Relaxation: Describe relaxation, muscle fatigue, muscle spasm and tension (mental & physical); Factors contributing to fatigue & tension; Techniques of relaxation (local and general) including effects, uses & clinical application.

Suspension Therapy: Definition, principles, equipments & accessories; indications & contraindications; benefits of suspension therapy; types of suspension therapy – axial, vertical, pendulum; techniques of suspension therapy for upper limb & lower limb.

UNIT- II

Strength Training: Etiogenesis of muscle weakness, General techniques of strengthening including the effects Principles**,** Indication, contraindications & precautions**,** PRE**,** Endurance & training protocols.

Unit-III

Stretching : Definition of terms related to stretching; tissue response towards immobilization and elongation; determinants of stretching exercise; effects of stretching Inhibition and relaxation procedures, Precautions and contraindications of stretching, Techniques of stretching.

Manual Therapy & Peripheral Joint Mobilization: Introduction to special mobilization and manipulation techniques Principles of Mobilizing Techniques Physiological & accessory movements Schools of Manual Therapy (Maitland, Kaltenborn, Mulligan, Cyriax), Principles, Grades, Indications and Contraindications, Effects and Uses

Breathing Mechanism: Review normal breathing; types, techniques, indications, contraindications, therapeutic effects and precautions of breathing exercises, Chest expansion measurement and evaluation, Postural drainage

UNIT-IV

Neuromuscular Incoordination: Review of normal neuromuscular coordination Etiogenesis of neuromuscular in co-ordination**,** The general techniques of improving coordination including their effects, indications, contraindications & precautions.

Functional re-education: General therapeutics techniques to re-educate ADLs functions, mat activities, starting and derived positions, Hand Rehabilitation, Posture.

Text and Reference Books

S.No	Name	Author (S)	Publisher
1	Practical Exercise Therapy	Hollis	Blackwell Scientific Publications
2	Therapeutic Exercises	Basmajian	Williams and Wilkins
3	Therapeutic Exercises Foundations and Techniques	Kisner and Colby	F.A. Davis.
4	Proprioceptive Neuromuscular Facilitation	Voss et al	Williams and Wilkins.
5	Principle of Exercise Therapy	Gardiner	C.B.S. Delhi
6	Principles and practices of therapeutic massage	Sinha	Jaypee brothers Delhi
7	Aquatic Exercise Therapy-	Bates and Hanson	W.B. Saunders.

8	Manual Examination and Treatment of Spine & Extremities	Wadsworth,	Lippincott.
9	Hydrotherapy: Principles & Practices,	Margaret Reid Campion	Butterworth & Heinemann
10	Motor Control: Theory and Practical Applications	Shumway Walcott	Lippincott.
11	Manipulation and Mobilization: Extremities and Spinal Techniques	Edmond, Mosby.	Lippincott.

BIOMECHANICS & KINESIOLOGY- I

Course Code	**PTY209**
Course Title **Type of course** **L T P**	**Biomechanics & Kinesiology- I** Theory 4 0 0
Credits	4
Course prerequisite	B.P.T
Course Objective (CO)	It makes their introduction into activity analysis an exercise in examing details to the extent that we lose sight of the meaningful activity behind the movement.

UNIT-I

Basic Concepts of Biomechanics*:* Introduction to mechanics including motion, forces, parallel forces system**,** Newton's law of motion, concurrent force systems – composition forces, muscle action line etc. Axis & Planes**,** Centre of Gravity, line of gravity, stability and equilibrium

Introduction to Biomechanical Analysis: Starting Positions**,** Introduction to Bio-Mechanics and kinesiology. Introduction to the techniques of biomechanical analysis.

UNIT-II

Joint Structure and Function*:* Basic principles of Joint design and a human joint. Tissues present in human joint including fibrous tissue, bone cartilage and connective tissue. Classification of joints. Joint function, Kinematics chains and range of motion**,** Levers & their efficiency, anatomical levers**,** Pulley & anatomical pulley

UNIT-III

Muscle Structure and function*:* Mobility and stability functions of muscle. Elements of muscle structure and its properties. Types of muscle contractions and muscle work.Classification of muscles and their functions. Group action of muscles**,** Co-ordinated movement.

UNIT-IV

Biomechanics of vertebral column (Spine).

Text and Reference Books

S.No	Name	Author (S)	Publisher
1	Joint Structure and Function – A Comprehensive Analysis	Norkins & Levangie	F.A. Davis.
2	Measurement of Joint Motion – A Guide to Goniometry	Norkins & White	F.A. Davis.
3	Brunnstrom's Clinical Kinesiology	- Smith et al	F.A. Davis.
4	Basic Biomechanics explained	Low & Reed	Butterworth Heinmann
5	Kinesiology: Applied to Pathological Motion	Soderberg	Lippincott.

SOCIOLOGY

Course Code	**PTY213**
Course Title	**Sociology**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	B.P.T
Course Objective (CO)	Students will understand sociological theory. Students will be able to describe how social structures, culture and institutions operate. Students will develop and apply a comparative perspective to explain the diversity of human societies.

UNIT-I

Introduction: Definitions of sociology, sociology as a science of society, uses of the study of sociology, application of knowledge of sociology in health and physiotherapy.

Sociology & Health: Social factors affecting health status, social consciousness and perception of illness, social consciousness and meaning of illness, decision making in taking treatment. Institutions of health, their role in the improvement of the health of the people

Socialization: Meaning of socialization, influence of social factor on personality,

Socialization in hospitals, socialization in the rehabilitation of patients

Social Groups: Concept of social groups, influence of formal and informal groups on health and sickness, the role of primary groups and secondary groups in the hospitals and rehabilitation settings.

Family : Influence of family on human personality, discussion of changes in the functions of a family, influence of family on the individual's health, family and nutrition, the effects of sickness on family, and psychosomatic disease.

UNIT-II

Community: Concept of community, role of rural and urban communities in public health, role of community in determining beliefs, practices and home remedies in treatment.

Culture: Components of culture. Impact of culture on human behavior, cultural meaning of sickness, response & choice of treatment (role of culture as social consciousness in moldings the perception of reality), and culture induced symptoms and disease, sub – culture of medical workers.

UNIT-III

Social Change: Meaning of social change, factors of social change, human adaptation and social change, social change and stress, social change and deviance, social change and health programmes, the role of social planning in the improvement of health and rehabilitation.

Social Control: Meaning of social control, role of norms, folkways, customs, morals, religion, law and other means of social control in the regulation of human behavior, social deviance and disease.

UNIT- IV

Community resources and their uses, Social Problems of the Disabled: Consequences of the following social problems in relation to sickness and disability; remedies to prevent these problems. Population explosion, Poverty and unemployment, Beggary, Crime

Prostitution, Alcoholism and drug abuse, Problems of women in employment, Role of commonly leaders and health professionals in health promotion

Text and Reference Books

S.No	Name	Author (S)	Publisher
1	Sociology	McGee	Drydon Press Illinois
2	Social Changes in India	Kupuswamy	Vikas, Delhi.
3	Social Problems	Ahuja	Bookhive, Delhi.
4	Principles of Sociology	Ginnsberg	Sterling Publications.
5	Psychology & Sociology applied to	Parter & Alder	W.B. Saunders.

	medicine		
6	Social Problems -	Julian	Prentice Hall.

PSYCHOLOGY

Course Code	**PTY215**
Course Title **Type of course** **L T P** **Credits**	**Psychology** Theory 4 0 0 4
Course prerequisite	B.P.T
Course Objective (CO)	To understand the fundamental scientific principles of Pharmacokinetics that underly the absorption, distribution, metabolism and elimination of drugs in the body and thereby affect drug effectiveness.

UNIT-I

Introduction of psychology: Definition, schools, various methods and branches of psychology.

Development and growth behavior: Infancy, childhood, adolescence, adulthood, middle age, old age.

Intelligence: Definition, IQ, Mental age, list of various intelligence tests- WAIS, WISC, Bhatia's performance test, Raven's progressive matrices test.

UNIT-II

Motivation: Definitions, motive drive, incentive and reinforcement, basic information about primary needs: hunger thirst, sleep, elimination activity, air, avoidance of pain, attitude to sex.

Psychological needs: Information, security, self esteem, competence, love and hope.

Personality: Definitions, list of components, physical characteristics, character, abilities, temperament, interest and attitudes.

Basic concepts of freud: Unconscious, conscious, Id, ego and superego, list and define the oral, anal and phallic stages of personality department list and define the 8 stages as proposed by

Erickson, 4 concepts of learning as proposed by Dollard and Miller, drive, cue, response and reinforcement.

UNIT-III

Personality assessment, Learning, Thinking, Frustration

Democratic and Authoritarian leadership

Define mechanics of the ego

UNIT-IV

Psychological reactions of a patient

Reactions to lose

Stress: Physical and psychological stress

Communication

Emotional needs

Geriatric psychology

Pediatric psychology

PHARMACOLOGY

Course Code **Course Title** **Type of course**	**PTY217** **Pharmacology** Theory
L T P **Credits** **Course prerequisite**	4 0 0 4 B.P.T
Course Objective (CO)	To understand the fundamental scientific principles of Pharmacokinetics that underly the absorption, distribution, metabolism and elimination of drugs in the body and thereby affect drug effectiveness.

UNIT-I

Introduction of pharmacology & scope in physiotherapy

Brief introduction of following- Chemical character of drugs, General Action of Drugs, Drug Allergy and Idiosyncrasy**,** Drug Toxicity**,** Metabolic fate of drugs**,** Methods of administration**,** Process of Drug Absorption**,** Dosage forms

UNIT-II

Drugs acting on Peripheral nervous system- stimulating and inhibiting cholinergic and adrenergic activity.

UNIT-III

Drugs acting on Neuromuscular junction and muscles- Neuromuscular blockers, Muscle Relaxants, Anti inflammatory

UNIT-IV

Drugs acting on Cardio-vascular system

Text and Reference Books

S.No	Name	Author (S)	Publisher
1	The Pharmacological basis of Therapeutics	Goodman and Gilman	MacMillan.
2	Pharmacology and Pharmacotherapeutics	Satoskar & Bhandarkar	Bombay

ELECTROTHERAPY-III LAB

Course Code	**PTY203**
Course Title **Type of course** **L T P**	**Electrotherapy- III Lab** Theory 0 0 2
Credits	1
Course prerequisite **Course Objective (CO)**	B.P.T Our electrotherapy programme aims to educate students to become professionals with in-depth knowledge and skills in electrotherapy to understand various electrotherapy modalities; to research, design and solve problems, and to provide the foundation for graduate study and lifelong learning.

List of Experiments

1. To study a short wave diathermy unit, its operation unit, its operation and different methods of application region wise.
2. To study a microwave diathermy unit, its operation and different methods of application region wise.
3. To study ultrasound unit, its operation and different methods of application region wise.

EXERCISETHERAPY--III LAB

Course Code **Course Title** **Type of course**	**PTY207** **Exercisetherapy-III Lab** Theory
L T P	0 0 2
Credits **Course prerequisite**	1 B.P.T
Course Objective (CO)	Our exercise therapy programme aims to educate students to become professionals with in- depth knowledge and skills in physiotherapy to understand the planned and purposeful activity, to research, design, and solve problems, and to provide the foundation for graduate study and life long learning.

List of Experiments

1. To study the structure and functions along with application of various equipment in gymnasium.
2. To study and practice various techniques of mobilizations and stretching of joint region wise.
3. To practice the various techniques of strengthening region wise
4. To practice the various techniques of suspension therapy region wise

BIOMECHANICS & KINESIOLOGY- I LAB

Course Code **Course Title**	**BPT211** **Biomechanics & Kinesiology- I Lab**
Type of course **L T P** **Credits**	Theory 0 0 2 1
Course prerequisite	B.P.T
Course Objective (CO)	It makes their introduction into activity analysis an exercise in examing details to the extent that we lose sight of the meaningful activity behind the movement.

1. To study anatomical levers.

2. To name and sketch the anatomical movements at different joints in various planes, as observed

3. To study different types of muscle contraction, muscle work, group action of muscles, resolution of muscular forces at different joints, coordinated movements.

4. To study biomechanics of vertebral column - lumbar pelvic rhythm.

Fourth Semester

ELECTROTHERAPY –IV

Course code	**PTY202**
Type of course	**Electrotherapy – IV**
LTP	4 0 0
Credits	4
Course prerequisite	B.P.T
Course objective (CO)	Our electrotherapy program aims to educate students to become professionals with in-depth knowledge and skills in electrotherapy to understand various eletrotherapy modalities; to research, design and solve problems, and to provide the foundation for graduate study and lifelong learning.

UNIT-I

Radiation therapy-, LASER- Definition,historical background ,physical principles ,biophysical effects , types, therapeutic effects ,techniques of applications, indications, contraindications , precautions, operational skills and patient preparation.

Therapeutic Cold (Cryotherapy)- Sources, biophysical effects, types, therapeutic effects, techniques of applications, Indication, Contraindications, Precaution, Operational skills and Patient preparation.

UNIT-II

Therapeutic mechanical pressure (Intermittent Compression Therapy) - Principle, biophysical effects, types, therapeutic effects, indications, contraindications, precautions, operational skills and patient preparation.

UNIT-III

Review of Neuromuscular physiology including effects of electrical stimulation

Electro-diagnosis: Instrumentation, definition and basic techniques of Strength Duration Techniques, EMG and NCV.

UNIT- IV

Biofeedback: Instrumentation, principles, therapeutic effects, indications, precautions, operational skills and patient preparation.

Text and Reference Books

S.No	Name	Author (S)	Publisher
1	Electrotherapy explained principles & practice	Low&reed	Butterworth heinemann
2	Claytons electrotherapy	Clayton	Forster & palastange baillier tindal
3	Therapeutic heat & cold	Lehmann	Willians & wilkins
4	Principles & practice of electrotherapy	Kahn	Churchill livingstone
5	Electrotherapy: Clinics in Physical therapy	Wolf	Churchill Livingstone.

EXERCISETHERAPY-IV

Course code	**PTY206**
Type of course	**Exercisetherapy-IV**
LTP	4 0 0
Credits	4
Course prerequisite	B.P.T
Course objective (CO)	Our exercise therapy programme aims to educate students to become professionals with in- depth knowledge and skills in physiotherapy to understand the planned and purposeful activity, to research, design, and solve problems, and to provide the foundation for graduate study and life long learning.

UNIT-I

Hydrotherapy: Basic principles of fluid mechanics as they relate to hydrotherapy; Physiological and therapeutic effects of hydrotherapy including, joint mobility, muscle strengthening and wound care; Types of Hydrotherapy equipment including indications, contraindications, operational skills and patient preparation.

Therapeutic Gymnasium: Gymnasium and its importance; various equipments in gymnasium; Operational skills including effects and uses of each equipment.

Group Exercises*:* Advantages and Disadvantages; Organization of Group exercises; Recreational Activities and Sports.

UNIT-II

Aerobic Exercise: Definition and key terms, Determinants of an Exercise Program, designing the aerobic Exercise Program, types and phases of aerobic training. Effects of aerobic exercises acute and long term (in brief)

Motor Learning and Functional Re-education: Introduction to Motor Learning: Classification of Motor skills Measurement of Motor Performance, Introduction to motor control

Theories of Motor control- Application of Learning, Environment Learning of skill Instruction and augmented feedback, Practice Conditions

UNIT-III

PNF: Conceptual framework , principle of Proprioceptive neuromuscular facilitation techniques, general techniques, special techniques **Static and Dynamic Balance and Posture:** Assessment & management including therapeutic exercises, Coordination.

UNIT-IV

Gait training: Normal gait cycle and its phases, Principles of gait selection and training, Types of walking aids, indications, effects and various training techniques, transfer techniques, Stair climbing training, Pathological gait.

Yoga: Introduction to Yoga: Conceptual framework, Asanas – Principles and elements Pranayamas – Principles, Methods and Techniques, Different Asanas with their therapeutic activities.

Text and Reference Books

S.No	Name	Author (S)	Publisher
1	Practical Exercise Therapy	Hollis	Blackwell Scientific Publications
2	Therapeutic Exercises	Basmajian	Williams and Wilkins
3	Therapeutic Exercises Foundations and Techniques	Kisner and Colby	F.A. Davis.
4	Proprioceptive Neuromuscular Facilitation	Voss et al	Williams and Wilkins.
5	Principle of Exercise Therapy	Gardiner	C.B.S. Delhi
6	Principles and practices of therapeutic massage	Sinha	Jaypee brothers Delhi

7	Aquatic Exercise Therapy-	Bates and Hanson	W.B. Saunders.
8	Manual Examination and Treatment of Spine & Extremities	Wadsworth,	Lippincott.
9	Hydrotherapy: Principles & Practices,	Margaret Reid Campion	Butterworth & Heinemann
10	Motor Control: Theory and Practical Applications	Shumway Walcott	Lippincott.
11	Manipulation and Mobilization: Extremities and Spinal Techniques	Edmond, Mosby.	Lippincott.

BIOMECHANICS & KINESIOLOGY- II

Course Code	**PTY210**
Course Title **Type of course**	**Biomechanics & Kinesiology- II** Theory
L T P	4 0 0
Credits **Course prerequisite** **Course Objective (CO)**	4 B.P.T It makes their introduction into activity analysis an exercise in examing details to the extent that we lose sight of the meaningful activity behind the movement.

UNIT-I

The Biomechanics of: Shoulder joint**,** Elbow Joint**,** Wrist & Hand**,** Hip joint**,** Knee joint

Ankle joint

UNIT-II

Posture: Definition, factors responsible for posture, relationship of gravity on posture.Postural imbalance – factors responsible for imbalance in Static and dynamic positions.Introduction to ergonomics.

UNIT-III

Gait: Description of Normal gait, determinants of gait, spatio temporal features and analysis. Gait deviations – Types, Causative factors and analysis.

UNIT-IV:

Activities of daily living (ADLs): BADL, IADL.

Text and Reference Books

S.No	Name	Author (S)	Publisher
1	Joint Structure and Function – A Comprehensive Analysis	Norkins & Levangie	F.A. Davis.
2	Measurement of Joint Motion – A Guide to Goniometry	Norkins & White	F.A. Davis.
3	Brunnstrom's Clinical Kinesiology	- Smith et al	F.A. Davis.
4	Basic Biomechanics explained	Low & Reed	Butterworth Heinmann
5	Kinesiology: Applied to Pathological Motion	Soderberg	Lippincott.

PATHOLOGY

Course Code	**PTY214**
Course Title	**Pathology**
Type of course **L T P**	Theory 4 0 0
Credits	4
Course prerequisite	B.P.T
Course Objective (CO)	Provide the knowledge, technical skills & experience necessary for residents to competenly practice anatomic and clinical pathology. This includes developing knowledge of basic pathologic processes and skills needed to interpret laboratory data as well as make clinicalpathologic correlations.

UNIT-I

Aims and objectives of the study of pathology. Meaning of terms, etiology, pathogenesis and lesions, Causes of disease, cell injury – causes of cell injury , Cell injury: Feature, mechanism of cell injury – hypoxia, free radical injury. Necrosis and gangrene.

UNIT-II

Inflammation- definition, events of acute inflammation, chemical mediator of Inflammation, morphological types of acute inflammation, chronic inflammation, Difference between acute and chronic inflammation

Repair –primary healing, secondary healing, factors affecting healing and repair Healing of skin, muscle and bone

UNIT-III

Fluid and hemodynamic derangements – oedema, hyperemia, Haemorrhage, shock, embolism, thrombosis, infarction.

UNIT-IV

Immunity – natural and acquired, Immunological mechanisms of tissue injury, hypersensitivity reactions, general features of autoimmune diseases and immunodeficiency diseases.

Neoplacia : characteristic of benign and malignant tumors ,grading and staging of malignant tumors, general effects of malignancy on the host , a brief outline of the carcinogenic agents , a brief outline of the methods of diagnosis of malignancy

Text and Reference Books

S.No	Name	Author (S)	Publisher
1	Robbins Pathological Basis of Disease	Cotran, Kumar & Robbins	W.B. Saunders.
2	General Pathology	Walter & Israel	Churchill Livingstone.
3	Text book of Pathology	Harsh Mohan	Jaypee Brothers
4	Pathology: Implications for Physical Therapists	Goodmann and Boissonnault	W.B. Saunders.
5	Muirs Textbook of Pathology	Anderson	Edward Arnold Ltd.

ENVIRONMENTAL SCIENCES

Course Code	**EVS-101**
Course Title	**Environmental Sciences**
Type of course	Theory
L T P	3 0 0
Credits	3
Course prerequisite	
Course Objective (CO)	To make students aware about environment and need of maintaining it with best possible knowledge.

UNIT-I

Introduction to Environment and Ecosystem: Definition and scope and importance of multidisciplinary nature of environment. Need for public awareness, Concept of Ecosystem, Structure, interrelationship, producers, Consumers and decomposers, ecological pyramids-biodiversity and importance. Hot spots of biodiversity.

UNIT-II

Environmental Pollution & Natural Resources: Definition, Causes, effects and control measures of air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear hazards. Solid waste Management: Causes, effects and control measure of urban and industrial wastes.Role of an individual in prevention of pollution. Pollution case studies.Disaster Management: Floods, earthquake, cyclone and landslides, Natural Resources and associated problems, use and over exploitation, case studies of forest mresources and water resources.

UNIT-III

Social Issues and the Environment :From Unsustainable to Sustainable development, Urban problems related to energy, Water conservation, rain water harvesting, watershed management. Resettlement and rehabilitation of people; its problems and concerns. Case studies. Environmental ethics: Issues and possible solutions. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies. Wasteland reclamation.Consumerism and waste products. Environment Protection Act. Air (Prevention and Control of Pollution) Act. Water (Prevention and control of pollution) Act. Wildlife Protection Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation

UNIT-IV

Human Population and the Environment & Field Work: Population growth, variation among nations. Population explosion –Family Welfare Programme. Environment and human health, Human Rights, Value Education, HIV/AIDS. Women and child Welfare. Role of Information Technology in Environment and human health. Case studies

Visit to a local area to document environemntal assetsriver/forest/grassland/hill/mountain; Visit to a local polluted site-Urban/Rural/Industrial/Agricultural;Study of common plants, insects, birds; Study of simple ecosystems-pond, river, hill slopes, etc.

Text and Reference books

S. No	Name	Author(S)	Publisher
1	A Textbook for Environmental Studies	Erach Bharucha	Orient Black Swan
2	A Basic course in Environmental Studies	S.Deswal,A.Deswal	Dhanpat Rai & Co.
3	Perspectives in Environmental Studies	Anubha Kaushik,C.P.Kaushik	*New age publishers*

ELECTROTHERAPY-IV LAB

Course Code **Course Title**	**PTY204** **Electrotherapy- IV Lab**
Type of course **L T P** **Credits**	Theory 0 0 2 1
Course prerequisite	B.P.T
CourseObjective (CO)	To provide high quality, comprehensive educational and training opportunities those are compatible to changing needs of the students. Electrotherapy is a field that provides use of electrical energy as a medical treatment. Our electrotherapy program aims to educate students to become professionals with in-depth knowledge and skills in electrotherapy to understand various modalities; to research, design and solve problems, and to provide the foundation for graduate study and lifelong learning.

List of Experiments

1.To study a laser unit its operation and different methods of application region wise.

2.To study various forms of therapeutic cold application region wise including - ice, cold packs,vapor coolant sprays, etc.

3.To study an intermittent compression therapy unit, its operation and different methods of application region wise.

4.To observe various Electromyography procedures.

5.To study a Biofeedback unit its operation and different methods of application region wise.

EXERCISETHERAPY- IV LAB

Course Code **Course Title** **Type of course**	**PTY208** **Exercisetherapy- IV Lab** Theory
L T P	0 0 2
Credits **Course prerequisite**	1 B.P.T
Course Objective (CO)	To provide high quality, comprehensive educational and training opportunities those are compatible to changing needs of the students. Exercise therapy is a program that used planned activity to develop and maintain physical fitness. Our exercise therapy programme aims to educate students to become professionals with in- depth knowledge and skills in physiotherapy to understand the planned and purposeful activity, to research, design, and solve problems, and to provide the foundation for graduate study and life long learning.

List of Experiments

1.To demonstrate the exercises to improve coordination and balance

2.To study and practice the uses of various ambulation aids in gait training.

3.To study the various structures and functions of hydrotherapy equipments and their applications.

4.To study and practice various traction techniques including manual and mechanical procedures.

5.To study plan and practice various exercise programs for normal persons of various age groups.

BIOMECHANICS & KINESIOLOGY- II LAB

Course Code **Course Title**	**PTY212** **Biomechanics & Kinesiology-II Lab**
Type of course **L T P** **Credits**	Theory 0 0 2 1
Course prerequisite	B.P.T
Course Objective (CO)	To understand the role of healthcare professional. To impart basic knowledge of laboratory principles, procedures and techniques.

List of Experiments

1. To study glenohumeral rhythm
2. To measure angle of torsions
3. Analysis of normal posture with respect to COG and optimal position of joints in anterior, posterior and lateral views.
4. Analysis of normal gait, measurement of spatio temporal features - step length, stride length, cadence.

Fifth Semester

ORTHOPAEDICS-I

Course Code	**PTY301**
Course Title	**Orthopaedics-I**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	B.P.T
Course Objective (CO)	The students will learn the advanced principles and procedures of Orthopaedics for diagnosis and monitoring of human disease and their applications to Physiotherapy research.

UNIT-I

Introduction: Introduction to Orthopaedics,Clinical examination in an Orthopaedic patient. Common investigative procedures, Radiological and Imaging techniques in Orthopeadics , Inflammation and repair, Soft tissue healing.

Orthopedic Surgeries Indications, Classification, Types, Principles of management of the following Surgeries: Arthrodesis ,Arthroplasty (partial and total replacement) Osteotomy External fixators **,** Limb re-attachments.

Fractures and Dislocations: Fracture: definition, types, signs and symptoms. Fracture healing. Complications of fractures. Principles of management – (conservative and operative).

Subluxation/dislocations-Definition, signs and symptoms, principles of management (conservative and operative).

UNIT-II

Fractures of Upper Limb: causes, clinical features, mechanism of injury, complications, conservative and surgical management of the following fractures: Fractures of clavicle and scapula., Fractures of greater tuberosity and neck of humerus. ,Fracture shaft of humerus ,Supracondylar fracture of humerus ,Fractures of capitulum, radial head, olecranon, coronoid, and epicondyles. Side swipe injury of elbow, Fracture of forearm – monteggia, galaezzi fracture –dislocation. Colle's fracture. Smith's fracture. Greenstick fracture ,Scaphoid fracture , Fracture of the metacarpals. Bennett's fracture. ,Fracture of the phalanges. (Proximal and middle.)

Dislocations of Upper Limb: mechanism of injury, clinical feature, complications, management of the following : Anterior dislocation of shoulder ,Recurrent dislocation of shoulder. Posterior dislocation of shoulder ,Inferior dislocation of shoulder , Posterior dislocation of elbow**.**

UNIT-III

Hand Injuries*:* Mechanism of injury, clinical features, and management of the following :Crush injuries, Flexor and extensor injuries, Burn injuries of hand.

Fracture of Spine: Mechanism of injury, clinical features, complications and management of : Common fractures of cervical thoracic and lumber spine (Jeffersons, Hangman, Dens fracture)

Fracture of Rib Cage - Mechanism of injury, clinical features, management for Fracture Ribs, Fracture of sternum.

UNIT-IV

Fracture of Pelvis and Lower Limb - causes, clinical features, mechanism of injury, complications, conservative and surgical management of the following fractures: Fracture of pelvis, Fracture neck of femur ,Fractures of trochanters, Fracture shaft of femur, Supracondylar fracture of femur, Fractures of the condyles of femur,Fracture patella, Fractures of tibial condyles, Fracture of tibia and fibula, Fracture calcaneum - Pott's fracture ,Fracture of talus Fracture of metatarsals—stress fractures, jone's fracture, Fracture of phalanges

Dislocations of Lower Limb: mechanism of injury, clinical features, complications, management of the following dislocations of lower limb: Anterior dislocation of hip, Posterior dislocation of hip, Central dislocation of hip, Dislocation of patella, Recurrent dislocation of patella

Metabolic Bone Diseases: Rickets. Osteomalacia, Osteopenia. Osteoporosis

UNIT-V

Deformities clinical features, complications, medical and surgical management of the following:Congenital Deformities: CTEV, CDH, Torticollis, Scoliosis, Flatfoot, Vertical talus. **Hand anomalies**: syndactyly, polydactyly and ectrodactly, Arthrogryposis multiplex congenital (amyoplasia congenita), Cervical rib.**Acquired Deformities**: Acquired Torticollis. Scoliosis. Kyphosis. Lordosis. Genu varum. Genu valgum. Genu recurvatum. Coxa vara. Pes cavus. Hallux rigidus. Hallux valgus. Hammer toe.**Genetic Deformitites**: Amelia and Phocomelia. Klippel feil syndrome. Osteogenesis imperfecta, Arthrogryphosis multiplex congenital.

Poliomyelitis: Describe the pathology, microbiology, prevention, management and residual problems of polio (PRPS). Outline the treatment of residual paralysis including use of orthoses, principles of muscle transfers.

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Outline of Fracture	Adams	Churchill livingstone
2	Textbook of orthopaedics	Maheshwari	Jaypee
3	Orthopaedics and Traumatology	Natrajan	CBS Publishers & Distributers
4	Apleys Orthopaedic	Louis Solomon	CBC.
5.	Cambells Operative Orthopaedics	Tere canal	Elesvier

GENERAL MEDICINE- I

Course Code	**PTY305**
Course Title	**General Medicine –I**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	BPT
Course Objective (CO)	The students will obtain the basic knowledge of core aspects of General Medicine –I including, etiology, pathogenesis, morphological changes and functional derangements as well as various causes and consequences of diseases.

UNIT-I

Introduction to modes of transfer of communicable diseases & general preventive measures.

Bacterial Diseases: Tuberculosis, Leprosy, Rheumatic fever, Tetanus, Typhoid fever, Diphtheria, Pneumonia, Bacillary Dysentery**.Viral Diseases:** Herpes – simplex and zoster, Varicella, Measles**,** Mumps, Hepatitis B & C, AIDS & influenza**. Metabolic and Deficiency Diseases:** Diabetes, Anemia, Vitamin & Mineral Deficiency diseases, diseases of the endocrine glands (brief outline).

UNIT-II

Diseases of Respiratory System: Asthma, Bronchitis, Tuberculosis, Massive collapse of lungs,Bronchiectasis, Bronchial Pneumonia, lung abscess, Emphysema,Pleural effusion, Pneumothorax & vocal cords, chronic infection of larynx and trachea, Abnormalities of trachea, infract of lungs, chronic obstructive pulmonary disease, chest wall deformities**.**

UNIT-III

Diseases of Circulatory System: Atheroscelerosis, Thrombosis, Embolism, Hemorrhage, various diseases of arteries, diseases of blood forming organs, Anemia, Leukaemia, Peripheral Vascular diseases, diseases of the lymphatic systems.

UNIT-IV

Diseases of the heart: ischemic heart disease, rheumatic heart disease, congenital heart disease, cardiac arrest , Hypertension.

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Davidson's principles and Practices of Medicine	Edward	Churchill Livingstone.
2	Hutchinson's Clinical Methods	Swash	Bailliere Tindall
3	A Short Text book of Medicine	Krishna Rao	J.P. Bros, New Delhi
4	A Short Text book of Psychiatry	- Ahuja Niraj	J.P. Bros, New Delhi
5.	Basic Pathology, 9th edition	Kumar, Abbas & Aster. Robbins.	Saunders

PHYSIOTHERAPY IN ORTHO CONDITIONS-I

Course Code	**PTY311**
Course Title	**Physiotherapy in Ortho-conditions-I**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	B.P.T
Course Objective (CO)	To impart knowledge about Orthopaedic conditions and there management by Physiotherapy.

UNIT-I

Shoulder: Definition, Clinical features and management of the following conditions: Periarthritic shoulder (adhesive capsulitis), Rotator cuff injury, tendinitis, Supraspinatus Tendinitis, Infraspinatus Tendinitis, Bicipital Tendinitis, Subacromial Bursitis.

UNIT-II

Elbow: Definition, Clinical features and management of the following conditions: Tennis Elbow, Golfer's Elbow, Olecranon Bursitis (student's elbow).

Wrist and Hand: Definition, Clinical features and management of the following conditions: De Quervain's Tenosynovitis, Ganglion cyst, Trigger Finger/Thumb, Mallet Finger, Carpal Tunnel Syndrome, Dupuytren's Contracture.

UNIT-III

Pelvis and Hip: Definition, Clinical features and management of the following conditions: Perthes disease, Slipped Capital Femoral Epiphysis and Avascular Necrosis, Trochanteric Bursitis, Hamstring strain & quadriceps contusion.

UNIT-IV

Knee: Definition, Clinical features and management of the following conditions: Meniscal injuries of knee, Cruciate injuries of knee, Medial and lateral collateral injuries of knee, Osteochondritis Dissecans, Prepatellar and Suprapatellar Bursitis, Patellar Tendinitis, Chondromalacia Patella.

Ankle and Foot: Definition, Clinical features and management of the following conditions: Ankle Sprains, Plantar Fasciitis, Calcaneal Spur, Achilles Tendinitis, Metatarsalgia, Morton's Neuroma, Rupture Achilles tendon, shin pain (calf strain).

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Outline of Fracture	Adams	Churchill livingstone
2	Textbook of orthopaedics	Maheshwari	Jaypee
3	Orthopaedics and Traumatology	Natrajan	CBS Publishers & Distributers
4	Apleys Orthopaedic	Louis Solomon	CBC.
5.	Cambells Operative Orthopaedics	Tere canal	Elesvier

Professional Communication Skills

Course Code	ENG307
Course Title	Professional Communication Skills
Type of Course	Theory
L T P	3:0:0
Credits	3
Course pre-requisite	Basic knowledge of English grammar and sentence making
Course Objectives	1. The course is career oriented which aims to develop and improve the English language and proficiency. 2. In order to gain confidence in public and professional life and strengthen the abilities and skills pertinent to success

UNIT-I

Language Skills: Parts of Speech, Vocabulary, Phrase, Clause, Sentence and its types, Punctuation.

UNIT-II

Business Correspondence: Meaning of Business correspondence – Importance of Business Correspondence, Essential qualities of a business letters, types of business letters – cover letter, thank you letters, message through email and Fax. Acceptance letters, rejection letters, and withdrawal letters.

UNIT- III

Principles of communication: LSRW in communication. What is meant by LSRW Skills Why it is important – How it is useful – How to develop the skills? Non verbal communication: Body language-Kinesics, Proxemics, Para linguistic, Chronemics Signs and symbols, Territory/Zone Oral: Speaking words, articulation and pronunciation.

UNIT- IV

Enhancing self esteem and Personality development: Self theory and the Johari window: Characteristics of fully functioning individuals, manifestations of low and high self esteem, techniques for enhancing self esteem, nurturance techniques.

Comprehension Skills: Collection of Short Stories: Khushwant Singh's The Mark of Vishnu

Recommended Books—

Text-Books—

S. No.	Author(S)	Year	Title	Publisher
1	Varinder Kumar Bodh Raj	2013	Business Communication	Kalyani Publishers

Reference Books—

S. No.	Author(S)	Year	Title	Publisher
1	Loveleen Kaur	2009	Communication Skills	Satya Prakashan
2.	Tanu Gupta Titiksha Mittal	2010	A course in Communication Skills and English Grammar	Ajay Publications Yamuna Nagar

BASICS OF COMPUTER SCIENCES

Course Code	**CSE391**
Course Title	**Basics of Computer Sciences**
Type of Course	Theory
L T P	2 0 0
Credits	2
Course Prerequisites	Nil
Course Objectives (CO)	To understand the basic concepts of computer, office automation, information technology and internet.

UNIT-I

Introduction to Computers

Define a Computer System, Block diagram of a Computer System and its working, Applications of computer system, Input and Output device, memories, RAM, ROM, secondary storage devices, Computer Software and Hardware, Number System.

UNIT-II

Computer Languages: Machine language, assembly language, higher level language.
Operating System: Definition, Need for operating system, Functions of operating system (Processor Management, Memory Management, File Management and Device Management), Working with GUI operating System.

UNIT-III
Working Knowledge of Computer System
Word Processor- Introduction to word processors and its features, creating, editing, printing and saving documents, spell check, mail merge
PowerPoint: creating power point presentations, creating spreadsheets and simple graphs, evolution of Internet and its applications and services.
Spreadsheets- Introduction to spreadsheets and its features, Using different types of formulae, Creating graphs and charts, Exporting charts to word processor.
UNIT-IV

Introduction to Information Technology: Introduction to Information Technology and its applications.

Introduction of internet- Definition, Applications of internet, Impact of Internet on Society –

Crime on/through the Internet, E-mail, WWW.

UNIT-IV

Introduction to Information Technology: Introduction to Information Technology and its applications.

Introduction of internet- Definition, Applications of internet, Impact of Internet on Society – Crime on/through the Internet, E-mail, WWW.

Text and Reference Books

Sr. no.	Name	Author(s)	Publisher
1	Fundamentals of Computers	R. S. Salaria	Salaria Publishing House
2	Computer Fundamentals	P.K. Sinha and P. Sinha	BPB Publication
3	Absolute Beginners Guide to Computer Basics	Miller M	Pearson Education
4	MS Office for Windows XP	Sagman S	Pearson Education

ORTHOPAEDICS-I LAB

Course Code	**PTY303**
Course Title	**Orthopaedics-I Lab**
Type of course	Practical
L T P	0 0 2
Credits	1
Course prerequisite	BPT
Course Objective (CO)	Orthopaedic is the branch of medical sciences. To avoid any mistake, the students must understand to learn the Fractures of upper and lower limbs and there management procedures, carefully, accurately.

List of Experiments

1. Evaluation and clinical reasoning in orthopaedics
2. Examination of upper extremity: Shoulder, Elbow, Forearm, Wrist and Hand.
3. Examination of lower extremity: Hip, Knee, Ankle and Foot
4. Examination of spine: Cervical spine, Thoracic Spine, Lumbar Spine
5. Neurological Examination including sensory examination, Dermatomes, Myotomes, Deep tendon reflexes.
6. Investigatory techniques like X Ray, MRI examination
7. Case presentations and Case discussions
8. Discussion on various orthopaedic treatment techniques.

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Outline of Fracture	Adams	Churchill livingstone
2	Textbook of orthopaedics	Maheshwari	Jaypee
3.	Orthopaedics and Traumatology	Natrajan	CBS Publishers & Distributers
4.	Apleys Orthopaedic	Louis Solomon	CBC.
	Cambells Operative Orthopaedics	Tere canal	Elesvier

GENERAL MEDICINE –I LAB

Course Code	**PTY 309**
Course Title	**General Medicine –I Lab**
Type of course	Practical
L T P	0 0 2
Credits	1
Course prerequisite	BPT
Course Objective (CO)	The course has been designed to provide students knowledge about General Medicine of human body , principle ethics, practices, patient and management of diseases .

List of Experiments

1.Clinical examination of respiratory system

2.Clinical examination of cardiovascular system

3.Clinical examination of digestive system and abdomen

4.Clinical examination of nervous system

.

PHYSIOTHERAPY IN ORTHO CONDITIONS-I LAB

Course Code	**PTY313**
Course Title	**Physiotherapy in Ortho conditions-I Lab**
Type of course	Practical
L T P	0 0 4
Credits	2
Course prerequisite	BPT
Course Objective (CO)	To impart knowledge about Orthopaedic conditions and there management by Physiotherapy

Practical shall be conducted for all relevant topics discussed in theory in the following forms:

Physiotherapy Management in all Ortho Conditions.

0. Evaluation and clinical reasoning in orthopaedics
1. Examination of upper extremity: Shoulder, Elbow, Forearm, Wrist and Hand.
2. Examination of lower extremity: Hip, Knee, Ankle and Foot
3. Case presentations and Case discussions
4. Discussion on various orthopaedic treatment techniques

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Outline of Fracture	Adams	Churchill livingstone
2	Textbook of orthopaedics	Maheshwari	Jaypee
3.	Orthopaedics and Traumatology	Natrajan	CBS Publishers & Distributers
4.	Apleys Orthopaedic	Louis Solomon	CBC.
	Cambells Operative Orthopaedics	Tere canal	Elesvier

BASICS OF COMPUTER SCIENCES LAB

Course Code	**CSE 393**
Course Title	**Basics of Computer sciences Lab**
Type of course	Practical
L T P	0 0 2
Credits	1
Course prerequisite	NA
Course Objective (CO)	To familiarize all the students with basic concepts of computers including office automation and internet concepts.

LIST OF EXPERIMENTS

1. Given a PC, name its various components and peripherals. List their functions
2. **Installation of operating System viz. Windows XP, Windows 2007 etc.**

   Features of Windows as an operating system

   - Start
   - Shutdown and restore
   - Creating and operating on the icons
   - Opening closing and sizing the windows
   - Using elementary job commands like – creating, saving, modifying, renaming, finding and deleting a file
   - Creating and operating on a folder
   - Changing setting like, date, time, colour (back ground and fore ground)
   - Using shortcuts
   - Using on line help
3. **Word Processing (MS Office/Open Office)**

   a) File Management:
   Opening, creating and saving a document, locating files, copying contents in some different file(s), protecting files, giving password protection for a file

   b) Page Set up:
   Setting margins, tab setting, ruler, indenting

   c) Editing a document:
   Entering text, Cut, copy, paste using tool- bars

   d) Formatting a document:
   Using different fonts, changing font size and colour, changing the appearance through bold/ italic/ underlined, highlighting a text, changing case, using subscript and superscript, using different underline methods

   - Aligning of text in a document, justification of document, Inserting bullets and numbering
   - Formatting paragraph, inserting page breaks and column breaks, line spacing
   - Use of headers, footers: Inserting footnote, end note, use of comments

- Inserting date, time, special symbols, importing graphic images, drawing tools

e) Tables and Borders:
Creating a table, formatting cells, use of different border styles, shading in tables, merging of cells, partition of cells, inserting and deleting a row in a table
Print preview, zoom, page set up, printing options
Using Find, Replace options

f) Using Tools like:
Spell checker, help, use of macros, mail merge, thesaurus word content and statistics, printing envelops and lables
Using shapes and drawing toolbar,
Working with more than one window in MS Word,
Conversion between different text editors, software and MS word

4. **Spread Sheet Processing (MS Office/Open Office)**

a) Starting excel, open worksheet, enter, edit, data, formulae to calculate values, format data, create chart, printing chart, save worksheet, switching between different spread sheets

b) Menu commands:
Create, format charts, organize, manage data, solving problem by analyzing data, exchange with other applications. Programming with Excel Work Sheet, getting information while working

c) Work books:

Managing workbooks (create, open, close, save), working in work books, selecting the cells, choosing commands, data entry techniques, formula creation.

a) Editing a worksheet, copying, moving cells, pasting, inserting, deletion cells, rows, columns, find and replace text, numbers of cells, formatting worksheet

b) Creating a chart:

c) Working with chart types, changing data in chart, formatting a chart, use chart to analyze data

d) Using a list to organize data, sorting and filtering data in list

e) Analysis of data

5**. PowerPoint Presentation (MS Office/Open Office)**

a) Introduction to PowerPoint

- How to start PowerPoint
- Working environment: concept of toolbars, slide layout, templates etc.
- Opening a new/existing presentation
- Different views for viewing slides in a presentation: normal, slide sorter etc.

b) Addition, deletion and saving of slides

c) Insertion of multimedia elements

- Adding text boxes
- Adding/importing pictures
- Adding movies and sound
- Adding tables and charts etc.

- Adding organizational chart

d) Formatting slides

- Using slide master
- Text formatting
- Changing slide layout
- Changing slide colour scheme
- Changing background
- Applying design template

e) How to view the slide show?

- Viewing the presentation using slide navigator
- Slide transition
- Animation effects etc.

6. **Internet and its Applications**

a) Log-in to internet

b) Navigation for information seeking on internet

c) Browsing and downloading of information from internet

d) Sending and receiving e-mail

- Attaching a file with e-mail message
- Deleting a message

Text and Reference books

Sr. no.	**Name**	**AUTHOR(S)**	**PUBLISHER**
1	Fundamentals of Computers	R. S. Salaria	Salaria Publishing House
2	Computer Fundamentals	P.K. Sinha and P. Sinha	BPB Publication
3	Absolute Beginners Guide to Computer Basics	Miller M	Pearson Education
4	MS Office for Windows XP	Sagman S	Pearson Education

.

Sixth Semester

ORTHOPAEDICS-II

Course Code	**PTY302**
Course Title	**Orthopaedics-II**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	B.P.T
Course Objective (CO)	The students will learn the advanced principles and procedures of Orthopaedics for diagnosis and monitoring of human disease and their applications to Physiotherapy research.

UNIT-I

Fracture of Pelvis and Lower Limb: causes, clinical features, mechanism of injury, complications, conservative and surgical management of the following fractures: Fracture of pelvis, Fracture neck of femur, Fractures of trochanters, Fracture shaft of femur, Supracondylar fracture of femur, Fractures of the condyles of femur, Fracture patella, Fractures of tibial condyles, Fracture of tibia and fibula, Fracture calcaneum, Pott's fracture, Fracture of talus, Fracture of metatarsal, stress fractures, jone's fracture, Fracture of phalanges

Dislocations of Lower Limb: mechanism of injury, clinical features, complications, management of the following dislocations of lower limb: Anterior, Posterior & Central dislocation of hip, Dislocation of patella & Recurrent dislocation of patella

UNIT-II

Fracture of Spine: Mechanism of injury, clinical features, complications and management of: Common fractures of cervical, thoracic and lumber spine (Jeffersons, Hangman & Dens fracture)

Fracture of Rib Cage: Mechanism of injury, clinical features & management for Fracture Ribs, Fracture of sternum.

UNIT-III

Metabolic Bone Diseases: Rickets, Osteomalacia, Osteopenia & Osteoporosis

Poliomyelitis: Describe the pathology, microbiology, prevention, management and residual problems of polio (PRPS). Outline the treatment of residual paralysis including use of orthoses, principles of muscle transfers

UNIT-V

Deformities: clinical features, complications, medical and surgical management of the following:

Congenital Deformities: CTEV, CDH, Torticollis, Scoliosis, Flatfoot, Vertical talus, Amelia and Phocomelia, Klippel feil syndrome, Osteogenesis imperfecta, Arthrogryphosis multiplex congenital

Hand anomalies: syndactyly, polydactyly and ectrodactly, Arthrogryposis multiplex congenital (amyoplasia congenita), Cervical rib

Acquired Deformities: Acquired Torticollis, Scoliosis, Kyphosis, Lordosis, Genu varum, Genu valgum, Genu recurvatum, Coxa vara, Pes cavus, Hallux rigidus, Hallux valgus, Hammer toe

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Outline of Fracture	Adams	Churchill livingstone
2	Textbook of orthopaedics	Maheshwari	Jaypee
3	Orthopaedics and Traumatology	Natrajan	CBS Publishers & Distributers
4	Apleys Orthopaedic	Louis Solomon	CBC.
5.	Cambells Operative Orthopaedics	Tere canal	Elesvier

PHYSIOTHERAPY IN ORTHO-CONDITIONS-II

Course Code	**PTY306**
Course Title	**Physiotherapy in Ortho-conditions-II**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	B.P.T
Course Objective (CO)	To impart knowledge about Orthopaedic conditions and there management by Physiotherapy.

UNIT-I

Spine: Definition, Clinical features and management of the following conditions: Prolapsed interverbral disc (PIVD), Spinal Canal Stenosis, Spondylosis (cervical and lumbar), Spondylolisthesis, Lumbosacral strain, Sacralisation, Lumbarisation, Coccydynia, Hemivertebral

Bone & Joint Infections: Outline the etiology, clinical features, management and complications of osteomyelitis, Septic arthiritis, Tuberculosis (including spinal T.B.)

Bone Joint Tumors: Classify and outline the clinical features, management and complications of the following (benign/malignant bone and joint tumors), osteomas, osteosarcomas, osteoclastomas, Ewing's sarcoma, multiplemyeloma, Giant cell tumor

UNIT-II

Acute & Chronic Arthritis: Outline of pathology: clinical features, mechanism of deformities, management and complications of: Rheumatoid arthritis, Osteoarthritis of major joints and spine, Ankylosing spondylitis, Gout, Pseudogout

Amputations: Classify amputations, list indications for surgery, Outline pre-operative, operative and prosthetic management, Outline prevention and treatment of complications

UNIT-III

Traumatic Head Injuries: classifications, mechanism of injury, clinical features, complications, and management

Traumatic Spinal Cord Injuries: classifications, mechanism of injury, Clinical features, complications and management

UNIT-IV

Nerve Injuries: Outline the clinical features and management including reconstructive surgery of radial, median and ulnar nerve, Sciatic and lateral popliteal nerve lesions, Brachial plexus injuries including Erbs Palsy, Klumpke's paralysis

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Outline of Fracture	Adams	Churchill livingstone
2	Textbook of orthopaedics	Maheshwari	Jaypee
3	Orthopaedics and Traumatology	Natrajan	CBS Publishers & Distributers
4	Apleys Orthopaedic	Louis Solomon	CBC.
5.	Cambells Operative Orthopaedics	Tere canal	Elesvier

GENERAL MEDICINE-II

Course Code **Course Title**	**PTY310** **General Medicine –II**
Type of course	Theory
L T P **Credits**	4 0 0 4
Course prerequisite	B.P.T
Course Objective (CO)	The students will obtain the basic knowledge of core aspects of General Medicine–II including,etiology, pathogenesis, morphological changes and functional derangements as well as various causes and consequences of diseases

UNIT-I

Diseases of Digestive Systems: Hemetemesis, Pharyngitis, spasm of the Oesophagus(GERD), Gastric ulcer, Crohn's disease ulcerative collitis, Pyloric stenosis, Malabsorption, Dyspepsia, Vomiting, Diarrhoea, Duodenal ulcer

UNIT-II

Disease of Liver: Jaundice, Hepatitis, Cirrhosis of liver, Abscess of liver, Ascitis.

Diseases of Kidney: Renal Failure, Nephrotic Syndrome, Nephritis, Urinary tract infections, Urinary calculi

UNIT-III

Diseases of Skin: Acne, Boil, Carbuncles, Impetigo, Herpes, Urticaria, Psoriasis, Warts, Corn, Psoriasis, Fungal infections, Leprosy, Dermatitis, Eczema, Venereal diseases

UNIT-IV

Paediatrics*:* Clinical features and management of Respiratory, Orthopedic and Neuromuscular disorders in childhood, with special emphasis on Cerebral Palsy, Muscular Dystrophy, Spinabifida, meningomyelocele , Cystic Fibrosis, Still's Disease, common developmental milestones &developmental delay, common causes of delay, Autism

UNIT-V

Geriatrics: List diseases commonly encountered in the elderly population and their role in causing disability, Hypertension, ischemic heart disease, cerebrovascular accident, benign prostatic hyperplasia, cataracts and other causes of failing vision.

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Davidson's principles and Practices of Medicine	Edward	Churchill Livingstone.
2	Hutchinson's Clinical Methods	Swash	Bailliere Tindall
3	A Short Text book of Medicine	Krishna Rao	J.P. Bros, New Delhi
4	A Short Text book of Psychiatry	- Ahuja Niraj	J.P. Bros, New Delhi
5.	Basic Pathology, 9th edition	Kumar, Abbas & Aster. Robbins.	Saunders

PHYSIOTHERAPY IN MEDICAL CONDITIONS

Course Code	**PTY314**
Course Title	**Physiotherapy in Medical Conditions**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	BPT
Course Objective (CO)	The students will be taught about the imperative role of various modalities and exercises in relation to medical conditions.

UNIT-I

Role of Physiotherapy in wounds and local infections

Pre and post operative Physiotherapy in abdominal surgeries

Types of oedema: Traumatic, Obstructive, Paralytic, oedema due to poor muscle and laxity of fascia

UNIT-II

Ear, Nose and Throat conditions: Otitis Media, Sinusitis

Vestibular Rehabilitation: Exercise Prescription in Vertigo

Physiotherapy in management of burns

Physiotherapy in skin conditions

UNIT-III

Pregnancy

Labour training

Antenatal and post natal training

Complication of pregnancy

Abdominal and pelvic floor muscles exercise

UNIT-IV

Prolapsed Uterus

Pelvic Inflammatory Conditions

Role of Physiotherapy in the management of Stress Incontinence

Role of Physiotherapy in Hypertension

Role of Physiotherapy in Diabetes

Text and Reference Books:

S. No	Name	Author(S)	Publisher
1.	Geriatric Physical Therapy	Guccione	Elsevier
2	Principles of Geriatric Physiotherapy	Multani and Verma	Jaypee
3	Textbooks of Physiotherapy	Tidy	Elsevier
4	Physical Rehabilitation, Assessment and management;	Susan Sullivan	Davis Plus
5	Physiothempy in Obstretrics and Gynaecology	Polden	Jaypee

Ethics and Pedagogy in Physiotherapy

Course Code	**PTY318**
Course Title	**Ethics and Pedagogy in Physiotherapy**
Type of course	Theory
L T P	4 0 0
Credits	3
Course prerequisite	B.P.T
Course Objective (CO)	This part of the subject is aimed to introducing the students to the various types of Issues, Laws and Management of Physiotherapy profession regulations

UNIT-I

Introduction

History of Physiotherapy, Ethical principles related to physiotherapy, Scope of practice.

Rules of Professional Conduct:

Physiotherapy as a profession

Relationship with patients

Relationship with health care institutions

Relationship with colleagues and peers

Relationship with medical and other professional

UNIT-II

Management and Administration:

Principles of Management: Planning and organization, Staffing, Information, Communication, Coordination, Cost of services, Monitoring and evaluation.

An overview of functioning of Physiotherapy Department

Principles of hospital administration and its applications to Physiotherapy

Financial issues including budget and income generation**.**

Roles of Physiotherapist as patient manager, Consultant, Critical inquirer, Educator, Administrator, Interprofessional communication & Professional development, Competence and expertise

UNIT-III

Ethics in Teaching: Research & Clinical Practice and Concept of professionalism and Professional dress code & Concept of morality and ethics

Law: Laws and legal concepts & medico legal concepts, compensation, protection from malpractice claims, consumers protection act., liability and documentation, negligence of duty

Legal Aspects: Consumer protection act, Legal responsibility of physiotherapist for their action in professional context and understanding liability and obligations in case of medico-legal action

Confidentiality and Responsibility: Malpractice and negligence, Provision of services and advertising

UNIT-V

Health care system in India

Ethical Principles in Health care

Enforcing standards in health profession: promoting quality care

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Rules & Regulation of Indian Association of Physiotherapists.	IAP	IAP Journal
2	W.C.P.T. ethics (from their website)/APTA/APA.	APTA	APTA Journal

ORTHOPAEDICS-II LAB

Course Code	**PTY304**
Course Title	**Orthopaedics-II Lab**
Type of course	Practical
L T P	0 0 2
Credits	1
Course prerequisite	BPT
Course Objective (CO)	Orthopaedic is the branch of medical sciences. To avoid any mistake, the students must understand to learn the Fractures of upper and lower limbs and there management procedures, carefully, accurately

List of Experiments

1. Evaluation and clinical reasoning in orthopaedics
2. Examination of Lower extremity: Pelvis, Hip, Knee, Ankle & Foot
3. Examination of spine: Cervical, Thoracic, Lumbar, Sacral & coccygeal
4. Investigatory techniques like X Ray, MRI examination
5. Case presentations and Case discussions
6. Discussion on various orthopaedic treatment techniques.

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Outline of Fracture	Adams	Churchill livingstone
2	Textbook of orthopaedics	Maheshwari	Jaypee
3.	Orthopaedics and Traumatology	Natrajan	CBS Publishers & Distributers
4.	Apleys Orthopaedic	Louis Solomon	CBC
	Cambells Operative Orthopaedics	Tere canal	Elesvier

PHYSIOTHERAPY IN ORTHO CONDITIONS-II LAB

Course Code	**PTY308**
Course Title	**Physiotherapy in Ortho conditions-II Lab**
Type of course	Practical
L T P	0 0 2
Credits	1
Course prerequisite	BPT
Course Objective (CO)	To impart knowledge about Orthopaedic conditions and there management by Physiotherapy

Practical shall be conducted for all relevant topics discussed in theory in the following forms:

Physiotherapy Management in all Ortho Conditions.

1. Evaluation and clinical reasoning in orthopaedics
2. Clinical examination & various treatment techniques for correcting and preventing spine disorders, spinal injuries, bone & joint infections or its tumours
3. Discuss assessment and management for head injury cases
4. To study various investigatory procedures & treatment techniques for nerve injuries
5. Explain orthotics & post operative rehabiliation for amputee patients
6. To study various modalities & exercise protocol for preventing & correcting acute & chronic arthritis
7. Case presentations and Case discussions

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Outline of Fracture	Adams	Churchill livingstone
2	Textbook of orthopaedics	Maheshwari	Jaypee
3.	Orthopaedics and Traumatology	Natrajan	CBS Publishers & Distributers
4.	Apleys Orthopaedic	Louis Solomon	CBC.
	Cambells Operative Orthopaedics	Tere canal	Elesvier

GENERAL MEDICINE-II LAB

Course Code	**PTY312**
Course Title	**General Medicine-II Lab**
Type Course	Practical
L T P	0 0 2
Credits	1
Course Pre-requisite	NA
Course Objective (CO)	The course has been designed to provide students knowledge about General Medicine of human body , principle ethics, practices, patient and management of diseases .

Practical shall be conducted for all relevant topics discussed in theory in the following forms:

1. Clinical examination of digestive system and abdomen
2. Clinical examination and various treatment techniques for skin diseases
3. Discuss clinical evaluation & various treatment techniques for preventing geriatric problems
4. Bedside case presentations and case discussions
5. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Davidson's principles and Practices of Medicine	Edward	Churchill Livingstone.
2	Hutchinson's Clinical Methods	Swash	Bailliere Tindall
3	A Short Text book of Medicine	Krishna Rao	J.P. Bros, New Delhi
4	A Short Text book of Psychiatry	- Ahuja Niraj	J.P. Bros, New Delhi
5.	Basic Pathology, 9th edition	Kumar, Abbas & Aster. Robbins.	Saunders

PHYSIOTHERAPY IN MEDICAL CONDITIONS LAB

Course Code	**PTY316**
Course Title	**Physiotherapy in Medical Conditions Lab**
Type of course	Practical
L T P	0 0 2
Credits	1
Course prerequisite	BPT
Course Objective (CO)	The students will be able to assess and design a treatment protocol for various medical conditions.

Practical shall be conducted for all relevant topics discussed in theory in the following forms:

1. Discuss role of physiotherapy in wounds, burns & local infections
2. Explain pre & post operative physiotherapy in abdominal surgeries
3. Clinical evaluation and discuss various treatment methods for reducing all types of edema
4. To study various physiotherapy methods for antenatal & postnatal period
5. To study abdominal & pelvic floor muscles strengthening exercises
6. Explain orthotics & post operative rehabiliation for amputee patients
7. Explain vestibular Rehabiliattion in ear disorders
8. Discuss all types of exercise protocol and various modalities for pelvic inflammatory conditions
7. Explain physiotherapy role in hypertensive & diabetic patients
8. Case presentations and Case discussions

Text and reference books

S.No.	Name	Author(s)	Publisher
1.	Davidson's principles and Practices of Medicine	Edward	Churchill Livingstone
2.	Hutchinson's Clinical Methods	Swash	Bailliere Tindall
3.	A Short Text book of Medicine	Krishna Rao	Jaypee Brothers
4.	A Short Text book of Psychiatry	Ahuja Niraj	Jaypee Brothers

Seventh Semester

GENERAL SURGERY-I

Course Code	**PTY401**
Course Title	**General Surgery-I**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	BPT
Course Objective (CO)	To introduce basic principles and core concepts of General Surgery, including the diseases and Surgery in various pathological and physiological conditions.

UNIT-I

Introduction to principles of surgery and its procedure

Shock: definition, types, clinical feature, pathology & management

Haemorrhage: common sites, complication, clinical features & management

UNIT-II

Blood Transfusion: Blood group matching, indications & complications

Anaesthesia: Principles of anaesthesia, types & procedure

Wounds: wound healing, Tissue repair, Classification: Acute Wounds, Chronic wounds, Scars & their Management

Burns: Causes, Classification, Clinical features & Management

UNIT-III

Infections: manifestation, Types of infections & their Management

Hand Infections: Types & Management

Tumors and Ulcers: Types & Management

Principles of cardiopulmonary resuscitation: Cardiac massage, artificial respiration, defibrilators and their use.

UNIT-IV

General Injuries : Types & Management

General and plastic surgery: Abdominal Surgery: Types of Incisions, indications, pre operative preparation, types of incision used & post operative complications of Nephrectomy, Appendectomy**,** herniorraphy, mastectomy, thyrodectomy, colostomy,

adrenalectomy, cystectomy, hysterectomy, prostatectomy, cholecystectomy, ileostomy **Transplant Surgery:** Heart, Lung and Kidney: Indications, Physiological changes & Complications **Skin Grafting:** Indications, Types & Procedures

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Text book of General Surgery	S.Dass	Jaypee publishers
2	Davidson's principles and Practices of Medicine	Edward	Churchill Livingstone.
3	Hutchinson's Clinical Methods	Swash	Bailliere Tindall

NEUROLOGY-I

Course Code	**PTY405**
Course Title	**Neurology-I**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	BPT
Course Objective (CO)	The student should be able to analyse, assess and evaluate physiotherapeutic assessment, treatment and evaluation methods for patients with neurological disability,

UNIT-I

Assessment and evaluative procedures for the neurological patient:

Neurological assessment:
History taking
Higher mental function
Cranial nerve examination
Tone assessment
Sensory examination
Balance & Corrdination Examination

Principles of clinical diagnosis
Evaluation of autonomic nervous system

UNIT-II

Investigations: Brief introduction of various investigatory procedures- CT, MRI, evoked potentials, lumbar puncture, CSF examination, EMG, NCV, skull X-ray.

Review of the principles of the management of a neurological patient:

Handling & positioning
Management

Burn injuries and accidents: types and principles of management, including preventive care

Surgical intervention: Indications and common surgical procedure

UNIT-III

Introduction: Review normal foetal development, child birth and assessment of a neonate.
Development of a normal child: Neuromotor, physical growth, cognitive, intellectual and socially development

History taking and assessment of normal child

UNIT-IV:Congenital and acquired musculoskeletal disorders: etiogenesis, clinical manifestation and principles of management

Congenital and acquired cardio-pulmonary disorders: etiogenesis**,** clinical manifestation and principles of management

Congenital and acquired neurological conditions: etiogenesis**,** clinical manifestation and principles of management

Hereditary disorders: etiogenesis**,** clinical manifestation and principles of management

Nutritional vitamins deficiency and development disorders: etiogenesis**,** clinical manifestation and principles of management.

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Brain's Diseases of the Nervous System	Nalton	ELBS
2	Brain's Diseases of the Nervous System	Mohn & Gaectier	Churchill Livingstone
3.	Principles of Neurology	Victor	McGraw Hill International edition.
4.	Davidson's Principles and practices of medicine	Edward	Churchill Livingstone.
5.	Medicine and Neurology	Golewala.	Jaypee
6.	Nelson's textbook of paediatrics	Behrman& Vaughan	W.B. Saunders
7.	Textbook of Paediatrics	Parthsarthy	Jaypee
8.	The short textbook of paediatrics	Gupte	Jaypee
9.	Motor assessment of the developing infant	Piper & Davrah	W.B. Saunders

PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS

Course Code	**PTY409**
Course Title	**Physiotherapy in Neurological Conditions**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	BPT
Course Objective (CO)	The student should be able to analyse, assess and evaluate physiotherapeutic assessment, treatment and evaluation methods for patients with neurological disability.

UNIT-I

Basic review of Neuroanatomy & Neurophysiology of movement and function:
Physiotherapy assessment, evaluation and clinical decision making in neurological conditions

Motor Development, Milestones

Neo-natal & Primitive Reflexes

Detailed Assessment & Physiotherapy Management and Rehabilitation of the following conditions:

Cerebral Palsy

Spina Bifida & Hydrocephalus

Polyneuropathies (classification, types, pathophysiology)

Guillain barre syndrome (GBS)

Alcoholic, Diabetic or Sensory Polyneuropathy

UNIT-II

Approaches of neurological physiotherapy:
Basic outline of principles of treatment techniques & approaches used in neurophysio therapy line: N.D.T, Movement Therapy, Motor Relearning Programme, P.N.F, Roods Approach, Sensory Re-education, Facilitatory & Inhibitory Techniques

Peripheral nerve injuries:

Brachial Plexus Injuries

Neuritis, Neuralgia

Injuries of nerves of upper & lower extremities

Facial Nerve Palsy

UNIT-III

Detailed Assessment, Physiotherapy Management & Rehabilitation in following conditions:

Hemiplegia
Meningitis
Encephalitis
Parkinsonism
Multiple sclerosis
Cerebellar Ataxia
Myopathies

UNIT-IV

Physiotherapy in Psychiatric Conditions: Anxiety, hysteria, anxiety states, neurasthesis, reactive depression or obsessive compulsive neurosis

Detailed Assessment, Physiotherapy Management & Rehabilitation of following conditions:

Motor Neuron Disorder
Spinal cord lesions & infections
Syringomyelia
Transverse Myelitis
Tabes Dorsalis
Traumatic Spinal cord injuries (Tetraplegia & Paraplegia)
Head Injuries
Physiotherapy Rehabilitation in Surgeries of Nerve

Text and Reference books

S.NO.	Name	Author(s)	Publishers
1.	Textbook of Neurology for Physiotherapists	Cash	
2.	Physical Rehabilitation	Susan Sullivan	Davis plus
3.	Tetraplegia and Paraplegia	Ida Bromely	Elsevier
4.	Adult Hemiplegia	Bobath	Wiley blackwell
5.	Treatment of Cerebral Palsy and Motor Delay	Sophia Leavitt	Wiley blackwell
6.	Neurological Rehabilitation	Carr and Shepard	Elsevier
7.	Physiotherapy in Pediatrics	Roberta Sheppard	BH

PHYSIOTHERAPY IN SPORTS CONDITIONS I

Course Code	**PTY413**
Course Title	**Physiotherapy in Sports Conditions I**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	BPT
Course Objective (CO)	Students will be able to learn about various conditions of sports related injuries and conditions common in sports players

UNIT- I

Spine: PIVD, cervical whiplash injuries, facet joint syndrome, SI joint dysfunction. Head & Face: - maxilla-facial injuries, helmet compression syndrome

UNIT- II

Hip-muscle strain, piriformis syndrome, ITB syndrome, osteitis pubis, Knee- menisci, cruciate, collateral, osteochondritis, chondromalacia patella, biceps femoris tendinitis, swimmer's knee, patellofemoral pain syndrome. Leg & ankle- shin splint, achillis tendinitis, & rupture, TA bursitis, ankle sprain, plantar fasciitis, tuff toe syndrome,.

UNIT- III

Sports injuries Shoulder- instability, rotator cuff injury, bicep tendinitis and rupture, pectoralis major rupture, scapular dyskinesia, and acromio-clavicular joint injuries. Elbow: tennis elbow, golfer's elbow. Wrist and Hand: carpal tunnel syndrome, game keeper's thumb.

UNIT- IV

Sports in Special age groups: Female athletic triad, Younger athlete: Musculoskeletal problem, Management of children with chronic illness and nutrition. Older athlete- Physiological changes with aging, benefits, risks of exercise in elderly, exercise prescription guidelines for elderly.

Text and Reference books

S.NO.	Name	Author(s)	Publishers
1.	Clinical sports medicine	Peter Bunker and Karim khan	Tata McGraw hill
2.	Sports physiotherapy : applied science and practice	Marie Zulaga	Churchill Livingstone
3.	Essential of Exercise Physiology	Frank Katch, Vic Katch And William D Mcardle	Wolters Kluwer

RESEARCH METHODOLOGY & BIOSTATISTICS

Course Code	**PTY415**
Course Title	**Research Methodology & Biostatistics**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	B.P.T
Course Objective (CO)	To study the Biostatics and Research methodology by various methods and techniques. Students will learn about graphical methods, measures of central tendency, dispersion, probability , time series

UNIT-I

Research- Definition, history, objectives, scope, research methods versus methodology, morality and ethical issues in research in Physiotherapy**.**

Experimental methods- Definition and types – trial and error, controlled observational study, natural laboratory experiments and validity of results, merits of experimental methods

Sample – Sampling methods – importance, types of sampling (probability and non-probability methods) – random, purposive, stratified and convenient.

Schedules – Definition, purpose, essentials of good schedule, advantages and limitations

UNIT-II

Questionnaire – Types, problem of response, reliability and validity of questionnaire, advantages and limitations, difference between questionnaire and schedule.

Interview – Types – structured and unstructured, focused, repetitive, preparation and techniques of interview, limitations.

Observations – Types participant, non-participant, controlled, uncontrolled observations, importance and limitations**.**

Case study – Definitions sources, characteristics, evolution and scope, advantages, limitations and improvements.

UNIT-III

Introduction of Statistics: Definitions of Statistics, Importance of statistics, Advantages and Limitations, Scope of Statistics in Computer Science, Industry, Economy & Social Science.

Data Condensation and Graphical Methods: Collection of Data, Types of Data Attributes and variables, Construction of Frequency, Cumulative and relative Frequency distributions, Graphical representation of Frequency distribution: Histogram, Frequency Polygon, Frequency Curve and Cumulative Frequency curves (Ogive curves)

Measures of Central Tendency: Concept of central tendency, Arithmetic Mean, Median, Mode, Merits and Demerits

Measures of Dispersion: Concept of Dispersion

Range: Definition, Formulae and Computation for ungrouped and grouped data

UNIT-IV

Standard Deviation: Definition, Formulae and Computation for ungrouped and grouped data

Variance: Definition, Formulae and Computation for ungrouped and grouped data

Coefficient of variance: Definition, Formulae and Computation for ungrouped and grouped data

Probability: Permutation and combination, Sample space, Events and Types of events. Classical definition of probability and axioms of probability. Theorems on Probability

Correlation: Definition, Types of Correlation, Karl Pearson's coefficient of correlations for ungrouped data and problems

Regression: Definition, Regression equations and problems.

Analysis of Time Series: Definition and components of time series, Measures of trends Moving average method and least square method and problems

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Methods of Social Survey and Research	Bajpai S.R.	Kitab Ghar, Kanpur.
2	Research methods in Behavioral Sciences	Mohsin S.M	Orient publications, New Delhi.
3	Research for Physiotherapists	Hicks	Churchill Living Stone
4.	First course in Methodology of Research	Meenakshi	1. . Kalia Prakashan, Patiala.
5.	Research Methodology	Kumar R	Pearson Education, Australia
6	Fundamentals of Statistics	A.M. Gun, M.K.Gupta, B. Dasgupta	The World Press Private Limited.
7	Statistical Methods	S.P. Gupta	McGraw Hill Education.
8	Business Statistics	S. Shaha	B. S. Shah Prakashan
9	Modern Elementary Statistics	J.E. Freund	Prentice-Hall
10	Fundamentals of Applied Statistics	Gupta and Kapoor	Sultan Chand & Sons
11	Fundamentals of Statistics	S C Gupta	Himalaya *Publishing* House Pvt. Ltd
12	Methods in Biostatistics	Mahajan	Jaypee Brothers.Medical Publishers (P) Ltd.New Delhi
13	Elementary Statistics for Medical Worhers	Singh, I	Jaypee Brothers.Medical Publishers (P) Ltd.New Delhi

General Surgery –I Lab

Course Code	**PTY403**
Course Title	**General Surgery –I Lab**
Type of course	Practical
L T P	0 0 2
Credits	1
Course prerequisite	BPT
Course Objective (CO)	To introduce basic principles and core concepts of General Surgery, including the diseases and Surgery in various pathological and physiological conditions.

List of Experiments

1. Demonstration of procedure of anaesthesia
2. Dressing of wound
3. Demonstration of procedure of skin grafting
4. Clincal examination of incisions of general surgeries
5. Post-operative examination of general and transplant surgeries
6. Exercise tolerance tests
7. To study various treatment techniques for preventing & correcting hand infections
8. Physiotherapy management in wounds, burns & ulcers conditions
9. Demonstrate Cardiopulmonary resuscitation (CPR)
10. Bedside case presentations and case discussions

NEUROLOGY-I LAB

Course Code	**PTY407**
Course Title	**Neurology-I Lab**
Type of course	Practical
L T P	0 0 2
Credits	1
Course prerequisite	BPT
Course Objective (CO)	Students will be able to learn about various neurological conditions, their symptoms and assessment of these conditions by using various scales.

List of Experiments

1. Basic history taking to determine whether the brain, spinal cord or peripheral nerve is involved
2. Assessment of higher mental function such as Orientation, Memory, Attention, Speech and Language
3. Assessment of following:-

- Cranial Nerves
- Motor System
- Sensory function, Touch, Pain and Position
- Tone-Spasiticity, Rigidity and Hypotonia
- Cerebral Function
- Balance & Coordination
- Gait Abnormalities

4. Demonstrate various techniques for handling, positioning & management of a neurological patients
5. Basic history taking, Assessment & examination of child
6. To study development of normal child
7. Discuss physiotherapy management in following disorders:

- Congenital & acquired musculoskeletal disorders
- Congenital & acquired cardio-pulmonary disorders
- Congenital & Acquired neurological disorders
- Hereditary disorders
- Nutritional (Vitamins deficiency & development disorders)

8. To study post operative rehabilitation in various paediatric surgeries
9. Discuss principles, management & preventive care in burn & Accidental injuries

Text and Reference books

S.NO.	Name	Author(s)	Publishers
1.	Nelson's textbook of paediatrics	Behrman& Vaughan	W.B. Saunders
2.	Textbook of Paediatrics	Parthsarthy	Jaypee
3.	The short textbook of paediatrics	Gupte	Jaypee
4.	Motor assessment of the developing infant	Piper & Davrah	W.B. Saunders

PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS LAB

Course Code	**PTY411**
Course Title	**Physiotherapy in Neurological Conditions Lab**
Type of course	Practical
L T P	0 0 2
Credits	1
Course prerequisite	BPT
Course Objective (CO)	The student should be able to analyse, assess and evaluate physiotherapeutic assessment, treatment and evaluation methods for patients with neurological disability

CLINICAL ASSESSMENT OF NEUROLOGICAL FUNCTION

1. Includes Clinical hours on patient examination and Physiotherapy intervention under supervision on the various Neurological Conditions Includes case presentations emphasizing on differential diagnosis and clinical reasoning skills
2. Demonstration of various types of treatment techniques & approaches used in neurophysiotherapy

Text and Reference books

S.NO.	Name	Author(s)	Publishers
1.	Textbook of Neurology for Physiotherapists	Cash	
2.	Physical Rehabilitation	Susan Sullivan	Davis plus
3.	Tetraplegia and Paraplegia	Ida Bromely	Elsevier
4.	Adult Hemiplegia	Bobath	Wiley blackwell
5.	Treatment of Cerebral Palsy and Motor Delay	Sophia Leavitt	Wiley blackwell
6.	Neurological Rehabilitation	Carr and Shepard	Elsevier
7.	Physiotherapy in Pediatrics	Roberta Sheppard	BH

Eighth Semester

GENERAL SURGERY-II

Course Code	**PTY402**
Course Title	**General Surgery- II**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	BPT
Course Objective (CO)	The candidate will be able to describe the effects of surgical trauma & anaesthesia in general, clinically evaluate & describe the surgical management in various surgical conditions.

UNIT-I

Thoracic surgery: Thoracotomy: Definition, Types of Incisions with emphasis to the site of incision, muscles cut and complications.

Lung surgeries: Pnumonectomy, Lobectomy, segmentectomy: Indications, Physiological changes and Complications. Thoracoplasty, Pleurectomy, Pleurodesis and Decortication of the Lung.

UNIT-II

Cardiac surgeries: An overview of the Cardio-Pulmonary Bypass machine, Extracardiac Operations, Closed Heart surgery, Open Heart surgery. Valvotomy and Valve Replacement, Pacemaker, Coronary Angioplasty, surgery in congenital disorders

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

UNIT-III

Obstetrics & Gynaecology*:*

Menstrual cycle and its disorders, Menopause: its effects on emotions and musculoskeletal system

Pregnancy, stages of labour & its complications, indications & types of surgical procedures involved in child birth.

Gynaecological disorders: Infections and sexually transmitted disease in female parametritis, retro-uterus, prolapse of uterus, pelvic inflammatory diseases, urinary incontinence

Cancer of the female reproductive organs: Definition, Indications, pre and post operative complications of Hysterosalphyngography, Dilatation and Curettage, Laproscopy, Colposopy, Hysterectomy.

UNIT-IV

Ophthalmology*:* Common inflammations and other infections of eye, optic neuritis, Ptosis, Blindness: common causes & management, papiloedema, Refractions: testing, errors & remedies, Strabismus: types, features & corrective measures.

Ear, Nose & Throat (ENT): A brief outline of features and management of common ENT infections & lesions (sinusitis, common cold, sleep apnea, tonsillitis, otitis media, URT infection) which affect hearing, breathing, speech & their management, Outline the function of vestibular organ, its common disorders & their management. Facial palsy classification, medical and surgical management of lower motorneuron types of facial palsy.

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Text book of medicine.	Davidson	Churchill livingstone
2	Text book of internal medicine.	Harrisons	Mc Graw Hill
3	Text book of medicine.	Cecil	Elsevier
4	Text book of Prediatrcs.	Golwala	Jaypee

NEUROLOGY-II

Course Code	**PTY406**
Course Title	**Neurology II**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	BPT
Course Objective (CO)	Students will be able to learn about various neurological conditions and their symptoms.

UNIT- I

Briefly outline the Etiology, Pathogenesis, clinical features and management of the following Neurological disorders:

Disorders of the muscle & neuromuscular junction:

Classification of Myopathies
Types of Muscular Dystrophies
Floppy Muscular Dystrophy
Myasthenia Gravis

Peripheral & Cranial nerve disorders:

Peripheral nerve injuries (Seddon's & Sunderland Classification)
Peripheral Neuropathies & Plexus injuries
RSD & Causalgia
Cranial Nerve Disorders- Types of Disorders, clinical manifestation & management.

UNIT- II

Congenital, and childhood disorders:

Cerebral palsy
Hydrocephalus
Spina Bifida
Delayed Mile Stone
Birth Injuries
Down Syndrome & etc.

Nervous system aging effects and geriatric neurological disorders

UNIT- III

Psychiatry: Definition, defence mechanism, symptomatology, types & causes of mental disorders, psychosomatic disorders.

Psychatric Disorders: -

Psychosis: Schizophrenia (including paranoid), maniac depressive psychosis

Psychoneurosis: Anxiety, hysteria, anxiety states, neurasthesis, reactive depression, obsessive compulsive neurosis

Organic reaction to: toxins, trauma & infection

Senile dementia

UNIT- IV

Mental retardation: Definition, causes, manifestation & management.

Methods of Treatment in Psychiatry (A Brief Out Line)

Psychotherapy: Group therapy, Psychodrama, behaviour modification, family therapy, play therapy, CBT, REBT, psychoanalysis, hypnosis & NLP

Drug therapy

Electro convulsive therapy

Text and Reference books

S. No	Name	Authors	Publishers
1.	Brain's Diseases of the Nervous System	Nalton	ELBS.
2.	Guided to clinical neurology	Mohn and gaectier	Churchill Livingstone
3.	Principles of neurology	Victor	Mc Graw Hill
4.	Neurology and neurosurgery illustrated	Lindsay	Churchill Livingstone
5.	Medicine and Neurology	Golewala	Jaypee
6.	Neurological Rehabilitation	Darcy Umphred	Elsevier
7.	Short Practice of Surgery	Baily's and Love	CBC press

PHYSIOTHERAPY IN SURGICAL CONDITIONS

Course Code	**PTY410**
Course Title	**PHYSIOTHERAPY IN SURGICAL CONDITIONS**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	BPT
Course Objective (CO)	The candidate will be able to describe the effects of surgical trauma & anaesthesia in general, clinically evaluate & describe the surgical management in various surgical conditions.

UNIT-I

Assessment and Documentation during pre-operative and post-operative stages

UVR and other electrotherapeutics modalities for healing of wound, Local infections, ulcers, pressure sores & also prevention of hypergranulated scars, pain releif or mobilization of a specific part

Pre & post operative physiotherapy in thoracic, lung or cardiac surgeries

UNIT-II

Discuss various types of abdominal incisions

Disuss Assessment & physiotherapy management in all types of cardiac surgeries

UNIT-III

Role of physiotherapy in various gynaecological operations

Define Mastectomy, its types, procedure, physiotherapy management of lymphedema after mastectomy

Burns and its Physiotherapy treatment in burns, skin grafts, and reconstructive surgery

UNIT-IV

ENT: Assesment & physiotherapy management of the following conditions: Sinusitis, Non suppurative otitis media, chronic suppurative otitis media, otosclerosis, Labyrinthitis, Mastoidectomy, facial palsy, chronic rhinitis, chronic nasal sinusitis, laryngectomy, PharyngoLaryngectomy.

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Text book of medicine.	Davidson	Churchill livingstone
2	Text book of internal medicine.	Harrisons	Mc Graw Hill
3	Text book of medicine.	Cecil	Elsevier
4	Text book of Prediatrcs.	Golwala	Jaypee

PHYSIOTHERAPY IN SPORTS CONDITIONS- II

Course Code	**PTY414**
Course Title	**Physiotherapy in Sports Conditions-II**
Type of course	Theory
L T P	4 0 0
Credits	4
Course prerequisite	BPT
Course Objective (CO)	Students will be able to learn about various conditions of sports related injuries and conditions common in sports players

Unit I

Principle of injury prevention

Principles of training and Rehabilitation in sports injuries

Unit II

Pre Participation evaluation

Diet and nutrition

Unit III

Measurement of fitness components and sports skills. Measurement of muscular strength, Measurement of muscular endurance, Measurement of flexibility.

Unit IV

Physiological effects of exercise on body system- Muscular system, Endocrine system, Cardiorespiratory system, Nervous system.

Sports taping , Kinesiological taping**Text and Reference books**

S.NO.	Name	Author(s)	Publishers
1.	Clinical sports medicine	Peter Bunker and Karim khan	Tata McGraw hill
2.	Sports physiotherapy : applied science and practice	Marie Zulaga	Churchill Livingstone
3.	Essential of Exercise Physiology	Frank Katch, Vic Katch And William D Mcardle	Wolters Kluwer

GENERAL SURGERY-II LAB

Course Code	**PTY404**
Course Title	**General Surgery-II Lab**
Type of course	Practical
L T P	0 0 2
Credits	1
Course prerequisite	BPT
Course Objective (CO)	To introduce basic principles and core concepts of General Surgery, including the diseases and Surgery in various pathological and physiological conditions.

List of Experiments

1. Clincal examination of incisions of thoracic, lung & cardiac surgeries
2. Post-operative examination of obstetrics & gynaecological surgeries
3. Antenatal & Postnatal examination
4. Demonstration of normal as well as surgical procedures involved in child birth
5. Exercise tolerance tests
6. Demonstrate Cardiopulmonary resuscitation (CPR)
7. Pre & postoperative assessment and physiotherapy rehabilitation of various types of ENT conditions
8. Bedside case presentations and case discussions

NEUROLOGY-II LAB

Course Code	**PTY408**
Course Title	**Neurology-II Lab**
Type of course	Practical
L T P	0 0 2
Credits	1
Course prerequisite	BPT
Course Objective (CO)	Students will be able to learn about various neurological conditions, their symptoms and assessment of these conditions by using various scales.

1. Detailed Assessment, Physiotherapy Management & Rehabilitation of following conditions:

I. Disorders of the muscle & neuromuscular junction

II. Peripheral & cranial nerve disorders

III Congenital & Childhood disorders

IV All types of Psychiatric disorders

2. Assessment, Documentation, Physiotherapy rehabilitation of various age related disorders
3. Demonstration of all types of psychotherapies

PHYSIOTHERAPY IN SURGICAL CONDITIONS LAB

Course Code	**PTY412**
Course Title	**Physiotherapy in surgical conditions lab**
Type of course	Practical
L T P	0 0 2
Credits	1
Course prerequisite	BPT
Course Objective (CO)	The candidate will be able to describe the effects of surgical trauma & anaesthesia in general, clinically evaluate & describe the surgical management in various surgical conditions.

1. Includes Clinical hours on patient examination and Physiotherapy intervention under supervision on the various surgical Conditions Includes case presentations emphasizing on differential diagnosis and clinical reasoning skills
2. Demonstration of various types of physiotherapy techniques & methods used in prevention of complications after surgical procedures

Text and Reference Books

S. No	Name	Author(S)	Publisher
1.	Text book of medicine.	Davidson	Churchill livingstone
2	Text book of internal medicine.	Harrisons	Mc Graw Hill
3	Text book of medicine.	Cecil	Elsevier
4	Text book of Prediatrcs.	Golwala	Jaypee

PHYSIOTHERAPY IN SPORTS CONDITIONS-II LAB

Course Code	**PTY416**
Course Title	**Physiotherapy in Sports Conditions-II Lab**
Type of course	Practical
L T P	0 0 2
Credits	1
Course prerequisite	BPT
Course Objective (CO)	Students will be able to learn about various conditions of sports related injuries and conditions common in sports players.

List of experiments

1. Measurement of flexibility
2. measurement of endurance
3. Measurement of strength
4. Measurement of cardio respiratory endurance / aerobic capacity
5. Measurement of agility
6. Sports specific assessment of the players
7. List out the various specific injuries according to particular sports
8. To study various injuries of :-
    - Spine
    - Face
    - Upper limb
    - Lower limb
    - Spine

Text and Reference Books

S.NO.	Name	Author(s)	Publishers
1.	Clinical sports medicine	Peter Bunker and Karim khan	Tata McGraw hill
2.	Sports physiotherapy : applied science and practice	Marie Zulaga	Churchill Livingstone
3.	Essential of Exercise Physiology	Frank Katch, Vic Katch And William D Mcardle	Wolters Kluwer