

SCHEME OF EXAMINATION & SYLLABUS OF BACHELOR OF PHYSIOTHERAPY

FIRST YEAR

BPT –101 Anatomy 4 - 8
BPT –102 Physiology 4 - 8
BPT–103 Psychology & Sociology 4 - 8
BPT–104 Fundamentals of Biomechanics & Exercise Therapy 3 - 6
BPT–105 Principles of Bioelectrical Modalities 3 - 6
BPT–106 Biochemistry 1 – 2

Practicals

BPT–151 Anatomy - 4 4
BPT–152 Physiology - 4 4
BPT–153 Fundamentals of Biomechanics & Exercise Therapy - 2 2
BPT–154 Principles of Bioelectrical Modalities - 2 2

SECOND YEAR

BPT –201 Pathology & Microbiology 2 - 4
BPT –202 Pharmacology 2 - 4
BPT–203 Medicine & Paediatrics 2 - 4
BPT–204 General Surgery 2 - 4
BPT–205 Exercise Therapy 4 - 8
BPT–206 Electrotherapy 4 – 8

Practicals

BPT–251 PT-Clinicals** - 4 4
BPT–252 Exercise Therapy - 7 7
BPT–253 Electrotherapy - 7 7

THIRD YEAR

BPT –301 Neurology including Psychiatry 2 - 4
BPT –302 Orthopaedics 2 - 4
BPT–303 Obstetrics & Gynaecology 1 - 2
BPT–304 Applied Biomechanics & Kinaesiology 3 - 6
BPT–305 Physiotherapeutic in Neurology 4 - 8
BPT–306 Physiotherapeutic in Orthopaedic 4 – 8

Practicals

BPT–351 PT-Clinicals** - 4 4
BPT–352 Physiotherapeutic in Neurology - 7 7
BPT–353 Physiotherapeutic in Orthopaedic - 7 7

FOURTH YEAR

Course Code Course Name L T/P Yearly

Credits*

BPT –401 Community Rehabilitation & Disability Prevention 2 - 4
BPT –402 Research Methodology & Biostatistics 2 - 4
BPT–403 Physiotherapeutic in General & Cardio thoracic 4 - 8
BPT–404 Physiotherapeutic in Sports 4 - 8

Practicals

BPT–451 PT-Clinicals** - 8 8
BPT–452 Physiotherapeutic in General & Cardio thoracic - 6 6
BPT–453 Physiotherapeutic in Sports - 6 6
BPT–454 Project Work - 6 6

Total 12 26 50

FIRST YEAR

ANATOMY

Course Code: BPT – 101 L – 4 T/P – 0 CREDITS – 8

Course objectives:

1. Understanding of gross anatomy of various body parts.
2. Application of knowledge of anatomy to learn evaluation and application of physical therapy.
3. Major emphasis of learning is towards Musculo-skeletal, cardio-respiratory and nervous system.

Course Contents: All sections carry equal weightage

Section – A

1. General Anatomy:

- Introduction to Anatomy, terms and terminology
- Regions of Body, cavities and Systems outline.
- Surface anatomy – musculo-skeletal and cardiopulmonary
- Cell Structure and function of cell organelles (Brief outline only).
- Connective tissue & its modification, tendons, membranes, Special connective tissue.
- Bone structure, blood supply, growth, ossification, and classification.
- Muscle classification, structure and functional aspect.
- Nerve – structure, classification, microscopy with examples.
- Neurons, classification with examples. Simple reflex arc.
- Parts of a typical spinal curve/Dermatome
- Joints – classification, structures of joints, movements, range, limiting factors, stability, blood supply, nerve supply, dislocations and applied anatomy.
- Circulatory system – major arteries and veins of the body, structure of blood vessels
- Lymphoid system – circulation + function, lymphoid organs- and their structure & functions.

2. Upper extremity:

- Bony architecture
- Joints – structure, range of movement
- Muscles – origin, insertion, actions, nerve supply
- Major nerves – course, branches and implications of nerve injuries
- Development of limb bones, muscles and anomalies
- Radiographic identification of bone and joints

Section – B

3. Lower Extremity:

- Bony architecture
- Joints – structure, range of movement
- Muscles – origin, insertion, actions, nerve supply
- Major nerves – course, branches and implications of nerve injuries
- Development of limb bones, muscles and anomalies
- Radiographic identification of bone and joints

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4. Spine:

- Back muscles - Superficial layer, Deep muscles of back, their origin, insertion, action and nerve supply.
- Vertebral column – Structure & Development, Structure & Joints of vertebra
- Radiographic identification of bone and joints

Section – C

5. Thorax:

- Thoracic cage
- Pleural cavities & pleura
- Lungs and respiratory tree
- Heart and great vessels
- Diaphragm

6. Head and neck:

- Cranium
- Facial Muscles
- Central nervous system – disposition, parts and functions
- Cerebrum
- Cerebellum
- Midbrain & brain stem
- Blood supply & anatomy of strokes
- Spinal cord- anatomy, blood supply, nerve pathways
- Pyramidal, extra pyramidal system
- Thalamus, hypothalamus
- Ventricles of brain, CSF circulation
- Development of nervous system & defects (Brief Description)
- Cranial nerves – special emphasis on V, VII, X, XI, XII (course, distribution and palsies)
- Sympathetic nervous system, its parts and components (Brief Description)
- Parasympathetic nervous system (Brief Description).

7. Miscellaneous:

- a. Embryology in brief covering neuromuscular developmental aspects
- b. Endocrine - system – Pituitary, Thyroid, parathyroid (Brief Description)
- c. Special senses (Brief Description): Nerve receptors, Eye, Ear, Labyrinth
- d. Abdomen and pelvis (Brief descriptions only):

- Abdominal cavity – divisions
- Muscles of abdominal wall, pelvic floor, innervations
- Bony Pelvis
- Digestive system (Liver & pancreas, Alimentary canal)
- Urinary system – Kidney, Ureter, bladder, urethra
- Genital system – male and female

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Suggested Readings:

S.No. Author Title Publisher Year Vol.

1 Chaurasia, B D

Human Anatomy: Regional and Applied

CBS, New Delhi 2004 3V

2 Chaurasia, B D Human Osteology CBS, New Delhi 1991

3 Singh, Inderbir

Text Book of Anatomy: With Color Atlas

Jaypee, New Delhi 1999 3V

4 Singh, Inderbir Text Book of Neuroanatomy Jaypee, New Delhi 1999

5 Singh, Inderbir Text Book of Human Histology Jaypee, New Delhi 1997

6 Singh, Inderbir Text Book of Human Osteology Jaypee, New Delhi 1997

7 Garg, Krishna Text Book Histology CBS, New Delhi 1997

8 Singh, Inderbir

Multiple Choice Questions in Anatomy

Jaypee, New Delhi 1989

9 Datta, A.K.

Essentials of Human Anatomy:

Neuroanatomy

Current Book,

Calcutta

1997

10 Datta, A.K.

Essentials of Human Anatomy:

Thorax and Abdomen

Current Book,

Calcutta

1997

11 Williams, Peter L

Gray's Anatomy: Anatomical Basis of

Churchill

Livingston, New

York

1995

12 McMinn, M. H. Colour Atlas of Human Anatomy

Mosby-Wolfe,

London

1995

13 Snell, Richard S

Clinical Anatomy for Medical

Students

Little- Brown,

Boston

1995

14 Field, Derek

Anatomy: Palpation and Surface

Markings

Butterworth,

London

1997

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

FIRST YEAR

PHYSIOLOGY

Course Code: BPT – 102 L – 4 T/P – 0 CREDITS – 8

Course objectives:

- i. To understand the Physiological functions of human body
- ii. To understand the application of physiological functions & physiology of exercise in relation to physical therapy
- iii. Major area of learning is cardio-respiratory, Musculo-skeletal and nervous system.

Course Contents: All sections carry equal weightage

Section – A

1. General Physiology

- Structure of cell membrane
- Transport across cell membrane
- Functional morphology of the cell
- Intercellular communication
- Homeostasis

2. Cardiovascular System

- Dynamics of blood & lymph flow
- Anatomical, biophysical consideration of arterial, arteriolar & capillary venous level, Lymphatic circulation
- Origin and spread of cardiac excitation
- Basic idea of Electrocardiogram
- Mechanical events of Cardiac cycle, Cardiac output, its regulation
- Local & systemic regulatory mechanisms of CVS, humeral & neural
- Cerebral, coronary, splanchnic, skin, Placental & Fetal circulation

3. Respiratory System

- Physiological anatomy of lungs, mechanics of respiration
- Pulmonary circulation, Gas exchange in lungs
- Oxygen & Carbon dioxide transport
- Other function of respiratory system
- Neural & chemical control of breathing
- Regulation of respiratory activity, non-chemical influences on respiratory activity

4. Cardio respiratory adjustments in health & disease

- Exercise, high altitude, deep sea diving

- Hypoxia, hypercapnia, hypocapnia, oxygen treatment
- Asthma, emphysema, artificial respiration

Section – B

5. Blood

- W.B.C., R.B.C., Platelets formation & functions
- Plasma, Blood Groups
- Haemostasis, Immunity

6. Renal System

- Glomerular filtration rate, clearance, Tubular function
- Water excretion, concentration of urine-regulation of Na, Cl, K excretion
- Physiology of urinary bladder

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7. Nerve - Muscle and Synaptic & Junction Transmission

- Nerve – General Concept
- Nerve cell – structure
- Genesis of resting membrane potential & Action potential
- Their ionic basis, All or None phenomenon
- Ionic basis of nerve conduction
- Classification & types of nerve fibre
- Mixed nerves & compound action potential
- Concept of nerve injury & Wallerian degeneration
- Muscle properties and functions
- Electric & Mechanical responses & their basis
- Concept of isometric & isotonic muscle contraction
- Electrical events in postsynaptic neurons
- Inhibition & facilitation at synapses
- Chemical transmission of synaptic activity
- Principal neurotransmitter system
- Neuromuscular junction, structure & events occurring during excitation

Section – C

8. Digestive System

- Digestion & absorption of nutrients
- Gastrointestinal secretions & their regulation
- Liver & Exocrine Pancreas

9. Functions of Nervous system (descriptive)

- Reflexes, monosynaptic, polysynaptic, withdrawal reflex
- Properties of reflexes
- Sense organ, receptors, electrical & chemical events in receptors
- Ionic basis of excitation
- Sensory pathways for touch, temperature, pain, proprioception, others
- Control of tone & posture: Integration at spinal, brain stem, cerebellar, basal ganglion levels, along with their functions & clinical aspects
- Autonomic nervous system & Hypothalamus
- Higher functions of nervous system
- i. Learning & memory, neocortex,
- ii. Limbic functions, sexual behaviour, fear & rage, motivation

10. Miscellaneous

- i. Special senses
- ii. Endocrinology
- iii. Male & female reproductive system

Suggested Readings:

S.No. Author Title Publisher Year Vol.

1

Chatterji, C. C.
Human Physiology Medical Allied 1997 2V

2 Keele, Cyril A
Samson Wright's Applied
Physiology
Oxford University
Press

1998

3 Bijlani, R L
Understanding Medical

Physiology
Oxford University
Press
1998

4

Guyton, A.C. and
Hall, J. E.
Textbook of Medical
Physiology
W.B.Saunders,
Singapore
1998

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI
BACHELOR OF PHYSIOTHERAPY (BPT)

FIRST YEAR

PSYCHOLOGY & SOCIOLOGY

Course Code: BPT – 103 L – 4 T/P – 0 CREDITS – 8

Course Objectives:

This course will enable the student to understand specific psychological factors and effects in physical illness and this will help them to have a holistic approach in their dealings with patients during admission, treatment, rehabilitation and discharge.

Note: This course is to be taught by two teachers (Psychologist & Sociologist / Medical Sociologist). Each part carries equal weightage. External Question Paper for each part shall be set by two relevant subject paper setters. The examinees shall use different answer books for the two different parts. And, relevant subject teachers shall evaluate these.

Course Contents: All sections carry equal weightage

PSYCHOLOGY (PART – A)

Section – A

1. What is psychology? Fields of application of psychology, influence of heredity and environment on the individual
2. Learning – theories & principles learning
3. Memory, Forgetting, theories of memory and forgetting, thinking & methods to improve memory
4. Thinking – process, problem solving, decision making and creative thinking
5. Motivation - theories and types of Motivation
6. Emotions - theories of Emotions and stress
7. Attitudes – theories, attitudes and behaviour, factors in attitude change
8. Intelligence - theories of intelligence
9. Personality, theories of personality, factors influencing personality
10. Development and growth of behavior in infancy and childhood, adolescence, adulthood and old age
11. Behavior - normal and abnormal
12. Counseling - Definition, Aims and principles
13. Psychotherapy – brief introduction to paradigms in psychopathology and therapy

Section – B

14. Psychological need of children and geriatric patients
 15. Communication – effective and faulty
 16. Emotional and behavioral disorders of childhood and adolescence- (in brief)
 - a) Disorders of under and over controlled behavior
 - b) Eating disorders
 17. Mental deficiency-
 - a) Mental retardation,
 - b) Learning disabilities
 - c) Autistic behavior
 18. Anxiety Disorders -
 - a) Phobias, panic disorder,
- w.e.f. Academic Session 2006-07
- b) Generalized Anxiety disorder,
 - c) Obsessive Compulsive Disorder,
 - d) Post –traumatic Stress Disorder
19. Somatoform and Dissociate Disorders -
 - a) Conversion Disorder,
 - b) Somatization Disorder,

- c) Dissociate Amnesia & Dissociate Fugue
- 20. Personality Disorder
- 21. Patho-physiological Disorders – stress and health
- 22. Severe psychological disorders – Mood disorders, psychosis

SOCIOLOGY (PART – B)

Section – C

A-Introduction

1. Meaning-Definition and scope of Sociology
2. Its relation with Anthropology, Psychology, Social Psychology and ethics.
3. Methods of Sociology-case study, Social Survey, Questionnaire, interview and opinion poll methods.
4. Importance of its study with special reference to health care professionals.

B-Social Factors in Health and Disease:

1. The meaning of Social Factors. 2. The role of Social factors and illness.

C-Socialization:

1. Meaning and nature of Socialization.
2. Primary, Secondary, and Anticipatory Socialization.
3. Agencies of Socialization.

D. Social Groups:

1. Concepts of social groups.
2. Influence of formal and informal groups on health and sickness.
3. The roll of primary groups and secondary groups in the hospital and rehabilitation settings.

E- Family:

1. The family - Meaning and definition, Functions
2. Changing family Patterns
3. Influence of family on the individual health, family, and nutrition.
4. The effects of sickness on family and psychosomatic disease and their importance to Physiotherapy

F-Community:

1. Rural community – Meaning and features – Health hazards of rural population
2. Urban community – Meaning and features – Health hazards of urban population

Section – D

G-Culture and Health:

1. Concept of culture
2. Cultures and Behaviour
3. Cultural meaning of sickness
4. Culture and health disorders

H-Social change:

1. Meaning of social changes & Factors of social change.
2. Human adaptation and social change.
3. Social change and stress.
4. Social and deviance.
5. Social change and health Program.
6. The role of social planning in the improvement of health and in rehabilitation.

I-Social problems of disabled:

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Consequences of the following social problems in relation to sickness and Disability, remedies to prevent these problems

1. Population explosion.
2. Poverty and unemployment.
3. Beggary.
4. Juvenile delinquency.
5. Prostitution.
6. Alcoholism.
7. Problems of women in employment.

J-Social security: Social security and social legislation in relation to the Disabled.

K-Social worker: Meaning of social work; the role of a medical social worker.

Suggested Readings:

S.No. Author Title Publisher Year Vol.

1

Morgon, Clifford T

Introduction to Psychology Tata Mcg. Hill, Delhi 1999

2 Farnald, L.D. Introduction to Psychology AITBS, Delhi 1999

3 Korchin, Sheldon J.

Modern Clinical Psychology:

Principals
CBS, New Delhi 1999

4

McDavid, J.W. and
Harari, H.

Social psychology:
Individuals, Groups,
Societies

CBS, New Delhi 1999

5

Davison, G.C. and
Neale, J.M.

Abnormal Psychology Jhon Wiley, New York 1997

6 Mehta, Manju

Behavioral Sciences in
Medical Practice

Jaypee, New Delhi 1998

7

Bhusan, Vidya and
Sachdeva, D.R.

Introduction to Sociology

Kitab Mahal, New

Delhi

1999

8 Turner, J. H.

Structure of Sociological
Theory

Jaipur Publication 1995

9 Anand Kumar Indian Society and Culture Vivek, New Delhi 2000

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

FIRST YEAR

FUNDAMENTALS OF BIOMECHANICS & EXERCISE THERAPY

Course Code: BPT – 104 L – 3 T/P – 0 CREDITS – 6

Course Objectives:

This course will enable the student to understand the basic principles of biomechanics & exercise therapy, basic principles and application of soft tissue manipulation

Course Contents: All sections carry equal weightage

Section – A

All topics are for a brief description only

1. Mechanics - Definition of mechanics and Biomechanics
2. Force - Definition, diagrammatic representation, classification of forces, concurrent, coplanar and co-linear forces, composition and resolution of forces, angle of pulls of muscle
3. Momentum - principles, and practical application
4. Friction
5. Gravity - Definition, line of gravity, Centre of gravity
6. Equilibrium - Supporting base, types, and equilibrium in static and dynamic state
7. Levers - Definition, function, classification and application of levers in physiotherapy & order of levers with example of lever in human body
8. Pulleys - system of pulleys, types and application
9. Elasticity - Definition, stress, strain, HOOKE'S Law
10. Springs - properties of springs, springs in series and parallel, elastic materials in use

Section – B

11. Aims and scope of various biomechanical modalities – shoulder wheel, shoulder ladder, shoulder pulleys, pronator-supinator instrument, static cycle, rowing machine, ankle exerciser, balancing board, springs, weights
12. Normal Posture - definition & description, static and dynamic, alignments of various joints, centre of gravity, planes & muscular moments, and Analysis of posture
13. Movements - Anatomical definition and description, Movements and exercise as therapeutic modality and their effects, Physiological reaction of exercise
14. Traction - Rationale, Technique, indications & contra-indications

Section – C

15. Normal Gait - definition & description, alignments, centre of gravity during gait cycle, planes & muscle acting mechanisms, pattern, characteristics Normal gait cycle, time & distance parameters, & determinants of Gait
16. Starting positions - Description and muscle work, Importance of fundamental and derived types, Effects and uses of individual positions
17. Soft tissue manipulation - History, definition, types and their rationale, general effects, local effects of individual manipulation (physiological effects) and uses, contra-indications and techniques of application

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Suggested Readings:

S.No. Author Title Publisher Year Vol.

1

Hollis, M. and

Cook, P.F.

Practical Exercise Therapy CBS, New Delhi 1999

2 Gardiner, Dena

Principles of Exercise

Therapy

CBS, New Delhi 1999

3 Lippert, Lynn

Clinical Kinesiology for

Physical Therapy

Jaypee New Delhi 1996

4 Pagliarulo, M.A.

Introduction to Physical

Therapy

Mosby, London 2001

5 Jones,

Human Movement

Explained

Butterworth Heine 2000

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

FIRST YEAR

PRINCIPLES OF BIO-ELECTRICAL MODALITIES

Course Code: BPT – 105 L – 3 T/P – 0 CREDITS – 6

Course Objectives:

This course will enable the student to understand the basic electricity, electronics, equipments and their application in Electrotherapy.

Course Contents: All sections carry equal weightage. All topics are for a brief description only.

Section – A

Fundamentals of Electricity & Magnetism

1. DC Currents -Modern concept of electricity: fundamental electric charges (proton and electron), bound and free electrons, free electrons and current, static electric charge, charging of an object potential and capacitance, potential difference and EMF

2. A. C. currents: Sinusoidal wave form, frequency, wavelength, Amplitude and phase of a sine wave, Average & RMS value of a sine wave

3. Quantity of electricity, magnitude of current, conductors and insulators, resistance of conductor and Ohm's law, resistances in series and parallel

4. Capacitors: Electric field around a capacitor, charging and discharging a capacitor, types of capacitor with application of each in Physiotherapy department

5. Rheostat: series and shunt Rheostat with application of each in the Physiotherapy department

6. Effects of electric Current: Thermal effect, chemical effect (ionization) and magnetic effect. Electric shock, Earth shock, causes and its prevention

7. Magnetism: Magnetic - non-magnetic substances and their properties, properties of magnet, molecular theory, poles of magnet and its properties, magnetic lines of force and their properties, Electromagnetism, magnetic effects of electric current, Electromagnetic induction, Lenz's law, Inductor and Inductance types of inductor, reactance and impedance.

Section – B

1. Thermionic Valves: Thermionic emission, Diode and Triode valves and their characteristics, Construction and application of Cathode Ray Oscilloscope

2. Semiconductor Devices: Intrinsic and extrinsic semiconductors, advantages of diode and transistors devices. Basing of Diode and their characteristics, Light Emitting Diodes, integrated circuits
3. Electronic Circuits: Rectifiers & smoothing circuits, Oscillators - Sinusoidal and non-sinusoidal types
4. A.C. AND D.C. meters: Functions and applications of Ammeter and volt meters, Ohmmeters, Wheat stone bridge
5. Introduction to Therapeutic Energies – Thermal, Mechanical, Electrical, Electromagnetic and magnetic - Definition, description, physiological effects, pathological effects and dangers

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Section – C

6. Medical Instrumentation For Physical Therapy: Brief description of generation, circuit diagrams and testing
7. Low frequency currents, Direct currents, Medium frequency currents
8. Short wave Diathermy-continuous and pulsed
9. Microwave Diathermy
10. Ultrasound
11. Actino-therapy - Infrared, UVR and Lasers

Note: emphasis is given only to generation circuit diagram and testing of the various electrotherapy apparatus.

Suggested Readings:

S.No. Author Title Publisher Year Vol.

1

Froster, A. and
Palastanga, N.
Clayton's Electrotherapy:
Theory and Practice
AITBS, Delhi 1999

2

Jhon, Low and Ann,
Reed
Electrotherapy Explained:
Principles
Butterworth Heine,
Oxford
2000

3

Nelson, R.M. and
Currier, D.P.
Clinical Electrotherapy Appleton and Lange 1987

4 Chameron, M.H.
Physical Agents in
Rehabilitation
W B Saunders, London 1999

5 Michlovitz, S L
Thermal Agents in
Rehabilitation
F A Davis, Philadelphia 1996

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

FIRST YEAR

BIOCHEMISTRY

Course Code: BPT – 106 L – 1 T/P – 0 CREDITS – 2

Course Objectives:

To understand biochemical basis of life sciences

Note: A brief description of metabolic pathways mentioned herein is indicated.

Details and structures are to be avoided.

Course Contents: All sections carry equal weightage.

Section – A

1. Nutrition: Basic principles of nutrition; Carbohydrates, Proteins and Lipid caloric requirement and balance diet.
2. Carbohydrates: Definition, classification with examples and general functions. Metabolism - Glycolysis, T.C.A Glycogen metabolism, Blood Sugar regulation, Diabetes and

diabetic keto-acidosis

3. Lipids: Definition, classifications and general functions. Essential fatty acids, cholesterol, Blood lipids. Brief review of lipoproteins. Metabolism-Oxidation of fatty acids, cholesterol synthesis, and fatty liver.

4. Proteins: Definition, classification, and Bio-medical Importance.

Section – B

5. Study of hemoglobin and immunoglobulins with functions.

6. Plasma Proteins and functions. Metabolism: General reactions of amino acids. Formation and fate of ammonia - Urea cycle.

7. Tissue chemistry: Chemistry of connective tissue, bone and teeth. Composition function and chemical mediators of nerve structure of muscle tissue. General Biochemistry of muscle contraction and relaxation.

Section – C

8. Enzymes: Definition, classification with examples. Factors affecting enzyme action. Brief study of enzyme inhibition. Clinical importance of enzymes.

9. Vitamins: Definition, classification and functions. Dietary source, Daily requirement and deficiency disorders.

10. Water and Electrolyte Balance: General outline of fluid compartments of the body with their water and electrolyte content and balance, Dehydration.

Suggested Readings:

S.No. Author Title Publisher Year Vol.

1 Ahuja, Lakshmi

CBS Quick Review in

Biochemistry

CBS, New

Delhi

1999

2 Chatterji, M N

Text Book of Medical

Biochemistry

Jaypee,

Bangalore

1999

3 Deb, A.C. Fundamentals of Biochemistry

CBA,

Calcutta

1999

4 Lehninger, A.L. Principles of Biochemistry CBS, Delhi 1984

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

FIRST YEAR

ANATOMY

Course Code: BPT – 151 L – 0 T/P – 4 CREDITS – 4

PRACTICAL

Learning of surface landmarks with special emphasis on bones, joints, muscles, and nerves. The learning of anatomy is by demonstration only through dissected parts, slides, models, charts, etc.

Demonstration of dissected parts (upper extremity, lower extremity, thoracic & abdominal viscera, face and brain)

Demonstration of skeleton articulated and disarticulated.

During the training more emphasis will be given on the study of bones, muscles, joints, nerve supply of the limbs.

PRACTICAL EXAMINATION

Students will be by viva only based upon learning in theory, demonstration of bones, and joints, muscles, nerves and major viscera.

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

FIRST YEAR

PHYSIOLOGY

Course Code: BPT – 152 L – 0 T/P – 4 CREDITS – 4

PRACTICAL

1. Examination of pulse, B.P., respiratory rate, & measure study the effect of posture &

exercise.

2. Spirometry to measure various lung capacities & volumes, Respiratory rate, tidal volume, VC, timed VC, IRV, IC, ERV, EC on Spirometry (demonstration only)
3. Estimate of Haemoglobin, T.R.B.C., T.W.B.C. count (demonstration only)
4. Blood indices, Blood grouping, Bleeding & Clotting time (demonstration only)

PRACTICAL EXAMINATION

Students will be assessed by viva based upon learning in theory.

Demonstration of measurements of pulse, BP

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

FIRST YEAR

FUNDAMENTALS OF BIOMECHANICS & EXERCISE THERAPY

Course Code: BPT – 153 L – 0 T/P – 2 CREDITS – 2

PRACTICAL

Demonstration of Biomechanical principles

Study of structure, function and application of various Biomechanical modalities - shoulder wheel, shoulder ladder, shoulder pulleys, pronator-supinator instrument, static cycle, rowing machine, ankle exerciser, balancing board, springs, weights, etc.

Study of structure, function and application of suspensions,

Demonstration and practice of

- soft tissue manipulative techniques

- normal gait and posture

- starting and derived positions

- spinal mechanical traction

PRACTICAL EXAMINATION

Students will be assessed by viva based upon learning in theory, demonstrations of various biomechanical modalities, suspensions, and manipulative techniques learned.

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

FIRST YEAR

PRINCIPLES OF BIOELECTRICAL MODALITIES PRACTICAL

Course Code: BPT – 154 L – 0 T/P – 2 CREDITS – 2

PRACTICAL

Demonstration of Bioelectrical principles

Demonstration of electrotherapy instruments, principles of their functioning, usage, and safety implications for human beings

PRACTICAL EXAMINATION

Students will be assessed by viva based upon learning in theory and demonstration of various components of the equipments.

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

SECOND YEAR

PATHOLOGY & MICROBIOLOGY

Course Code: BPT – 201 L – 2 T/P – 0 CREDITS – 4

Course objectives:

Rationale for understanding of the subject for Physiotherapy students

Brief concept of pathological basis of disease and infectious disease prevention

Course Contents: All sections carry equal weightage

PATHOLOGY

Section – A

1. Inflammation, injury and repair

2. Oncology: Classification, gross pathological state, cancer pain syndrome (Brief description)

3. Skin: Etio-pathogenesis, gross pathology of commonly occurring skin Diseases, Burns, Pressure ulcers (Brief description)

4. Cardiovascular system: Etio-pathogenesis, gross pathology of conditions- aging, IHD, MI, CCF, HT, RHD, Congenital heart disease, Arteriosclerosis, Thrombo-angitis, Vasomotor-Raynaud's, venous thrombosis, Gangrene, Lymph edema

5. Haematology: (Brief description) – Etio-pathogenesis, gross pathology of conditions- anaemia, polycythaemia, leukaemia, haemolytic disease, and haemophilia

6. Respiratory system: Etio-pathogenesis, gross pathology of conditions - aging, Pneumonia, Pulmonary TB, Bronchiectasis, COPD, Bronchial Asthma, Restrictive Lung disease, Occupational lung disease

Section – B

7. Musculoskeletal system: Etio-pathogenesis, gross pathology of conditions - osteomalacia, Osteoporosis, Osteomyelitis, Osteoarthritis, rheumatoid arthritis, Gout, spondyloarthropathy, Osteonecrosis, Myofascial pain syndrome. Biological responses to trauma, bone and soft tissue immobilization

8. CNS AND PNS: Etio-pathogenesis, gross pathology of conditions - Aging, Meningitis, Encephalitis, Parkinson's, Amyotrophic lateral sclerosis, Ataxias, Multiple Sclerosis, stroke, Neuropathies (Carcoat Marie Tooth's disease, Compression and entrapments, diabetic, G.B syndrome), Poliomyelitis and post-polio syndrome, Myasthenia Gravis

MICROBIOLOGY

Section – C

9. Immunology: Brief description of immune system, immunity, immune responses & immune deficiency Immunology, Hypersensitivity disorders

10. Infectious diseases: Brief description of classification of microorganisms, identification, Sterilization and disinfections with special reference to principles of antisepsis and prevention of communicable diseases in clinical practice

11. Brief description of identification of infectious diseases; principles of prevention of infectious diseases caused by common pathogens - streptococci, staphylococci, gonococci, Meningococci, salmonella, V. cholerae, E. coli, shigella, tetanus, Diphtheria, w.e.f. Academic Session 2006-07

M. leprae, M. tuberculosis, Poliomyelitis, Rabies, Malaria, Amoebiasis, Helminthiasis, Scabies, ringworm, candidiasis

Suggested Readings:

S.No. Author Title Publisher Year Vol.

1 Chakraborty, P. Textbook of Microbiology NCB, Calcutta 1999

2

Ananth Narayan,

R.

Text Book of Microbiology

Orient Longman,

Madras

1986

3 Chatterjee, K. D.

Parasitology: Protozoology

and helminthology

Chatterjee, Calcutta 1965

4 Cotran, Ramzi S

Pathologic Basis of

Disease

W. B. Saunders,

Singapore

1999

5 Vinay Kumar Basic Pathology Harcourt 1997

6 Nagalotimath, S.J. Textbook of Pathology CBS, New Delhi 1998

7 Talib, V. H. Essential Parasitology Mehta, New Delhi 2001

w.e.f. Academic Session 2006-07

GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

SECOND YEAR

PHARMACOLOGY

Course Code: BPT – 202 L – 2 T/P – 0 CREDITS – 4

Course Objectives:

- a) To understand pharmaco-kinetics, pharmaco-dynamics.
- b) Usage of common drugs with (indications, contraindications, side effects).
- c) To understand the drug actions that may affect the physical therapy treatment.
- d) Course is not prescription oriented.

Course Contents: All sections carry equal weightage

Section – A

1. General Pharmacology (brief description only):

a) Introduction & general concepts

b) Pharmaco-kinetics (routes of administration, metabolism & elimination)

c) Pharmaco-dynamics (mechanism of drug action, therapeutic & side effects, toxicity)

2. Autonomic Nervous System:

- a) Brief outline of Sympathetic-parasympathetic nervous system
- b) Therapeutic agents-uses, effects and interaction with physical therapy

3. Central Nervous System:

- a) Anaesthetic agents- uses, side effects and interaction with physical therapy
- b) Sedatives and hypnotics - uses, side effects and interaction with physical therapy
- c) Anti epileptic drugs- uses, side effects and interaction with physical therapy
- d) Analgesics - uses, side effects and interaction with physical therapy
- e) Anti inflammatory drugs- uses, side effects and interaction with physical therapy
- f) Psychotherapeutic agents- uses, side effects and interaction with physical therapy
- g) Alcoholism and drug dependence and interaction with physical therapy
- h) Therapeutic agents used for movement disorders- uses, side effects and interaction with physical therapy

Section – B

4. Cardio-vascular System:

- a) Therapeutic agents (classification, effects on cardio-vascular system, uses & adverse reactions)
- b) Drugs used in cardiac failure, hypertension & arrhythmias and interaction with physical therapy
- c) Drug therapy in vascular disease & ischaemia and interaction with physical therapy

5. Respiratory system:

Therapeutic agents - uses, side effects and interaction with physical therapy

Section – C

6. Gastrointestinal system:

Therapeutic agents in Peptic ulcer, Diarrhoea- uses, side effects and interaction with physical therapy

7. Endocrinal hormones: Thyroid, adrenal, parathyroid hormones – uses, side effects and interaction with physical therapy

8. Diabetes mellitus:

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Drug therapy and its interaction with physical therapy

9. Geriatrics:

Pharmacological challenges in geriatric age group and its effects on physical therapy

Suggested Readings:

S.No. Author Title Publisher Year Vol.

1 Tripathi, K.D.

Essential of Medical

Pharmacology

New Delhi, 1985

2

Laurence,

D.R.

Clinical Pharmacology ELBS, London 1975

3 Eddy, Lynne

Physical Therapy

pharmacology

Mosby, London 1992

4 Barbar, F.S.K.

Essential. Of

Pharmacotherapeutics

S. Chand, New Delhi 2000

w.e.f. Academic Session 2006-07

GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

SECOND YEAR

MEDICINE & PAEDIATRICS

Course Code: BPT – 203 L – 2 T/P – 0 CREDITS – 4

Course Objectives:

- 1. To understand the subject of medicine, the medical patient & implications of medical condition in physical therapy
- 2. To understand a Paediatrics patient and its special needs in relation to physical therapy

Course Contents: All sections carry equal weightage

MEDICINE

Section – A

1. Introduction: Brief outline of subject of medicine, a medical patient, common signs & symptoms of disease
 2. Infectious Diseases: Brief description of concept of infection, types, classification & common clinical manifestation of infection and general principle of management (No specific infections)
 3. Nutritional & Metabolic Diseases: Brief description of following diseases along with outline of management: Diabetes Mellitus, Vitamins (A, B, C, D & K) and Minerals (iron, calcium phosphorus, iodine) deficiencies, and Obesity
 4. Alimentary tract: Brief description of manifestations of alimentary tract disease & general principle of diagnosis & outline of management of following diseases: Peptic ulcer disease, common infections of small & large intestine
 5. Brief description of liver diseases along with outline of management: Hepatitis, & Jaundice
 6. Diseases of the blood: Brief description of manifestations along with outline of management of common blood diseases - Anaemia, Leukaemia, Coagulopathy
 7. Diseases of connective tissues: Brief description of manifestations along with outline of management of - SLE, polymyositis
 8. Diseases of skin: Brief description of manifestations along with outline of management of common skin diseases - scabies, pediculosis, taeniasis, impetigo & psoriasis
 9. Geriatrics- physiology of ageing, manifestations of diseases in old people and general principles of management. Implications of aging in physical therapy. lung disease, Pleurisy & Pulmonary embolism
 10. First Aid in common Medical Emergencies
- Section – B
11. Cardio-vascular System: Manifestations of heart & vascular disease & general principle of diagnosis. Brief description of following diseases along with outline of management: Cardiac failure, Ischaemic heart disease, hypertension, atherosclerosis, Deep vein thrombosis
 12. Respiratory System: Manifestations of respiratory disease & general principle of diagnosis. Brief description of following diseases along with outline of management: Obstructive Pulmonary diseases (Bronchial Asthma, COPD), pulmonary infections (Pneumonia, Bronchitis, Lung abscess, Tuberculosis), Respiratory failure, occupational
- w.e.f. Academic Session 2006-07

PAEDIATRICS

Section – C

1. Normal Growth and development of child – motor, mental, language and social
2. Pathological presentations of growth and development disorders
3. Common infectious diseases in children: Brief description of following infectious diseases along with outline of management: Tetanus, diphtheria, Mycobacterial, measles, chicken pox, gastroenteritis, HIV, and Malaria
4. Immunization programmes – WHO schedule, different vaccinations, rationale; special consideration to various disease eradication programmes like Pulse-Polio
5. Child and nutrition - Nutritional requirements, malnutrition syndrome, Vitamins (A, B, C, D & K) and Minerals (iron, calcium phosphorus, iodine) deficiencies in children and management in brief
6. Clinical presentation, management & prevention of the following: - Cerebral palsy, Poliomyelitis, Muscular dystrophy
7. Childhood rheumatism-types, clinical presentation, & management in brief
8. Acute CNS infections: clinical presentation, complications and management of bacterial and tubercular infections in brief
9. Clinical presentation, management & prevention of the following respiratory conditions: URI, LRI, bronchiolitis, asthma, TB (in brief)
10. Clinical presentation, management & prevention of the following cardiac conditions: Rheumatic heart disease, SABE, Congenital heart disease - ASD, VSD, PDA (in brief)

Suggested Readings:

S.No. Author Title Publisher Year Vol.

1

Chemberlin, E.N.
and Ogilvie, C.
Symptoms and signs in
Clinical Medicine

Jhon Wright
1974

2 Swash, Michael
Hutchison's Clinical

Methods

W B Saunders, London 2000

3 Ghai, O. P. Essential Pediatrics Interprint, New Delhi 1987

4 Haslett, C.

Davidson's Principal and

Practice of Medicine

Churchill Livingstone,

London

1999

5 Golwalla, Aspi F. Medicine For Student NBD, Mumbai 2003

6 Behrman, R.

Nelson's Text Book of

Pediatrics

W B Saunders, London 2001 2V

7 Kasper, D.L

Harrison 's Principles of

Internal Medicine

Mc-Graw Hill, New York 2005 2V

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

SECOND YEAR

GENERAL SURGERY

(INCLUDES CARDIO-THORACIC, VASCULAR & NEUROSURGERY)

Course Code: BPT – 204 L – 2 T/P – 0 CREDITS – 4

Course Objectives:

- a) To understand common surgical conditions & surgical procedures.
- b) To understand implication of surgical conditions, procedures on physical therapy.

Course Contents: All sections carry equal weightage

Section – A

- 1) Introduction to Surgery, surgical patient, principles of surgical examination (Brief description)
- 2) Anesthesia: Brief description of events of General Anesthesia, potential complications & outline of management
- 3) Common types of wounds, scars, ulcers, boils – clinical feature and out line of treatment
- 4) Burns: causes, classification, complications, conservative management of patients. Management of burns & wound scars
- 5) Brief outline of nutritional support, pain relief of a surgical patient
- 6) Abdominal wall: brief surgical anatomy
 - a. Brief description of various types of abdominal incisions, external opening of abdominal viscera (colostomy) resultant potential complications and management
 - b. Brief description of causes, clinical presentation and management of various types of hernias
- 7) General principles of plastic surgery and postoperative management

Section – B

8) Cranium:

- a. Head injuries – classification, clinical features, complications & management
- b. Intra-cranial disorders – clinical features, complications & management of brain abscess, space occupying lesion, hydrocephalus, vascular malformation (brief)
- 9) Nerve injuries – causes, clinical features of Cranial (V, VII) & peripheral nerve injuries (major nerves), complications & management
- 10) Vertebral column injuries – classification, clinical features, complications & management

Section – C

- 11) Vascular Disorders: clinical features, complication & management of Arterial occlusion, dilatations, arteritis, small vessel abnormalities
 - a. Gangrene – classification, brief clinical features & management
 - b. Amputations – causes & types
 - c. Superficial & deep vein thrombosis – pathogenesis, prevention & management.
- Lymph edema – brief outline of causes, clinical features & management

12) Thorax:

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- a. Chest injuries – classification, causes, clinical features, complications & management Pulmonary resection – causes, outline of surgical management, pneumothorax, haemo - pneumothorax
- b. Heart: - brief description of various surgical heart diseases with respect to clinical presentation, complications and management - valvular heart disease, congenital heart disease –e.g., ASD, VSD, PDA, Ischaemic heart disease. Outline of postoperative complications in cardiac surgery and their management
- c. Brief description of first aid principles of cardio-pulmonary resuscitation and trauma

Suggested Readings:

S.No. Author Title Publisher Year Vol.

1

Russell,
R.C.G.

Short practice In Surgery Arnold, London 2000

2 Gupta, R. L. Text Book of Surgery Jaypee, New Delhi 1996

w.e.f. Academic Session 2006-07

GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

SECOND YEAR

EXERCISE THERAPY

Course Code: BPT – 205 L – 4 T/P – 0 CREDITS – 8

Course Objectives:

To understand the principles of exercise therapy and its application as a treatment modality

Course Contents: All sections carry equal weightage

Section – A

1. Manual Muscle Testing:

- Concept, introduction, significance and limitations.
- Grade systems
- Techniques of Muscle testing.
- Emphasis on skills to grade upper, lower limb, neck and trunk muscles including trick movements.

2. Goniometry

- Measurement of various joints range in normal and disease condition.
- Different techniques of goniometry.
- Limb length measurements

3. Passive movements:

- Definition
- Relaxed, forced and stretching type.
- Indications, contraindications, advantages and Techniques of various passive movements.

4. Active movements:

- Free, assisted and resisted
- Indication, contraindications, advantages and techniques of various types of active exercises.
- Special emphasis on: Shoulder abductors & flexors, Triceps brachii, Hip abductors & flexors, quadriceps femoris, Abdominal and back extensors.
- Clinical methods of strengthening of various muscle groups.

Section – B

5. Muscle Stretching:

- Stretching – definition, effects and uses of stretching, indications, contra indications, general techniques & group stretching techniques
- Special emphasis on stretching of: Pectoral major, biceps brachii, triceps brachii, and long flexors of fingers. Rectus femoris, Ilio-tibial band, gastrocnemius-soleus, hamstrings, hip abductors, ilio-psoas. Sternocleidomstoid

6. Relaxation:

- Description of fatigue and spasm & factors.
- General causes, signs and symptoms of fatigue
- Techniques of Relaxation- local and General with indication
- Rationale of relaxation Techniques.

7. Joint Mobility:

- Joint range, stiffness, range and limitations

- Accessory movements- glides, traction and approximation
- Mobilization of peripheral, spinal joints, techniques and grading in detail.

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8. Re-education of muscles:

- Concept, technique, spatial and temporal summation.
- Various reduction techniques and facilitating methods.
- Progressive strengthening of various muscle groups in Grade-I-Grade IV.
- Muscle strengthening technique – PNF - Principles of PNF, indications, contra indications, techniques, limb patterns

9. Co-ordination:

- Balance – static and Dynamic
- Discoordination: LMNL & UMNL, cerebellar lesion, loss of kinesthetic sense (Tabes dorsalis, leprosy, syringomyelia)
- Reeducation of balance and coordination: PNF and Frenkel's exercises.

Section – C

10. Crutch Walking:

- Description of crutch - components, classification
- Good crutch, measurements
- Crutch use- Preparation, Training, counseling.
- Crutch gaits- types, & significance.
- Crutch complications- Palsy, dependency etc.

11. Hydrostatics and Hydrodynamics:

- History
- Properties of water, Specific gravity, Hydrostatic pressure
- Archimedes principle, Buoyancy-law of floatation
- Effect of buoyancy on movements performed in water
- Equilibrium of a floating body, Bernoulli's theorem
- Physiological effects of exercise in water

12. Hydrotherapy:

- Indication, contraindication, benefits, dangers and precautions
- Hydrotherapy regimes of exercises,
- Hydrotherapy exercise for all age groups
- Types of pools and baths

13. Suspension Therapy:

- Principles of suspension & types
- Components
- Effects and uses & therapeutic application

14. Yogasanas and Pranayama:

- Physiology and therapeutic principles of yoga,
- Yogasana for physical culture, relaxation and medication.
- Application of yogasana in physical fitness, flexibility.
- Therapeutic application of yoga. Yoga a holistic approach

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Suggested Readings:

S. No. Author Title Publisher Year Vol.

1

Hollis, M. and

Cook, P.F.

Practical Exercise Therapy Blackwell, Oxford 1999

2 Gardiner, Dena M. Principles of Exercise Therapy CBS, New Delhi 1999

3 Lippert, Lynn

Clinical Kinesiology for

Physical Therapy

Jaypee, New Delhi 1996

4 Paliarulo, M. A.

Introduction to Physical

Therapy

Mosby, London 2001

5 Jones and Barker, Human Movement Explained Butter worth- Heine 2000

6 Thomson, Ann Tidy's Physiotherapy Varghese, Mumbai 1991

7

Hislop, H.J. and

Montgomery, J.

Daniels and Worthingham's
Muscle Testing: Techniques of
Manual Examination
W.B.Saunders,
Philadelphia
2002

8 Norkin Measurement of Joint Motion
9

Kisner, C. and
Kolby, L.A.
Therapeutic Exercise
Foundation and Technique
Jaypee, New Delhi 1996

10
Holey, E. and
Cook, E.
Therapeutic Massage Harcourt, Singapore 1998
11

Bates, Andrea
and Hanson, Norm
Aquatic Exercise Therapy
W.B.Saunders,
Philadelphia
1996

12 Kendal, F.P. Muscles Testing and Function Lippincott, New York 1993

13 Campion, M. R.
Hydrotherapy: principles and
Practice
Butterworth, Oxford 2000

14 Perry, Jan F Kinesiology Workbook
F A Davis,
Philadelphia
1996

15 Adler, S.S. PNF in Practice Springer, New York 2003

w.e.f. Academic Session 2006-07

GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

SECOND YEAR

ELECTROTHERAPY

Course Code: BPT – 206 L – 4 T/P – 0 CREDITS – 8

Course Objectives:

- a) To list indications and contraindications of various Modalities.
- b) To understand different techniques of applications, their justification and effects.
- c) Demonstration of individual techniques of applications of various modalities.

Course Contents: All sections carry equal weightage

Section – A

A. LOW FREQUENCY CURRENTS:

Nerve Muscle Physiology: brief outline

Faradic current:

- Indications, contraindications, Techniques, parameters, Group muscle stimulation.
- Faradic footbath, Faradism under pressure and muscle re-education.
- Dosimetry

Galvanic current:

- Indications, contraindications, precautions and therapeutic effects of stimulation.
- Techniques, parameters, Dosimetry

Electro-Diagnosis:

- S. D. Curve, Reaction of degeneration, Chronaxie & Rheobase
- Outline of EMG & Nerve conduction velocity

Iontophoresis:

- Definition and principles & factors
- Indications, effects, techniques, contraindications, precautions and Potential harmful effects.

TENS therapy:

- Principle of therapy, Parameters and therapeutic uses.

Theories of pain and pain control.

Indications and contra-indications, Dosimetry

B. MEDIUM FREQUENCY CURRENTS:

Definitions, effects, indications, techniques of application, contraindications

Interferential therapy:

Physiological, therapeutic effects & dangers, Indications & contra indications

Technique and method of applications, Dosimetry.

Section – B

C. THERMAL THERAPY MODALITIES:

1. Infrared Therapy:

Therapeutic effects and uses, Techniques of application.

Indications, contraindications precautions and Potential harmful effects.

2. Heating Modalities:

Therapeutic effects and uses, Techniques and applications

Indications, contraindications, precautions and Potential harmful effects of various heat modalities:

Paraffin wax bath therapy, Hydro collator packs, Whirlpool and moist heat Heating pads, Hot air chambers.

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3. Cold-therapy:

Indications, contraindications and therapeutic effects.

Technique, precautions and Potential harmful effects of treatment, Dosimetry

D. HIGH FREQUENCY CURRENTS:

Short wave Diathermy: Continuous & Pulsed

Indications, contraindications and therapeutic effects.

Methods of application-capacitor and induction electrode, precautions and Potential harmful effects of treatment, Dosimetry.

Microwave Diathermy:

Characteristics and therapeutic effects.

Application techniques, indications, contraindications, precautions and potential harmful effects, Dosimetry.

Section – C

E. ULTRASONIC THERAPY:

Physiological and therapeutic effects & potential harmful effects.

Indications, contraindications, methods of application and precautions, Dosimetry

F. ACTINOTHERAPY:

Laser:

Introduction, effects and potential harmful effects.

Indication, contraindications, precautions, method of application, dosimetry

Ultraviolet therapy:

Physiological and therapeutic effects- photosensitization

Indications and contraindications and Potential harmful effects.

Methods of application, Sensitizes, Filters, Dosage, wavelength, penetration, tolerance, Treatment / Application condition wise

Comparison between UVR & IR Therapy

G. Advanced electrotherapy:

Computerization of modalities

Programming of parameter.

Selection and combination of parameters.

Combined therapy-U.S.+TENS-Principles, uses, indications etc.

Principles of Bio-feed back, indications & uses.

H. Traction instruments:

Rationale, technique, indications, contraindications, precautions of electric traction equipments

Suggested Readings:

S.No. Author Title Publisher Year Vol.

1

Froster, A. and

Palastanga, N.

Clayton's Electrotherapy:

Theory and Practice

AITBS, Delhi 1999

2

Jhon, Low and Ann,

Reed
Electrotherapy Explained:
Principles
Butterworth Heine,
Oxford
2000
3

Nelson, R.M. and
Currier, D.P.
Clinical Electrotherapy Appleton and Lange 1987
4 Chameron, M.H.
Physical Agents in
Rehabilitation
W B Saunders,
London
1999

5 Michlovitz, S L
Thermal Agents in
Rehabilitation
F A Davis,
Philadelphia
1996

w.e.f. Academic Session 2006-07

**GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI
BACHELOR OF PHYSIOTHERAPY (BPT)**

SECOND YEAR

PT – CLINICALS*

Course Code: BPT – 251 L – 0 T/P – 4 CREDITS – 4

Course Objective: The student will learn - Approach to patient, collection of demographic data, art of history taking and bedside / OPD manners in relation to patient

The student will be posted in the department of Physiotherapy & he/she will do the assessment of patients visiting the department.

EXAMINATION

*There will be no university examination. The students will be awarded marks on the basis of his/her attendance & performance during clinical postings in the department of Physiotherapy.

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**GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI
BACHELOR OF PHYSIOTHERAPY (BPT)**

SECOND YEAR

EXERCISE THERAPY PRACTICAL

Course Code: BPT – 252 L – 0 T/P – 7 CREDITS – 7

PRACTICAL

Demonstration and learning of active & passive movements of Limbs and spine

Demonstration and practice of Manual Muscle testing, Goniometry

Demonstration and practice of muscle stretching techniques

Demonstration and practice of muscle strengthening techniques

Demonstration and practice of muscle reeducation techniques

Demonstration and practice of coordination exercises (Frankel's)

Demonstration and practice of relaxation techniques

Demonstration and practice of mobilization of peripheral joints

Demonstration and practice of crutch gaits

Demonstration and practice of mechanical spinal traction

Demonstration and practice of suspension techniques

PRACTICAL EXAMINATION

Students will be assessed by viva & practical demonstrations based upon learning in theory & practical classes.

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**GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI
BACHELOR OF PHYSIOTHERAPY (BPT)**

SECOND YEAR

ELECTROTHERAPY PRACTICAL

Course Code: BPT – 253 L – 0 T/P – 7 CREDITS – 7

PRACTICAL

Demonstration of Electrical Modalities functioning & Usage.
Demonstration and practice of various motor point stimulations.
Demonstration and practice of therapeutic application of different low frequency currents.
Demonstration and practice of Reaction of degeneration, SD curves plotting.
Demonstration and practice of therapeutic application of the following modalities:
Short-wave diathermy, Ultrasound, Infra red, Wax bath, Hydro collator, Electric muscle stimulator, Interferential currents, TENS, Ultraviolet, Microwave, Lasers, and Electrical Traction.

Note: All the demonstrations are done on normal persons.

PRACTICAL EXAMINATION

Students will be assessed by viva & practical demonstrations based upon learning in Theory and Practical.

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

THIRD YEAR

NEUROLOGY INCLUDING PSYCHIATRY

Course Code: BPT – 301 L – 2 T/P – 0 CREDITS – 4

Course Objectives:

- a) To understand clinical manifestations of Neurological and Psychological disorders
- b) The rationale and implications of psychological disorders on disability
- c) To understand the management of neural & psychological disorders

Course Contents: All sections carry equal weightage

Section – A (Neurology)

3. Nervous system: Disorders of Neurological functions in the light of Anatomy and Physiology (Brief description only) - Cerebrum, Cerebellum, Spinal Cord, Major Nerve Tracts, Motor System, Sensory System, Autonomic System, Reflexes, Communication & CSF

4. Clinical examination of a neurological patient

5. General manifestations of nervous system disease & principles of diagnosis & management

6. Brief Description of Headache, migraine, raised intra-cranial pressure

7. Cranial Nerves and special senses with major emphasis on V, VII, X, XI, & XII

8. Inflammatory conditions (brief description) – meningitis (bacterial, tubercular), viral encephalitis, syphilis, rabies

9. Disorders of cerebral circulation - ischaemia, haemorrhages (CVA), HT encephalopathy

10. Demyelinating diseases (brief description) - acute disseminated encephalomyelitis, multiple sclerosis

11. Extra pyramidal syndromes - Parkinson's disease, Chorea, Athetosis, Dystonia, Hemiballismus,

Spasmodic Torticollis

12. Convulsive disorders (brief description) - epilepsy (GM, PM, Psychomotor), tetany

13. Developmental and degenerative syndromes – cerebral palsy, kernicterus, hereditary ataxias, motor neuron disease, Peroneal muscular atrophy

Section – B

14. Disorders of Spinal cord and Cauda Equina- spinal cord injury, paraplegia, quadriplegia, spina-bifida, transverse myelitis, Neurogenic bladder and bowel

15. Metabolic and intoxication disorders (brief description) - Alcoholism, Drug addiction, heavy metals poisoning (lead, mercury, copper), Organo-phosphorous poisoning, electric shock, tetanus, botulism

16. Peripheral nerve disorders – traumatic/ compression or entrapment neuropathy, polyneuritis, GB syndrome, diabetic polyneuropathy and spinal radiculopathies. Special emphasis on brachial and lumbo-sacral plexuses and major nerves – radial, ulnar, median, femoral, and sciatic nerve

17. Muscle disorders – Progressive muscular dystrophy, polymyositis, myasthenia gravis, floppy infant syndrome

18. Autonomic nervous system (brief description)– clinical features of autonomic disorders, autonomic dysreflexia, autonomic nervous system and pain

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Section – C (Psychiatry)

(Brief outline only)

A) Principles of psychiatric examination

B) Modalities of psychiatric treatment

C) Psychiatric illness and physical therapy link

D) Brief description of Etio-pathogenesis, manifestations, and management of psychiatric illnesses -

- i. Anxiety neurosis
 - ii. Depression
 - iii. Obsessive compulsive neurosis
 - iv. Psychosis
 - v. Maniac-depressive psychosis
 - vi. Drug induced psychosis
 - vii. Post-traumatic stress disorder
 - viii. Psychosomatic reactions: Stress and Health, theories of Stress – Illness Link
- E) Brief description of Etio-pathogenesis, manifestations, and management of psychiatric illnesses-
- i. Organic brain syndrome
 - ii. Dementia
 - iii. Drug dependence and alcoholism
 - iv. Somatoform and Dissociate Disorders – conversion reactions, Somatization, Dissociate Amnesia, and Dissociate Fugue
 - v. Multiple Personality & Depersonalization disorder
- F) Child psychiatry: Brief descriptions of manifestations, and management of childhood disorders - attention deficit syndrome, and behavioral disorders
- G) Geriatric Psychiatry
- H) Mental deficiency- (descriptive)
- a. Mental retardation,
 - b. Learning disabilities
 - c. Autistic behavior

w.e.f. Academic Session 2006-07

Suggested Readings:

S. No. Author Title Publisher Year Vol.

1 Bannister, R.

Brain and Bannister Clinical

Neurology

Oxford university

press, oxford

2002

2 Chamberlain, E.N.

Symptoms and Signs in

Clinical Medicine

John Wright, Bristol 1974

3 Friedman, H.H.

Problem-Oriented Medical

Diagnosis

Little Browne, Boston 1979 3V

4 Swash, Michael Hutchison's Clinical Method W B Saunders, London 2000

5 Rees, Lingford

New Short Text Book Of

psychiatry

Arnold, New Delhi 1988

6 Walton, John

Brain's Disease of the

Nervous System

Oxford university

press, Delhi

1998

7 Haerer, A.F. Neurological Examination Lippincott, Philadelphia 1999

8 Ahuja, Neeraj Short Text Book Of psychiatry Jaypee, New Delhi 1999

9 Haslett, C.

Davidson's Principal and

Practice of Medicine

Churchill Living stone,

London

1999

10 Kasper, D.L

Harrison 's Principles of

Internal Medicine

Mc-Graw Hill, New

York

2005 2V

w.e.f. Academic Session 2006-07

GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

THIRD YEAR

ORTHOPAEDICS

Course Code: BPT – 302 L – 2 T/P – 0 CREDITS – 4

Course objectives:

1. To understand an orthopaedic patient, common orthopaedic conditions and procedures
2. To understand applications of physical therapy in various orthopaedic conditions
3. To understand the implications of various orthopaedic conditions, and procedures on physical therapy

Course Contents: All sections carry equal weightage

Section – A

1. Introduction to Orthopaedics: An Orthopaedic patient, history taking, clinical features, clinical examination, and investigation

2. Fracture healing (Normal & pathological)

Calcium-phosphorus metabolism - normal and pathological states

3. Congenital malformations:

Brief descriptions of following congenital conditions along with the outline of treatment:

Congenital Hip Displasia, Congenital Talipes Equinovarus / Calcaneoalgus,

Arthrogryposis Multiplex Congenita, Congenital Torticollis, Acromelia, phocomelia,

Amelia, Spina Bifida: all types, clinical presentation, sequel & management

4. Development diseases of skeleton: (Brief description only)

Osteogenesis imperfecta, heterotopic ossification, Osteochondritis, Perthes' disease

5. Neuromuscular diseases:

Volkman's Ischaemic contracture, obstetrical paralysis, and peroneal muscular atrophy

Poliomyelitis – orthopaedic aspects and treatment of deformities

6. Spinal deformities: clinical features, diagnosis & Conservative management of Scoliosis, Kyphosis, and traumatic deformities

7. Infections of Musculoskeletal system with conservative management (in brief):

a. Bacterial infections

b. Tubercular infections

c. Leprosy, Pott's paraplegia

8. Neuro-vascular Diseases (Brief Description): orthopaedic aspects and treatment of - Nerve injuries (major nerves), Plexus injuries

Section – B

9. Arthritis & Rheumatic Diseases: Clinical features, evaluation & conservative management of various categories of arthritis

i. Rheumatoid arthritis, Juvenile Ch. Arthritis, Reiter's disease

ii. Polymyalgia rheumatica,

iii. Gout,

iv. Osteoarthritis,

v. Ankylosing spondylitis,

vi. Neuropathic- joints, haemophilic arthropathy,

vii. Avascular necrosis.

10. Bony & Soft tissue injuries: Injury & repair, Clinical presentation, evaluation & general principles of rehabilitation management (Brief Description)

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11. Upper Limbs: Clinical presentation, evaluation & conservative management of rotator cuff injuries, adhesive capsulitis, bursitis, biceps tendonitis, shoulder dislocation, snapping & winged scapula, tennis and golfer elbow, olecranon bursitis, soft tissue injuries, sprains and strains, Arthritic conditions, tenosynovitis, Carpal tunnel syndrome, deformities Dupuytren's contracture, VIC, reflex sympathetic dystrophy, common fractures and dislocations

Section – C

12. Lower Limb: Clinical presentation, evaluation and conservative management of Arthritic conditions, soft tissue injuries, sprains and strains, achillis tendonitis, bursitis, plantar fasciitis, deformities, reflex sympathetic dystrophy, neuropathic Joints, common fractures and dislocations

13. Spine: clinical presentation, evaluation and conservative management of – disc prolapse, cord compression, spondylosis, Ankylosing spondylosis, Spondylyolsthesis and Spinal Fractures

14. Amputations - Justification, outline of surgical approaches, incisions, procedures, indications, contraindications, complications & management.

Suggested Readings:

S.No. Author Title Publisher Year Vol.

1

Joshi, J. and
Kotwal, P.

Essential Of Orthopedics
and Applied Physiotherapy
Elsevier, New Delhi 2004

2 Terke, Samuel L.

Orthopedics: principles
and their application

Lippencott, New York 2000 2V

3 Magee, David J.

Orthopedic and Physical
Assessment

Saunders, Philadelphia 2002

4 Maheshwari, J Essential Orthopedics

5 Solomon, Louis

Apley's Systems of
Orthopedics and Fracture

Arnold, London 2001

6

McRae, R. and

Esser, Max

Practical Fracture

Treatment

Churchill Living stone,

London

2002

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

THIRD YEAR

OBSTETRICS AND GYNECOLOGY

Course Code: BPT – 303 L – 1 T/P – 0 CREDITS – 2

Course objectives:

To understand common gynaecological conditions and procedures (in brief)

To understand implications of gynaecological conditions and procedures on
physical therapy

Course Contents:

1. Brief Anatomy and physiology of female reproductive system
2. Basic principles of clinical examination, investigation, diagnosis, prognosis of female reproductive system disorders Menstruation and its disorders
3. Physiological changes during pregnancy
4. Labour, stages of labour & delivery
5. Musculo-skeletal problems in an obstetric patient, management
6. Prenatal and post-natal care
7. Pelvic inflammatory diseases
8. Prolapse uterus, urinary incontinence, causes & management
9. Abortion and birth control
10. Tumor of the reproductive systems, management
11. Surgical consideration in obstetrics and gynecology

Suggested Readings:

S.No. Author Title Publisher Year Vol.

1 Howkins, John

Shaw's Textbook of

Gynecology

Orient-Longman, Bangalore 1971

2 Datta, D.C. Textbook of Obstetrics NCBA, Calcutta 2000

3 Mudaliar, A.L. Clinical Obstetrics

Orient-Long main,

Bangalore

1972

4

Percival,

Robert

Manual of Obstetrics ELBS, London 1973

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI
BACHELOR OF PHYSIOTHERAPY (BPT)

THIRD YEAR

APPLIED BIO-MECHANICS & KINESIOLOGY

Course Code: BPT – 304 L – 3 T/P – 0 CREDITS – 6

Course objectives:

To understand the Musculoskeletal surgical anatomy normal and pathological deviations

Course Contents: All sections carry equal weightage

Section – A

A. Joint structure and function

1. Types of joints

2. Joint functions

B. Kinesiology:

1. Origin of human movement and its significances

2. Analysis of movement – kinetics and kinematics

3. Body links and motion parts

C. General effects of injury and disease on joint functioning

Brief surgical anatomy (structural components, and alignment)

Joint range of motion, axis and plane of motion

Joint movements, mobility and stability, restrictions and limitations, end feels

Abnormal deviations in joints in disease and injury

Of the following joint complexes:

_ Shoulder joint complex

_ Elbow joint complex

Section – B

D. General effects of injury and disease on joint functioning

Brief surgical anatomy (structural components, and alignment)

Joint range of motion, axis and plane of motion

Joint movements, mobility and stability, restrictions and limitations, end feels

Abnormal deviations in joints in disease and injury

Weight distribution (lower limb joints)

Of the following joint complexes:

_ Wrist and hand complex

_ Hip joint complex

_ Knee joint complex:

_ Ankle-foot complex:

_ Vertebral column

Section – C

C. Abnormal Posture:

1. Definition and description.

2. Analysis of postures (anterior, lateral and posterior), alignment of joints in different postural deviations.

3. Abnormal postures – biomechanical analysis and effects.

4. Principles of Postural correction

D. Pathological Gait:

1. Phases of gait – biomechanical analysis.

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2. Time and distance parameters – biomechanical significance.

3. Joint motion – chains of movement

4. Effects of pain, deformity, weakness in pathological gaits

5. Management of pathological gaits.

Suggested Readings:

S. No. Author Title Publisher Year Vol.

1

Norkin, C.C. and

Levangie P.K.

Joint Structure and

Function: Comprehensive

Ara

Jaypee, New

Delhi
1998
2 Magee, David J.
Orthopedic and Physical
Assessment
Saunders,
Philadelphia
2002

3 Donatelli, R.A.
Biomechanics of the Foot
and Ankle
Davis,
Philadelphia
1996

4
Mow, Van C. and
Hayes, W.C.
Basic Orthopedic
Biomechanics
Lippincott, New
York
1997

5
Norkin, C.C. and
White, J.
Measurement of Joint Motion
Jaypee, New
Delhi
1995

6 Kapandgi, I.A. Physiology of Joints
Churchill-
Livingstone
1998 3V

7 Tritschler, Katbleen
Practical Measurement and
Assessment
Lippincott, New
York
2000

8 Leveau
Biomechanics of Human
Motion

w.e.f. Academic Session 2006-07

GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

THIRD YEAR

PHYSIOTHERAPEUTIC IN NEUROLOGY

Course Code: BPT – 305 L – 4 T/P – 0 CREDITS – 8

Course objectives:

- a) To identify various neurological dysfunction clinically
- b) To set goals and apply therapeutic skills in different neurological conditions.

Course Contents: All sections carry equal weightage

Section – A

- A) Review of basic Neuro-Anatomy and Physiology
- B) Physiotherapy evaluation of a neurological patient, electro diagnostic procedures, interpretations and prognosis in different neurological conditions
- C) Spinal cord injury: review of anatomy and physiology
 - Physiotherapy Assessment of Spinal cord injury
 - Principles of Physiotherapy at various stages of Spinal cord injury
 - Rehabilitation goals and ADL training

Section – B

D) Assessment and principles of therapeutic management of following neurological conditions:

- Stroke, meningitis, encephalitis, Parkinson's disease, Cerebral palsy, Ataxia, Brain

tumors

- Motor neuron disease, Disseminated sclerosis, transverse myelitis, tumors, polio, syringomyelia, spina bifida,
 - Neuropathies, neuromuscular junction disorders and myopathies
- E) Developmental physiotherapy programs, reeducation and retraining techniques in neurological conditions, approaches like: Bobath's, Rood's, PNF, Vojta techniques, biofeedback, Brunnstorm, Motor Relearning programming

Section – C

F) Peripheral nerve injuries, surgical resection & repair:

- Classification & types
- Functional assessment, investigation, diagnosis & prognosis
- Physiotherapeutic management

G) Traumatic brain injury:

- Types and Mechanisms of head injury
- Clinical features, potential complications
- Physiotherapy principles of immediate and postoperative therapeutic management

H) Neurosurgery: Post surgical Physical therapy in neurosurgical procedures – craniotomy, shunts, SOL resection, surgical treatment of spasticity, cervical cord decompression

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Suggested Readings:

S. No. Author Title Publisher Year Vol.

1

Hislop, H.J. and
Montgomery, J.
Daniels and
Worthingham's Muscle
Testing: Techniques of
Manual Examination
W.B.Saunders,
Philadelphia
2002

2 Bobath, Berta
Adult Hemiplegia:
Evaluation and treatment
Butterworth, Oxford 1990

3 Shepherd, R.B.
Physiotherapy in
Paediatrics
Butterworth-
Heinemann, Oxford
1995

4 Downie, P.A.
Cash's Textbook of
Neurology for
Physiotherapy
Jaypee, New Delhi 1993

5

Swaner, K.A. and
LaVigne, J.M.
Brunnstom's Movement
Therapy in Hemi
Lippincott, New York 1992

6

Burns, Y.R. and
Macdonald J.
Physiotherapy and the
Growing Child
Harcourt, Singapore 1998

7 Bromley, Ida Tetraplegia and Paraplegia
Churchill-Livingston,
London
1998

8 Voss, Dorothy
Proprioceptive

Neuromuscular Facilitation
Lippincott, New York 1989
9 Adler, S.S. PNF in Practice Springer, New York 2003
10

Carr, J.H. and
Shepherd, R.B.
Stroke Rehabilitation
Butterworth-
Heinemann, Singapore
2003
11

Carr, J.H. and
Shepherd, R.B.
Neurological Rehabilitation Butterworth, Oxford 1998
12

Kottke, F.J. and
Lehman J.F.
Handbook of Physical,
Medicine and
Rehabilitation
W B Saunders, London 1990
13

Umphred, Dracy
A

Neurological Rehabilitation Mosby, London 2001
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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI
BACHELOR OF PHYSIOTHERAPY (BPT)
THIRD YEAR

PHYSIOTHERAPEUTIC IN ORTHOPAEDIC

Course Code: BPT – 306 L – 4 T/P – 0 CREDITS – 8

Course Objectives:

- a) To identify various Musculo skeletal dysfunction clinically
- b) To set goals and apply therapeutic skills in different orthopaedic conditions.

Course Contents: All sections carry equal weightage

Section – A

1. Physiotherapy evaluation of an orthopaedic patient
2. Manipulation therapy - general assessment, indications, contra indications, brief introduction to schools of manual therapy (Maitland, Kaltenborne, Cyriax, Mulligan, Mackenzie)
3. Spinal stabilization, scoliosis correction
4. Assessment, management and treatment goals of:
 - a. Osteoarthritis,
 - b. Spondylosis, spondylolisthesis
 - c. Proplapse intervertebral disc, Lumbar cord decompression
 - d. Adhesive capsulitis, rotator cuff lesions of shoulder
 - e. Tuberculosis of the spine, bone and major joints
 - f. Avascular bony necrosis at hip joint

Section – B

5. Assessment, management and treatment goals of:
 - a. Rheumatoid arthritis
 - b. Ankylosing Spondylitis
 - c. Deformities: - Torticollis, thoracic outlet syndrome, CTEV, pes cavus, pes planus, Scoliosis, kyphosis, lordosis, coxa vara, genu valgum-varum-recurvatum
6. General principles of physiotherapy in fracture management including complications at different stages
7. General principles of physiotherapy in dislocations management including complications
8. Post fracture - assessment and PT management of: various fractures of upper limb, lower limb, vertebral column

Section – C

9. Assessment and therapeutic management of: Soft tissue injuries – Sprains, strains, ligament and cartilage tear/rupture
10. Orthopaedic surgery: General principles of assessment, physiotherapy management in surgical conditions like – osteotomy, joint replacements, ORIF, arthodesis, Illizarov's technique

11. Tendon transfers, soft tissue releases & soft tissue repair
12. Surgeries in C.P. & Polio
13. Amputation – pre & postoperative evaluation & principles of management
Pre & post prosthetic assessment & principles of management

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Suggested Readings:

S. No. Author Title Publisher Year Vol.

1 Smith, Laura K

Brunnstrom's Clinical

Kinesiology

Jaypee, New Delhi 1996

2 Buckley, John Exercise on Prescription

Butterworth-Heinemann,

Boston

1997

3 Downie, Patricia A.

Cash's Textbook of

Orthopedics and

Rheumatology

Jaypee, New Delhi 1993

4

Donatelli, R. A. and

Wooden, M.J.

Orthopedic Physical

Therapy

Churchill- Livingstone, New

York

2001

5 Tidswell, Marian

Orthopedic

Physiotherapy

Mosby, London 2001

6 Jones and Barker,

Human Movement

Explained

Butter worth- Heine 2000

7 Jacobs, Karen

Ergonomics For

Therapist

Butter worth- Heine,

Boston

1999

8 Maitland, G.D.

Maitland's Vertebral

Manipulation

Butter worth- Heine,

Oxford

2001

9

Nachemson, A.L.

and Jonsson,, E.

Neck and Back pain:

Scientific Evidence

Lippincott, New York 2000

10 Donatelli, R.A.

Physical Therapy of

Shoulder

Churchill, New York 1997

11

Walker, J.M. and

Helewa, A.

Physical Therapy in

Arthritis

W B Saunders, London 1996

12

Engstrom,B. and

Van de Ven C.

Therapy for Amputees Churchill, London 2001

13 Calliet, Rene Knee Pain and Disability Jaypee, New Delhi 1992

14 Calliet, Rene Shoulder Pain Jaypee, New Delhi 1992

15 Calliet, Rene Low Back pain syndrome Jaypee, New Delhi 1992

16 Calliet, Rene Neck and arm pain Jaypee, New Delhi 1991

17 Calliet, Rene Foot and Ankle Pain Jaypee, New Delhi 1992

18 Calliet, Rene

Soft tissue Pain and
disability

Jaypee, New Delhi 1988

w.e.f. Academic Session 2006-07

GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

THIRD YEAR

PT – CLINICALS*

Course Code: BPT – 351 L – 0 T/P – 4 CREDITS – 4

Course Objective: Approach to patient, collection of demographic data, art of history taking and bedside / OPD manners in relation to patient, general assessment of patient from therapeutic point of view, reaching to provisional diagnosis, and testing of therapeutic skill learned

The student will be posted in the department of Physiotherapy & he/she will learn the assessment, diagnosis, & physiotherapy treatment of patients visiting the department.

EXAMINATION

*There will be no university examination. The students will be awarded marks on the basis of his/her attendance & performance during clinical postings in the department of Physiotherapy, etc.

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

THIRD YEAR

PHYSIOTHERAPEUTIC IN NEUROLOGY

Course Code: BPT – 352 L – 0 T/P – 7 CREDITS – 7

PRACTICAL

Practical demonstration of basic principles of physiotherapy assessment, functional assessment and application of physical therapy in treatment of neurological conditions

PRACTICAL EXAMINATION

Students will be assessed by viva & practical demonstration of application of Physical therapy based upon learning in theory.

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

THIRD YEAR

PHYSIOTHERAPEUTIC IN ORTHOPAEDIC

Course Code: BPT – 353 L – 0 T/P – 7 CREDITS – 7

PRACTICAL

Practical demonstration of basic principles of application of physiotherapy assessment, functional assessment and application of physical therapy treatment of orthopaedic conditions

PRACTICAL EXAMINATION

Students will be assessed by viva & practical demonstration of application of Physical therapy based upon learning in theory.

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

FOURTH YEAR

COMMUNITY REHABILITATION & DISABILITY PREVENTION

Course Code: BPT – 401 L – 2 T/P – 0 CREDITS – 4

Course objectives:

- a) To understand the concept of Rehabilitation and team approach.
- b) Principles of Physiotherapy in Rehabilitation.
- c) Disability evaluation & management.

d) Application of Physiotherapy at community level.
Course Contents: All sections carry equal weightage

REHABILITATION

Section – A

1. Introduction of Rehabilitation & History
2. Epidemiology of disability (Impairment, disability, phases of disability process, etc.).
3. Principles of Rehabilitation & concept of team approach with rolls of each individual participant.
4. Organization of Rehabilitation unit.
5. Disability prevention evaluation & principles of Rehabilitation Management.
6. Role of Physiotherapy in Rehabilitation (Preventive, treatment & restoration)

Section – B

7. Brief outline of Communication disorder & its implications on Rehabilitation process.
8. Brief outline of psychosocial & vocational aspects of Rehabilitation.
9. Introduction to Occupational therapy.
10. Activities of daily living, functional assessment & training for functional independence.
11. Brief outline of basic community medicine with special reference to community based Rehabilitation, infrastructure and role of CBR
12. Assessment of disability in rural & urban setups. Health care delivery system & preventive measures with specific reference to disabling conditions. Community education programme.
13. Application of Physiotherapy skills at community level with special reference to the need at rural level.

BIO-MEDICAL ENGINEERING

Section – C

1. Introduction to surgical anatomy and various pathological deviations with respect to brace fitting (brief outline only).
2. Rationale of prescribing Prosthetic and Orthotic devices.
3. Types of Prosthetic and Orthotic devices: Spinal, Lower limb, and Upper limb.
4. Checkout, usage advice, precautions, and follow-up.
5. Walking aids and wheel chairs: prescription, usage advice, and follow-up.

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Suggested Readings:

S. No. Author Title Publisher Year Vol.

1 Park, J.E.

Text Book of Preventive and
Social Medicine

Banarsidas, Jabalpur 1987

2 Pedretti, L.W.

Occupational Therapy: Practice
skill

Harcourt-Brace, New

York

1990

3 Sunder, S. Rehabilitation Medicine Jaypee, New Delhi 1999

4 Bates, Barbara

Physical Examination and History

Taking

J.B.Lippincott,

Philedelphia

1995

5 Mackee, Pat Orthotics in Rehabilitation Jaypee, New Delhi 1998

6 W.H.O.

Disability Prevention and
rehabilitation In primary Health

Care: Guide for District Health
and Rehabilitation Managers

W.H.O 1995

7

Lusardi, M.M. and

Nielsen, C.C.

Orthotics and Prosthetics In
Rehabilitation

Butter worth- Heine,

Woburn

2000

8 Delisa, Joel A.
Rehabilitation Medicine: Principles
and Practice
J.B.Lippincott, New
York
1998

9
Braddom, Randall
L.
Physical Medicine and
Rehabilitation
W B Saunders, New
York
2000

10 Sharwan Kumar
Multidisciplinary Approach to
Rehabilitation
Butterworth-Heine,
New York
2000

11 W.H.O.
Community-Based Rehabilitation
and The Health Care Referral
Services: Guide for Programme
managers
W.H.O. 1994

12
Kottke, and
Lehmann
Handbook of Physical Medicine
and Rehabilitation
W B Saunders,
London
1990

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**GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI
BACHELOR OF PHYSIOTHERAPY (BPT)
FOURTH YEAR**

RESEARCH METHODOLOGY & BIO-STATISTICS

Course Code: BPT – 402 L – 2 T/P – 0 CREDITS – 4

Course Contents: All sections carry equal weightage

SECTION-A (BIOSTATISTICS)

1) Definition – Statistics, Biostatistics

2) Applications of Biostatistics

3) Data collection from experiments & surveys.

4) Variable – Qualitative & Quantitative, Discrete and continuous.

5) Presentation of Data: -

a) Tabular Presentation of Data – Statistical Table, Format of a Table.

b) Frequency Distribution – construction of Frequency Distribution, cumulative and relative frequency distribution, Exclusive and inclusive method of classification of Data.

c) Diagrammatic Presentation of Data: -

Bar Diagrams, Pie Diagram, Line Diagram, Pictogram, Cartogram or Statistical map.

d) Graphical representation of a Frequency distribution – Histogram, Frequency Polygon, Frequency curve, ogives or cumulative frequency curves.

6) Measures of central tendency or measures of Location – Mean, Median Mode in ungrouped & grouped series. Partition Values – Quartiles, Deciles, Percentiles in ungrouped & grouped series. Graphical Determination of Median, Mode & partition values.

7) Measures of Dispersion or Variation – Range, Mean Deviation, Standard Deviation.

8) Measures of Skewness – Pearson's and Bowley's coefficient of Skewness.

9) Probability – Random experiment, sample space, events, probability of an event, addition & multiplication laws of probability, use of permutations & combinations in calculation of probabilities, random variable, probability distribution of a random

variable, Binomial Distribution.

10) Normal Distribution & Characteristics of Normal curve.

SECTION-B (BIOSTATISTICS)

11) Correlation – Bivariate distribution, scatter diagram, coefficient of correlation, calculation & interpretation of correlation coefficient.

12) Regression – Lines of regression, calculation of Regression coefficient.

13) Sampling – Methods of Sampling.

14) Sampling Variability & significance – Sampling Distribution, Standard error, null hypothesis, alternative hypothesis, Type I & Type II errors, tests of significance, acceptance & rejection of null hypothesis, level of significance, Z test, t test (paired & unpaired), chi-square test.

15) Estimation of confidence limits & intervals.

16) Vital Statistics

1) Rates & ratios of vital events.

2) Measures of Mortality: - Crude Death Rate, Specific Death Rate, Age Specific Death Rate, Standardized Death Rates, Infant Mortality Rate.

3) Measures of Fertility: - Crude Birth Rate, General Fertility Rate, Specific Fertility Rate, Age Specific Fertility Rate, And Total Fertility Rate.

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4) Measurement of Population Growth: - Crude Rate of Natural Increase & Pearl's Vital Index, Gross Reproduction Rate, Net Reproduction Rate.

5) Measures of Morbidity: - Morbidity Incidence Rate, Morbidity Prevalence Rate.

6) Life Tables or Mortality Table.

SECTION-C (RESEARCH METHODOLOGY)

Objectives:

a) To develop skills of critical thinking and selection of research strategy.

b) To acquire skills to review literature, formulate problems, research writing and publishing.

Clinical Research for physiotherapist:

Why? How? And When?

A) Research in physiotherapy:

1. Introduction

2. Research – types, concept, definition.

3. Selection of aim and objectives.

4. Principles of methodology, analysis and report writing.

B) Concepts of Measurements:

1. Direct and indirect measurement variables.

2. Reliability and validity.

3. Application of physiotherapeutic tests and measurements.

C) Research Design:

1. Principles of designing.

2. Methods – Descriptive, Exploratory, single subject, others.

3. Design models utilized in physiotherapy.

4. Design of model for fundamental and clinical research.

D) Interpretation of experimental findings:

1. Collection and interpretation data theory.

2. Data review.

3. Interpretation of fundamental and clinical research.

Suggested Readings:

S. No. Author Title Publisher Year Vol.

1

Armstrong,

H.B.

Critical Moments in
Quantitative Research

Butter worth- Heine. ,

Oxford

2001

2

Hollis, M. and

Cook, P.F.

Practical Exercise Therapy CBS, New Delhi 1999

3

Gardiner,

Dena

Principles of Exercise
Therapy

CBS, New Delhi 1999
4 Lippert, Lynn
Clinical Kinesiology for
Physical Therapy
Jaypee New Delhi 1996

5

Pagliarulo,
M.A.
Introduction to Physical
Therapy
Mosby, London 2001

6 Jones,
Human Movement
Explained
Butterworth Heine 2000

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**GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI
BACHELOR OF PHYSIOTHERAPY (BPT)**

FOURTH YEAR

PHYSIOTHERAPEUTIC IN GENERAL & CARDIOTHORACIC

Course Code: BPT – 403 L – 4 T/P – 0 CREDITS – 8

Course Contents: All sections carry equal weightage

SECTION-A (GENERAL)

A) Principle of post surgical physical therapy management under following:

- 1 Chest physiotherapy
- 2 Abdominal wall care
- 3 Scar management
- 4 Pelvic Floor Care

B) Dermatology: Physical therapy in:

Chronic Ulcers,

Leprosy (including Neuro-muscular complications)

Other dermatological conditions: Psoriasis, Vitiligo, acne, burns and skin grafting

C) ENT: Physiotherapy management in- Maxillary Sinusitis, otitis media, rhinorrhoea

D) Obs. & Gynaecology: Principles of physical therapy management in an Obs. Gynae patient: Incontinence, Prolapse Uterus,

Pelvic Inflammatory disease,

Muscular-skeletal and other problems associated with pregnancy & labour, caesarean section.

Anti natal preparatory and post natal care

SECTION-B (CTVS)

A) Review of basic cardio-thoracic anatomy and physiology

B) Clinical examination including lung function tests in various pulmonary conditions

C) Principles of physiotherapeutic treatment in following conditions:

1. Bronchitis, asthma & bronchiectasis
2. Pulmonary embolism, tuberculosis, emphysema, pleural effusion, atelectasis, pneumothorax, haemothorax, broncho-pulmonary fistula, empyema,
3. Pulmonary rehabilitation – aims & objectives, principles, techniques including biofeedback.

SECTION-C (CTVS)

D) Clinical examination in cardiovascular conditions

E) Principles of physiotherapeutic treatment in following conditions:

1. CHF, MI, PDA, HT
2. Endocarditis, valve anomalies, congenital heart disorders, thrombosis, phlebitis, thrombosis, Thrombo angitis obliterans, varicose veins, ulcers
3. Cardio-thoracic trauma/surgery:
 - a) Principles, techniques of physical therapy management in traumatic and other surgical conditions of chest, lung, pleura, heart and mediastinum
 - b) Principles of chest physiotherapy in ICU & ICCU.

F) Physiotherapy care during bed-rest

G) Physiotherapy in cancer and AIDS (General principles of management)

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Suggested Readings:

S.

No.

Author Title Publisher Year Vol.

1 Chemeron, M.H.

Physical Agents in

Rehabilitation

W B Saunders,

London

1999

2 Polden, Margaret

Physiotherapy In Obstetrics

and Gynecology

Jaypee, New Delhi 1990

3 Downie, P.A.

Cash's Textbook Of Chest,

Heart and Vascular Disorder's

for Physiotherapists

Jaypee, New Delhi 1993

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Smith, H. and Ball,

V.

Cardiovascular Respiratory

Physiotherapy

5 Frownfelter, D.

Principal and Practice of

Cardiopulmonary

Physiotherapy

Mosby, London 1996

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Irwin, S. and

Tecklin, J.S.

Cardiopulmonary Physical

Therapy

Mosby, Philadelphia 1995

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Froelicher, V.F.

and Myers, J.N.

Exercise and the Heart

W.B.Saunders,

London

2000

8 Aua, Ruth S.

Women's Health: Text Book

for Physiotherapy

Harcourt, Singapore 1998

9 Michlovitz, S.L.

Thermal Agents in

Rehabilitation

F A Davis,

Philadelphia

1996

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

FOURTH YEAR

PHYSIOTHERAPEUTIC IN SPORTS

Course Code: BPT – 404 L – 4 T/P -0 CREDITS – 8

Course Objectives:

To acquire concepts of evaluation of sports and sports injuries

To learn concepts of sports training and physiotherapy for prevention and rehabilitation

Course Contents: All sections carry equal weightage

Section – A

A) Pre-exercise evaluation

B) Diet and nutrition

C) Measurement of fitness components and sports skills

- Measurement of muscular strength
 - Measurement of muscular endurance
 - Measurement of flexibility
 - Determination exercise endurance
- D) Physiological effects of exercise on body systems

- Muscular system
- Endocrine system
- Cardio-respiratory system
- Nervous system

Section – B

E) Sports injuries

- Spine – PIVD, Kissing spine, cervical whiplash injuries, facet joint syndrome, SI joint dysfunction
- Hip – muscle strain, piriformis syndrome, ITB syndrome, osteitis pubis
- Knee – menisci, cruciate, collateral, osteochondritis, chondromalacia patellae, biceps femoris tendonitis, swimmers knee, patello-femoral pain syndrome
- Leg & ankle – shin splint, achillis tendonitis & rupture, TA bursitis, ankle sprain, plantar fasciitis, turf toe syndrome
- Head & face – maxillo-facial injuries, helmet compression syndrome

Section – C

F) Sports injuries

- Shoulder – instability, rotator cuff injury, biceps tendonitis and rupture, pectoralis major rupture, scapular dyskinesis and acromio-clavicular joint injuries
- Elbow – tennis elbow, golfer's elbow
- Wrist and hand – carpal tunnel syndrome, gamekeeper's thumb

G) Principles of injury prevention

H) Principles of training & Rehabilitation in sports injuries

I) Sports in Special age groups:

- Female athletic triad
- Younger athlete- Musculo-skeletal problems, management, children with chronic illness and nutrition
- Older athlete- Physiological changes with aging, benefits, risks of exercise in elderly, exercise prescription guidelines for elderly

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Suggested Readings:

S.No. Author Title Publisher Year Vol.

1 Maheshwari, J Essential Orthopedics

2 Solomon, Louis

Apley's Systems of
Orthopedics and Fracture

Arnold, London 2001

3

Kolt, G.S and
Mackler S.

Physical Therapies in
Sports and Exercise

Livingston, London 2003

4

Starkey, and
Ryan,

Evaluation of Orthopedic
and Athletic

F A Davis, Philedelphia 2002

5

Mclatchie, and
Lennox

Soft Tissues: Trauma and
sports Injury

Butterworth Heine,
Oxford

1993

6 Norris, C.M.

Sports Injuries: Diagnosis
and Management

Butterworth Heine,
Oxford
2001

7 Garrick, J.G.
Sports Injuries: Diagnosis
and Management
W.B.Saunders,
Philadelphia
1999

8 Guten, Gray N. Running Injuries W.B.Saunders, London 1997

9 James E.Z.

Athletic Injuries and
Rehabilitation

10 Fu, and Stone, Sport Injuries Lippincott, New York 2001

11 Anderson, M.K.

Fundamentals of Sport

Injuries and management

Lippincott, Philadelphia 2002

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

FOURTH YEAR

PT – CLINICALS*

Course Code: BPT – 451 L – 0 T/P – 8 CREDITS – 8

Course Objective: Assessment diagnosis, goal formulation, treatment plan formulation, and execution of therapeutic skills

The student will be posted in the department of Physiotherapy & he/she will learn the assessment, diagnosis, & physiotherapy treatment of patients visiting the department.

EXAMINATION

*There will be no university examination. The students will be awarded marks on the basis of his/her attendance & performance during clinical postings in the department of Physiotherapy, etc.

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

FOURTH YEAR

PHYSIOTHERAPEUTIC IN GENERAL & CARDIOTHORACIC

Course Code: BPT – 452 L – 0 T/P – 6 CREDITS – 6

PRACTICAL

Practical demonstration of basic principles of application of physiotherapy assessment, functional assessment and application of physical therapy of general & cardio thoracic conditions

PRACTICAL EXAMINATION

Students will be assessed by viva & practical demonstration of application of Physical therapy based upon learning in theory.

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

FOURTH YEAR

PHYSIOTHERAPEUTIC IN SPORTS

Course Code: BPT – 453 L – 0 T/P – 6 CREDITS – 6

PRACTICAL

Practical demonstration of basic principles of physiotherapy assessment, functional assessment and application of sports physiotherapy

PRACTICAL EXAMINATION

Students will be assessed by viva based upon learning in theory.

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY, DELHI

BACHELOR OF PHYSIOTHERAPY (BPT)

FOURTH YEAR

PROJECT WORK*

Course Code: BPT – 454 L – 0 T/P – 6 CREDITS – 6

Course objective:

The student will be doing specific case studies allotted by their teacher/guide. Subject is for Case Presentations and evaluations.

Minimum 5- 10 cases are to be documented for discussion.

EXAMINATION

*There will be no university examination. Students will be assessed on the basis of Viva on his/her project work and the awards so secured by them will be sent to University.

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INTERNSHIP GUIDELINES (AMENDED)

_ Candidates seeking entry to the internship period must have passed all examinations in all subjects (i.e. He/She must have secured total credits of the Programme).

_ Duration: 6 months inclusive of posting in rural setup/CBR/similar setup.

_ During the internship candidate shall have to work full time average 7 hours per day (each working day) for 6 Calendar months (total Credit hours – 1260).

_ Each candidate is allowed maximum of 6 holidays during entire Internship Programme and in case of any exigencies during which the candidate remains absent for a period more than 6 days, he/she will have to work for the extra days during which the candidate has remained absent.

_ Assessment: The interns/candidate shall maintain the record of work, which will be verified and certified by the Head of the Department under whom he/she works. Apart from scrutiny of the record of work, the Head of the Department shall undertake assessment and evaluation of training in attendance, discipline, knowledge, skills and attitude for the duration of training. The assessment report of the candidate shall be sent to the Parent institution.

_ Based on the record of work and date of evaluation the Director/Principal shall issue 'Certificate of Satisfactory Completion' of training following which the University shall award the Bachelor of Physiotherapy Degree or declare the candidate eligible for the same.

_ In the event of unsatisfactory report, the said intern shall have to repeat the internship for the period to be decided by the Head of the Institution concerned.

_ Intern will abide by all the rules & regulations of Institution/Hospital where they are posted.

_ Intern shall be responsible for proper use of equipments of the Institute/Hospital where they are posted. He/She shall be liable to pay for damages caused to the equipments resulting from improper use by him/her.

_ Internship duration can be extended by the Principal / Director on the grounds:

i. Remaining absent in excess of the permitted 6 days leave period, which is due: An intern will compensate by working extra for each day leave taken.

ii. Unsatisfactory performance during the period: If there are unsatisfactory reports in terms of performance of the intern, submitted by the Department In-charge, the said intern shall have to repeat the internship for a period at least two months further.

iii. Case of indiscipline at any level: A Discipline and Action Committee will be formed in the college / Institution convened by Internship coordinator/HOD PT & headed by Director/Principal. In case of any lack of discipline, breach of trust or indulgence in any criminal activity on the part of the interns when reported by the concerned departments of Hospitals/Institutions where the interns have been posted, the defaulting Intern shall be called back immediately and subjected to disciplinary proceedings by the Disciplinary Action Committee.

iv. Punishments:

a. Suspension of Internship for a period of 3-4 weeks for the reasons to be recorded. Following this disciplinary suspension, internship can be resumed only after submission of an appropriate undertaking/guarantee/surety. Period of suspension shall be considered as Break in Internship. Disciplinary Action Committee shall decide the period of suspension and resumption of Internship for a specified period.

b. Rustication & Termination: In case of a serious complaint of indiscipline or breach of trust against intern or any criminal activity done by intern according to the law of the country, he/she may be rusticated along with termination of Internship.

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Hon'ble Court of Law can resume the Internship in this case only on the abrogation of criminal charges against him.

_ Institution shall have to satisfy themselves that satisfactory infrastructure facilities of Physiotherapy exist in the Institute / Hospital where the internship training has to be undertaken. Following parameters / guidelines have been suggested:

a. It is mandatory for the Institution conducting BPT Programme to have its own Physiotherapy clinic fully furnished with all the necessary equipments as per the curriculum of the Programme.

b. The Institutes & the Hospitals should have the Physiotherapy section with all the necessary infrastructure facilities.

c. Senior Physiotherapist with sufficient clinical experience should manage the physiotherapy departments in the Institutes/Hospitals.

d. Institute Director / principal can at his discretion grant NOC to the students to do the Internship at the place of his choice provided, the concerned Hospital fully satisfies the above criteria. For the purpose of granting NOC the candidate shall have to submit to the Institution the status of Physiotherapy Services available at the place where he intend to do his Internship.

Evaluation of Students under Practical/Internship

S. No. Description

Satisfactory/

Unsatisfactory

1. Attendance
2. Discipline and general behaviour in the Department
3. Approach to patients
4. Inquisitiveness regarding the subject
5. Knowledge about evaluation of conditions
6. Knowledge about various therapeutic modalities
- 7.

Knowledge about actual application of therapeutic skills