Where talent meets opportunity

SRI SATYA SAI UNIVERSITY
OF TECHNOLOGY AND MEDICAL SCIENCES

SYLLABUS REVISION

Name of School-Schoolof Paramedical

Department/Program-PARAMEDICAL/BPT

2017-18 TO 2021-22

www.sssutms.co.in

Opp.Oilfed Plant, Bhopal-Indore Road,Sehore (M.P), Pin - 466001

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SRI SATYA SAI
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STUDIES

Minutes of the Board of Studies Committee Meeting

Name of Department :- School of Paramedical Studies

Minutes of Board of Studies Committee Meeting Dated 27/12/2018

The Board of Studies Committee Meeting was held in the room of HOD in school of Paramedical studies at 11.00 AM on 27/12/2018(Date), Following members were present.

1.DR.RAKESH SINGH (SUBJECT EXPERT)

2.DR.VARUN BELLAY (SUBJECT EXPERT)

3.DR. SUNIL MAINI (CHAIRMAN)

4.DR.SUBUHEE KAMAL(MEMBER)

5.RAIESH SOLANKI (MEMBER)

The Chairman of Board of Studies Committee welcomes and appreciated the efforts put up by the faculty for progress of the departmental activities. The following Agenda points were discussed and resolved.

Agenda :- Scheme and syllabus for academic session 2018-2019 of following paramedical course:

(1) BACHELOR OF PHYSIOTHERAPY

Discussion : All the members discuss the scheme and syllabus of the above listed paramedical course in detail. All members agreed to conduct the courses as per discuss and approved.

Resolution of the Discussion : At the end ,minutes of meeting and copy of scheme and syllabus is forwarded to the Academic council for approval.

The Chairman thanks the members for peaceful conduction of meeting.

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Signature of All members (Including chairman):

1.DR.RAKESH SINGH (SUBJECT EXPERT)

2.DR.VARUN BELLAY (SUBJECT EXPERT)

3.DR. SUNIL MAINI (CHAIRMAN)

4.DR.SUBUHEE KAMAL(MEMBER)

5.RAJESH SOLANKI (MEMBER)

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Sri Satya Sai University of Technology & Medical Sciences Sehore (M.P.)

Sri SatyaSai University of Technology and Medical Sciences, Sehore
SCHOOL OF PARAMEDICAL STUDIES
Outcome Based Curriculum
Programme : Bachelor of Physiotherapy

VISION :

To create innovative educational programs and acknowledge the students with all the specialization in Physiotherapy as well as cultivating leadership, integrity, and the preparation of highly competent Physiotherapists prepare for general practice.

MISSION :

To graduate clinical as well as competent Physiotherapists who are highly valued professionals who practice autonomously in a highly diverse community. Graduates will provide care in consideration of scientific evidence and will assume social responsibilities in community.

PROGRAMME EDUCATIONAL OBJECTIVES :

PEO 1. : To create a competent physiotherapist who will understand and practice professional principles of physiotherapy in private practice, hospitals, government and non-government organizations, academia, research institutes and entrepreneurial pursuit.

PEO 2. : Sustain continued professional development through lifelong learning activities and work for development of field.

PEO 3. : An ability to function professionally with ethical responsibility as an individual as well as in multidisciplinary team with positive attitude.

PROGRAM OUTCOMES :

PO1. Physiotherapy knowledge : Apply the knowledge of Anatomy, physiology and kinesiology in professional Physiotherapy Practice and select various exercise therapies and Electrotherapeutic techniques for prevention and cure of various conditions.

PO2. Problem analysis : An ability to assess, critically analyze and manage patients with various diseases and disorders in the field of Physiotherapy and Rehabilitation sciences.

PO3. Design/development of Treatment Protocol : Design and implement treatment protocol for various disease and disorders according to the need of the patients with appropriate consideration of functional and environmental needs.

PO4. Use of Modern Technology/ Recent Advances : Apply scientific research and other forms of best evidences in the practice of physiotherapy.

PO5. Community Needs/ Services : An ability to address prevention ,wellness and health promotion needs of individuals, groups and communities.

PO6. Ethics : Practice in an ethical and legal manner.

PO7. Individual and team work : Function effectively as an individual as a member or leader in diverse teams, and in multidisciplinary settings.

PO8. Communication : Communicate effectively on different diseases and disorders treated by physiotherapists, being able to comprehend and write effective reports and design documentation, make effective presentations, give and receive clear instructions to the Patients.

PO9. Case studies and clinical Trial : An ability to design and conduct clinical trial, analyze data and provide well informed conclusions on a given study.

PO10. Life-long learning : Sustain lifelong learning activities and work for the development of professional as well as personal growth.

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PO11. Professional Physiotherapists : Able to work professionally in the field of physiotherapy and maintain good intrapersonal and interpersonal skills.

PO12. Contemporary Issues : Able to work on contemporary issues related to the field of physiotherapy.

PROGRAMME SPECIFIC OUTCOMES (PSO) :

PSO 1 :Students will be able to know about the physiotherapy concepts and skills related to basic medical knowledge , therapeutic modalities , electrotherapy and special techniques.

PSO 2:Develop physiotherapy skills in diagnosing different conditions by assessing needs , developing plans ,implementing physiotherapy programs and follow up evaluation.

EMPLOYABILITY-PINK

ENTERPRENEURSHIP-BRIGHT GREEN

SKILL DEVELOPMENT-TURQUOISE

POs AND PSOs MAPPING :

YEAR	Name of the Courses	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2
		Physiotherapy knowledge	Problem analysis	Investigation, diagnosis of treatment protocol	Use of current technology / recent advances	Community Physiotherapy	Ethics	Individual and team work	Communication	Care giver and clinical trial	Lifelong learning	Evaluation of physiotherapy	Contemporary issues		
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School of Paramedical Studies
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Sri SatyaSai University of Technology and Medical Sciences, Sehore

SCHOOL OF PARAMEDICAL STUDIES

Outcome Based Curriculum

Programme : Bachelor of Physiotherapy

Prepared by Sri SatyaSai University of Technology and Medical Sciences,Sehore in consultation with the Registrar MP Paramedical council, Bhopal (MP)

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New Scheme of Paramedical Studies

Ist Year

BPT

Code	Title of Papers	Internal Assessment		University Examination			
		Theory	Practical	Theory	Viva	Practical	Total
BPT-101T	Human Anatomy	20	20	100	20	40	200
BPT-102T	Human Physiology	20	20	100	20	40	200
BPT-103T	Bioelectrical Modalities	20	-	80	-	-	100
BPT- 104T	Biomechanical Modalities	20	-	80	-	-	100
BPT-105 T	Psychology and Sociology	20	-	80	-	-	100
TOTAL							700

Note

Passing mark in all subject candidate must obtain 50% in aggregate with minimum of 50% in Theory, including viva and minimum 50% in practical.

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SYLLABUS FOR BACHELOR OF PHYSIOTHERAPY

BPT-1ST YEAR (4 YEAR PROGRAMME)

PAPERE-1

HUMAN ANATOMY
BPT (101)

Total No. of Teaching Hours: - 200 **Theory -140 Hrs.Practical / Laboratory-60hrs**

COURSE OBJECTIVE:

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 Muscular-skeletal , cardio-respiratory and nervous system.

Course outcome:- On completion of the paper, students are expected to:

1. Understand the structural and functional importance of cell and different types of tissues.
2. Gain Basic anatomical knowledge of cardiovascular, lymphatic, digestive and genitourinary system.
3. Know about detail anatomical knowledge of nervous system and outline of endocrine system.
4. Understand the different type of classification and general features of bone, joints and muscular tissues.
5. Study about the structural and functional importance of muscles, joints, long and short nerves and different spaces in upper limb and lower limb, including applied aspect.
6. Know about basic anatomical knowledge of boundaries and contents of thoracic, abdominal and pelvic cavity.
7. Gain knowledge of greater vessels, muscles and structural and functional importance ofdifferent viscera in head and neck region.
8. Gain knowledge of outline of Visual, auditory and taste pathways, including appliedaspect.

GENERAL ANATOMY

1. Introduction scope of anatomy cell as a structural and fundamental unit. Organization of tissue organs and system, Anatomical position of the body, Anatomical terms.
2. Skin and the appendages of the skin.
3. Muscles: Voluntary and Involuntary and cardiac muscles, short description of the structure of different muscles.
4. Muscles: Classification of voluntary muscles. Origin and Insertion. Tendon. Aponeurosis. Isometric and Isotonic contraction of muscles.
5. Bones: composition and functions, classification of bones according to morphology and development, various terms and markings on the bones.
6. Bones: Development of bones, parts of long bones and blood supply of bones, general remarks about bones of skull, thorax, vertebral column and bones of extremities indetail.
7. Joints: Definition, classification of joints structure and cartilaginous joints.
8. Joints: Structure of synovial joints, Movements of joints, blood supply of bones and joints and Bursae, close pack and loose pack position of the joints.
9. .Nervous system: Nerve cell. Synapse and reflex.
10. Nervous system: organization of central nervous systems Spinal Nerves and nerve endings.
11. Cardiovascular system: Arteries Veins, Capillaries, and Collateral circulation.
12. Cardiovascular system: Blood as a connective tissue. Gross anatomy of Heart, large blood Vessels.
13. Respiratory system: General outline of respiratory passages, gross anatomy of Lung, Pleura.
14. Respiratory system: Broncho-pulmonary segments. Inter-costal muscles and Mechanism of respiration.
15. Digestive system: General idea or outline of gastro- intestinal tract and associated glands.
16. Excretory system structure and function of kidney, general outline of Ureters Urinary bladder and Urethra.
17. Reproduction system: general outline of male and female general organs.

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18. Endocrines: Definition, Stricture in general.
19. Lymphatic system: Lymphcirculation, Lymph nodes and Lyphoid tissue.

KINESIOLOGY

1. Basic Concepts
2. Muscular system
3. Joints
4. Machinery Musculo skeletal system
5. Principles of Motion
6. Principles of force and work
7. Basic for the development of motor skill
8. Principles of stability
9. Postural principles

PRACTICAL:

1. Learning of surface landmarks with special emphasis on bones,joints,muscles, and nerves.
2. The learning of anatomy is by demonstration only through dissected parts,model,chartsetc
3. Demonstration of skeleton articulation and disarticulation

Books Recommended:

1. An Introduction to fundamental of anatomy by David Sindair (Blackwell Publication0.
2. Gray's Anatomy
3. Cunningham's Manual of Practical anatomy
4. Anatomy and physiology by Smout and Macdonald(Edward Arnold)
5. Kinesiology by Katherine (Saunders Co).
6. Clinical Kinesiology by Brunnstrome.
7. Kinesiology and Applied Anatomy by Resch-Bruke(Lee &Febigar)
8. Applied anatomy and Kinesiology by W. Bower & H. Stone(Lee &Febigar)
9. Caties primary anatomy by Bestmaji J.

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PAPER-I
HUMAN PHYSIOLOGY
BPT (102)

Total No. of Teaching Hrs:- 200 **Theory -140 Hrs. Practical / Laboratory- 60Hrs**

Course objectives:

1. To understand the physiological functions of human body.

2. To understand the application of physiological functions & physiology of exercise in relation to physical therapy

3. **Major area of learning is cardio-respiratory ,musculo-skeletal and nervous system.**

Course outcome:

1. **Outline of structural and functional importance of cell, muscle and skin.**
2. **Detail knowledge of different type and function of blood cells. Brief outline of cardiovascular and respiratory system.**
3. **To Understand the carbohydrate, protein and lipid metabolism.**
4. **Outline of different parts and functions of excretory, endocrine and reproductive system**
5. **Detail knowledge of central nervous system, peripheral nervous, supporting tissues and autonomic nervous system.**
6. **Brief knowledge of pathway of vision, auditor and taste.**
7. **Basic bio chemistry knowledge of different type of digestion.**

8. **Understand the applied aspect of cardiovascular, nervous and respiratory system.**

1. GENERAL PHYSIOLOGY
   1. **Structure of cell and its functions**
   2. **Transport across cell membrane**
   3. **Body fluids- Homeostasis**

2. BLOOD
   1. **Composition, function and physical properties of blood**
   2. **Plasma protein and their functions**
   3. **Erythropoiesis, leucopoiesis and thrombopoiesis in brief**
   4. **Hemoglobin and its functions**
   5. **Structure and function of leukocytes**
   6. **Immunity**
   7. **Physiology of clothing mechanism and fibrinolysis**
   8. **Blood group and physiological basis of transfusion medicine**

3. NERVE
   1. Structure, classification & properties.
   2. R.M.P.
   3. Action potential
   4. Propogation of nerve impulse.
   5. Degeneration &regeneration
   6. Reaction of degeneration [retrograde]

4. MUSCLE
   1. Structure-properties-classification-excitation/contraction coupling
   2. Motor unit- Electromyography
   3. Neuro-muscular transmission
   4. Physiological basis of myopathies.

5. NERVOUS SYSTEM
   1. Organization of Nervous system.
   2. Neuron and Neuroglia
   3. Synapse: Properties and Synaptic transmission.

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4. Reflex arc, its components, properties, type and neurological impairments.
5. General sensations and their properties.
6. Ascending tracts of the Spinal cord and effects of their lesions.
7. Pain and physiological Analgesia.
8. Motor neurons, Descending tracts and their applied aspects.
9. Regulation of Muscle Tone by Spinal and Supra-spinal mechanism:-
    1. Regulation of posture and equilibrium vestibular apparatus.
    2. Broad functions of Thalamus, Hypothalamus, Major lobes of Cerebral cortex and Ascending Reticular Activation System
10. Limbic System
11. Learning, memory, speech and conditional reflexes.

6. SPECIAL SEMSES

1. Function anatomy of the Eye
2. Optics of Vision
3. Retinal Function
4. Visual Pathways
5. Mechanism of Hearing.
6. Sensation of Taste and Smell.

7. AUTONOMIC NERVOUS SYSTEM

1. Functioning of Autonomic Nervous System with soecial reference to micturition defecation and labour
2. Higher neural regulation of ANS.

8. SKINS AND BODY TEMPERATURE REGULATION

1. Functional anatomy of the Skin and its function
2. Different mechanisms involved in body temperature regulation
3. Physiological basis of Pyrexia and Hypothermia.

9. CARDIOVASCILAR SYATEM

1. General introduction of cardiovascular ystems.
2. Structure and properties of Cardiac muscle.
3. Cardiac cycle and Heart sounds.
4. Interpretation of normal Electrocardiogram.
5. Cardiac output and cardiac failure.
6. Venous return,
7. Heart rate and its regulation,
8. Structure and organization of vascular tree.
9. Arterial blood pressure and pathophysiology of Hypertension.
10. Capillary circulation and physiology basis of Edema.
11. Pathophysiology of Shock.

10. RESPIRATORY SYSTEM

1. Functional anatomy of Respiratory System.
2. Mechanics of breathing: Mechanism of inspiration and Expiration, intrapleural and intra-alveolar pressures, Compliance. Surfactant. Air-way resistance and work of breathing
3. Respiratory membrane and diffusion of gases.
4. Composition of gases and Partial pressures.
5. Oxygen and Carbon-dioxide transport.
6. Lung Volume, Capacities and Lung function tests.
7. Nervous and Chemical control of breathing.

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8. Physio-clinical aspects of Dyspnoea, Apnoea, Asphyxia, Hypoxia, Cyanosis, Breath holding, high and Low atmospheric pressures.

11. DIGESTIVE SYSTEM

1. Functions of (a) Saliva, (b) Gastiric juice, (c) Pancreatic juice (d) Succusenterieus, (e) Bile.
2. Movements of G.I.T.
3. Functions of Liver.

12. RENAL SYSTEM

1. Functions of Kidney
2. Formation of Urine.
3. Physiology of Micturition- Neurogenic bladder.

13. ENDOCRINE AND REPRODUCTIVE SYSTEM

1. Role of Hypothalamus as an endocrine gland.
2. Functions and hypo & hyper secretion of hormones of
a. Pituitary
b. Thyroid
c. Parathyroid
d. Adrenal
e. Endocrine part of pancreas.
3. Spermatogesis. Functions of Testosterone.
4. Ovarian and Menstrual Cycle and their hormonal control.
5. Hormones of Ovary and their functions.
6. Physiological basis of Fertilization, Implantation, Pregnancy, Parturitutinn and Lactation.
7. Contraception.

14. EXERCISE PHYSIOLOGY

1. Effects of acute & chronic exercises
2. Oxygen/CO2 transport – O2 debt.
3. Effects of Excises on muscle strength, power, endurance, B.M.R., R.Q.- hormonal & metabolic effects- respiratory & cardiac conditioning.
4. AGING.
5. Training, fatigue & recovery.
6. Fitness- related to age, gender,& body type.

Practical :

1. Examination of pulse, BP, respiratory rate and measure study the effect of posture & exercise.
2. Stethogarphy
3. Spirometery to measure various lung capacities &volumes .

Books Recommended:

1. Chatterji, C. C., Human Physiology Medical Allied .
2. Keele, Cyril A, Samson Wright's Applied Physiology, Oxford University Press
3. Bijlani, R L, UnderstandingMedical Physiology, Oxford University Press
4. Guyton, A.C. and Hall, J. E., Textbook of Medical Physiology, W.B.Saunders, Singapore

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PAPER-III

BIOELECTRICAL MODALITIES

BPT (103)

Total No. of teaching Hrs.- 100 **Theory- 100 Hrs.**

Course objectives:

This course will enable the student to understand the basic electricity, electronics,equipment's and their application in electrotherapy

Course outcome:

1. Knowledge about various types of therapeutic currents and its physiological ,therapeutic effects gained.
2. Knowledge about pain and pain modulation mechanism gained.
3. Diagnosis of neuromuscular dysfunction by electro-diagnostic test is known.
4. Knowledge about different types of low and medium frequency currents. Itsindication, contraindication, method of applicarion gained.
5. Knowledge about high frequency currents and its effects , uses gained.
6. Knowledge about LASER therapy and its uses gained.
7. Effects of moist heat therapy and method of application is understood.
8. Knowledge about cryotherapy and its method of application, effect and uses gained
9. Practical application of electrotherapy modalities for various conditions gained

Medical Electronics

1. A.C. Electricity Sinusoidal wave from: Frequency, Wavelength, Amplitude and phase of a sine wave, Average & RMS value of a sine wave.

2. **D.C. Electricity**

Modern concept of electricity: Fundamental of electric charges (Proton and electron). Bound and free electrons, conductors and insulators, current, Static electric charges, charging of an object, potential and capacitance, potential difference and EMF, Quantity of electricity, magnitude of current, Resistance of conductor and Ohm's law, Resistances in series and parallel, Discharging charged object.

Capacitor (condenser):

Electric around a capacitor, charging and discharging a capacitor, type of capacitor with application of each physiotherapy Department.

Rheostat: Series and shunt rheostat with application of each in the physiotherapy department

Effect of electric current: Thermal effect, chemical effect (ionization) and magnetic effect, electric shock, causes and its prevention.

3. **Therapeutic Current**

Impulse: Definition, types, pulse duration and pulse Repetition time, Interrupted Galvanic Currents faradic current and surged faradic currents.

4. **Magnetism:-**

Magnetic and non- magnetic materials, magnet and its poles, the basis of magnetism (Dipole theory). Magnetic lines of force and their properties.

Electromagnetism: Magnetic field around a current carrying conductor, electromagnetic induction, Lenz's law strength of induced EMF, Inductor and Inductance, type of inductor, reactance and impedance, Static transformer, mutual inductance.

Even ratio, step-up, step-down and earth free transformers.

Precautions against Earth shock variable and auto transfer.

5. Thermionic valves

Thermionic emission, Diode valves and triode valves and their characteristics and constants.

6. Semi-conductor devices

Intrinsic and extrinsic semi-conductors, advantage of semi-conductors devices over Thermionic valves, semi-conductor diode and transistor.

Biasing of Diode and Diode characteristics.

Light emitting Diodes, Integrated circuits.

7. Electronic circuits

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Rectifiers and smoothing circuits.
Sinusoidal and Non-sinusoidal Oscillators.
Pulse generator circuits, short wave diathermy and ultrasound apparatus.

8. **A.C. and D.C. Meters**
Functions and applications of D.C. current meter, D.C. Voltage meter, series and shunt Ohmmeters, Wheat stone bridge and multi-meter, construction and application of cathode ray oscilloscope. (Emphasis should be given to theoretical part without mathematical derivations; however, final formula must be written).

ELECTRO-THERAPEUTIC MODALITIES

Introduction to generation, Circuit diagram, testing of apparatus, Indications and Contraindications of.

1. Low frequency currents
2. D.C. currents
3. Medium frequency currents
4. S.W.D. and Pulsed S.W.D.
5. M.W.D.
6. Ultra-Sonics
7. Infrared
8. U.V.R.
9. Laser

Book References

1. Basic radio by M. Tepper Vol. I' II' III' and V.
2- Fundamentals of physics by verghese, parvathy Sebastian and anatomy (VAS Publication).
3- Modern College Physics by Harvey E. White (CBS Publication).
4- Electronic Principles by A.P. Malvino (Tata McGraw-Hill Publication).
5- Handbook of electronics by Gupta and Kumar (PragatiPrakashan).
6- Technique of Electrotherapy and its physical and physiological basis by Stafford L. Osborne and Harold J. Holmquest.
7- Clayton's Electrotherapy by Angel Forster and Nigel Palestanga.
8- Therapeutic Electricity by Sydney Litch
9- Medical Electronics Book.

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PAPER-IV
BIOMECHANICAL MODALITIES
BPT (104)

Total No. of teaching Hrs.- 100 Theory- 100 Hrs.

COURSE OBJECTIVES:
This course will enable the student to understand the basic principles of physics, Biomechanics & exercise therapy , basic principles and application of soft tissue manipulation.

Course Outcome:
1. This provides fundamentals of muscle and joint function
2. To gain knowledge on joint range and their measurements
3. This demonstrates the active and passive movements of each joint
4. This illustrates practical knowledge on passive movement, resisted exercise and muscle grading
5. This demonstrates posture, movement retraining, balance and co ordination.
6. This illustrates pathological gait and use of different mobility aids
7. This provides basic information on therapeutic massage and its effect on different systems of the body
8. This demonstrates face, neck, back, upper limb and lower limb massage

MECHANICS

1. Mechanics and Mechanical Principles.

Definition of Mechanics, force, Diagrammatic representation of forces, Measurement of forces, classification of forces; Coplanar and parallel forces, Composition and Resolution of forces, Momentum, Action and Reaction, Friction, Rotation about a Pivot.
Angle of Pull of Muscle.
Assistance and Resistance of Movements.
Moment of a force and practical application.
Gravity
Definition, Line of gravity, Center of Gravity.
Equilibrium.
Supporting base, Stability of equilibrium.
Energy Work and Power
Energy (Potential and Kinetic), work and Power.
Levers
Lever, Action of the lever, Position of the fulcrum, Orders of Levers, Tools and Other Mechanical devices Pulley block.
Elasticity
Definition, Stress, Strain, Hook's law, springs, Properties of Springs, springs in series and parallel
2- Hydrostatics and Hydrodynamics
Archimede's principle
Properties of water, liquids, pressure.
Buoyancy, Laws of Flotation.
Apparent loss in weight, factors determining up-thrust, effect of buoyancy on movement performed in water.
Movement of force, further effects of apparent loss in weight.
Equilibrium offloating body, movement of water, Inertia, Movement of Objects in water.
Bernoulli's theorem and its applicarion in Atomizer or syrayer.
(Only qualitative explanation of the above).

EXERCISE THERAPEUTIC MODALITIES

1. Introduction
2. Aim and scope of biomechanical modalities, examples of different type of modalities.
3. Mechanics and Mechanical principles

a. Mechanical Principles applied in physiotherapy like force, momentum, torque etc.
b. Mechanics of position, gravity, line of gravity and center of gravity in human body, base equilibrium, fixation and stabilization.
c. Mechanics of movement – axes and planes, the plane of movement and gravity

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d. Lever: definition, order of lever, examples in human body, levers at home and its work, levers in physiotherapy.
e. Pulleys: Different type of pulleys and their uses in physiotherapy.
f. Elasticity: Elastic materials used in physiotherapy like springs (in detail), Rubber elastic and Sorbo rubbers.
g. Hydrostatic and hydrodynamic principles used in Hydrotherapy.

Book Reference

1. Principles of exercise therapy by Dena Gardner.
2. Practical exercise therapy by Margaret hollies.
3. Krusen's textbook of physical medicine and rehabilitation
4. Muscle testing by Daniel.
5. Clayton's electrotherapy.
6. Elements properties of matter by D.S. Mathur.

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PAPER-V

PSYCHOLOGY AND SOCIOLOGY

BPT (105)

Total No. of Hrs:- 100

COURSE OBJECTIVE:

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 dealing with patients during admission, treatment,rehabilitation and discharge.

Course outcome :

1. The student will know about psychology and its branches.
2. Methods of application of psychology, where and how to apply psychology inphysiotherapy
3. Understanding skill and developmental changes of the patients will be easily understood.
4. Psychotic disorders, psychotherapy methods are known to handle the patients.
5. The student will know about the society and relationship between the society and theprofession.
6. Major social problems in the society and its remedial measures.
7. Social security and its benefits for the people in the society.
8. Importance of health in the society.
9. Rehabilitation methods of patients which is related to the society
10. Impact of culture, community, caste, family in social health

SOCIOLOGY

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 professional.

B. Social Factors in health and disease

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

C. Socialization

1 Meaning and natural of socialization.
2 Primary secondary and anticipatory socialization.
3 Agencies of socialization.

D. Social Groups

Concepts of social group, influence of formal and informal group on health and sickness. The role of primary group and secondary group in hospital and rehabilitation setting.

E. Family

1. The family,
2. Meaning and definition.
3. Functions,
4. Types,
5.Changing family,
6. Influence of family on the individual's health, family and nutrition, 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 ruralites, 2.Urban community – meaning and features, health hazards of Urbanites.

G. Culture and Health

1. Concepts of culture,
2. Cultures and Behaviuor,
3. Cultural meaning of sickness,
4. Culture and Health disorders.

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H. Social change

1. Meaning of social change,
2. Factors of social change,
3. Human Adaptation and social change,
4. Social change and stress,
5. Social change and deviance,
6. Social change and health programme,
7. The role of planning in the improvement of health and in rehabilitation.

I. Social Problems of Disabled

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. Problem's of Women in employment.

J. Social Security

Social Security and Social Legislation to the disabled.

K. Social Worker

1. Meaning of social Work,
2. The role of a medical social worker.

PSYCHOLOG

GENERAL PSYCHOLOGY: THEORY.

1. What is psychology! Field of application and methods of study of psychology.
2. The respective influences of heredity and environment on the individual.
3. Development and growth of behaviour in infancy and childhood.
4. Motivation: Achievement, affiliation and aggression Maslow's theory.
5. Emotions and emotional development.
6. Learning theories, methods of learning (Pavlov, Thorndike, hull- Toleman).
7. Learning and maturation – special reference to conditioning positive and negative reinforcement interest and in learning.
8. Sensation, perception.
9. Social psychology, influence of individual or groups on behavior of others leadership and group psychology.

10Memory, thinking and causes of forgetting.

CLINICAL PSYCHOLOGY: THEORY

a. Introduction: Field of application and short history of clinical psychology.
b. Concept of mind: Conscious and unconscious mind (psychological approach).
c. Intelligence and intelligence testing, kinds of mental deficiency.
d. Personality: Concept, influencing factors and tests.
e. Major psychological disorders: Psychoneurosis
   i. Anxiety
   ii. Phobia
   iii. Obsessive-compulsive reaction.
f. Major psychological disorders: Psychosis
   i. Schizophrenia ii. Depression
g. Psychosomatic disorders, personality disorders
h. Frustration and conflict.
i. Stress: Coping mental mechanism with special reference to normal and abnormal conditions.
j. Counseling: Process, approaches.
a. Directive
b. Non-directives
c. Counseling skills.

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Book References

1. Morgon, Clifford T; Introduction to Psychology Tata Mcg. Hill, Delhi
2. Farnald, L.D. Introduction to Psychology AITBS, Delhi
3. Korchin, Sheldon J.; Modern Clinical Psychology: Principels, CBS, New Delhi
4. McDavid, J.W. and Harari, H.; Social psychology: Individuals, Groups, Societies CBS, New Delhi
5. Davison, G.C. and Neale, J.M.; Abnormal Psychology Jhon Wiley, New York
6. Mehta, Manju; Behavioral Sciences in Medical Practice. Jaypee. New Delhi

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IInd Year
BPT

Code	Title of Papers	Internal Assessment		University Examination			
		Theory	Practical	Theory	Viva	Practical	Total
BPT-201T	Biochemistry & Pharmacology	20	-	80	-	-	100
BPT-202T	Pathology & Microbiology	20	-	80	-	-	100
BPT-203T	Gen. Surgery, obstetrics & Gynaecology, ENT & Ophthamology	20		80	-		100
BPT-204T	General Medicine	20		80	-		100
BPT-205 T	Orthopaedics	20	20	100	20	40	200
BPT-206T	Electrotherapys	20	20	100	20	40	200
BPT-207T	Exercise Therapy Including Yoga	20	20	100	20	40	200
TOTAL							1000

- **Note**

Passing marks in all subject candidate must obtain 50% in aggregate with minimum of 50% in Theory, including viva and minimum 50%in practical.

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SYLLABUS FOR BACHELOR OF PHYSIOTHERAPY
BPT-2ND YEAR (4 YEAR PROGRAMME)
PAPERE-1
BPT-201
Total No. of Hrs.-100
BIOCHEMISTRY AND PHARMACOLOGY

Course Objective

1. To understand pharmaco-kinetics, pharmaco-dynamics.
2. Usage of common drugs with (indications, contraindications, side effects.
3. To understand the drug actions that may affect the physical therapy treatment.

COURSE OUTCOME

1. Basic bio chemistry and pharmacology knowledge of different type of digestion.
2. Understand the applied aspect of cardiovascular, nervous and respiratory system.
3. This helps in study the of medicines encountered in the management of physiotherapy.
4. This course gives basic idea of different diseases and infections.

Theory. General Pharmacology

1. Definition of drug, Pharmacokineticsand Pharmacodynamics.
2. Broad categories of adverse drug reactions.
3. Alcohols.
4. Analgesics and Antipyretics, anti-inflammatory drugs.
5. Sedatives.
6. Stimulants.
7. Drugs acting on muscles- Muscle relaxants, Muscle stimulants.
8. Anti-parkinsonism agents
9. Drugs modifying B.P.
10. Hypolipidemia.
11. Anticoagulants.
12. Thyroxin and Anti -thyroid drugs.
13. Anti-diabetics.
14. Glucocortics.
15. Calcium, Phosphorus, Calcitonin and Parathormone.
16. Narrow spectrum antibiotics.
17. Broad-spectrum antibiotics.
18. Anti-cancer drugs.

Drugs acting on respiratory systems:
Respiratory stimulants and respiratory depressants, Bronchodilators, Expectorants, Anti-Asthmatics, Anti-tussive, Vitamines, Overinhormones, Anabolic, steroids, Estrogen,Progesterone,Androgen

Locally acting drugs:
Anodes ,Localanaesthetic drugs, Counter-irritants Rubefacient, Soothing agent, Anti-microbials

Book Reference.
Pharmacology by Satoskar
Clinical Pharmacology by Lawrence.
Textbook of Pharmacology by B.N. Ghose.
Essentials of medical Pharmacology by K.D. Tripathi.

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BIOCHEMISTRY

I. Basic Biophysics:

Concept of Acid base, buffer, Henderson- Hasselbach equation, brief knowledge of biophysical process such as Osmosis,Viscosity, Surface tension, Dialysis with special emphasis on their biomedical implication.A brief study of Radio-isotopes and their Clinical applications.

II. General Biochemistry with Biomedical functions

Carbohydrates: Definition, Classification with example and General functions.
Lipids: Definition Classification and General functions Essential Fatty Acids Cholesterol blood lipids, Brief review of Lipoproteins.
Proteins: Definition, Classification and Biomedical importance. Study of Hemoglobin and Immunoglobins with function, plasma and Functions.
Nucleic Acids: Brief overview of the structure of RNA and DNA including Nucleosides and Nucleotides. Study of few biologically important nucleotides.
Enzymes: Definition, Classification with example Factors affecting enzyme action, brief study of enzyme inhibition, clinical importance of enzymes.
Vitamins: Definition, Classification and function. Dietary source. Daily requirements and Deficiency Disorders.

III. Bioenergetics

Study of Plasma Membrane.Review of laws of thermodynamics as application to biological system. Concept of free energy charge.High-energy compounds and Respiratory chain.

IV. General Metabolism

(Note: A brief outline of metabolic pathway herein is indicated>Details and Structure are to be avoided)

Carbohydrate metabolism: Glycolysis, TCA, Glycogen metabolism, blood sugar regulation, Diabetes and Diabetic Ketoacidosis.
Lipids Metabolism: Beta-oxidation of Fatty acids, Fatty acid synthesis, cholesterol synthesis, Ketosis and Fatty liver.
Protein Metabolism: General reaction of Amino acids, Formation and fate of Ammonia, Urea cycle.
Purine and Pyrimidine: Only catabolism of Purine to be Stressed in detail with special emphasis on Gout. General breakdown of Pyrimidine and associated disorders.

V. Water and Electrolyte Balance

General outline of fluid compartments of the body with their water and electrolyte content and balance.Dehydration.

VI. Nutrition

Basic principal of Nutrition of carbohydrates, Protein and lipids.Caloric requirement and Balance diet.

Book References

1.Textbook of Biochemistry by West and Todd.
2.Textbook of Medical Biochemistry by Chatterjee and Shinde.
3.Principles of Biochemistry by A. Lehninger.
4.Textbook of Biochemistry by A.C. Deb.

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PAPER-II

BPT-202

PATHOLOGYAND MICROBIOLOGY

Total No. of Teaching Hrs. :-100

Course objectives:

- Rationale for understanding of the subject for Physiotherapy students
- Brief concept of pathological basis of disease and infectious disease prevention .

Course outcome:

1. Knowledge about disease and changes in structure and function of cells during disease condition gained.
2. Knowledge about hemorrhage , shock and various blood vessel occlusive disease gained.
3. Knowledge about importance of nutrition, function of nutrition and its deficiency diseases gained
4. Pathogenesis and pathological changes of disease in various body system is understood properly.
5. To Know about the mechanism of autoimmune diseases.
6. Knowledge about the various microorganism, its classification and structure gained
7. Knowledge about various method of sterilization and its importance gained
8. Knowledge about infectious diseases gained.
9. To Know about immunity, types and its importance.
10. To Know about the various disease caused by microorganism and its prevention.

PATHOLOGY
Theory

1. Concept of Diseases, Classification of Lesions.
2. Clean & Brief concepts of inflammation and Repair, Degeneration, Necrosis and Gangrenes.
3. Deficiency Diseases vitamin, vitamin B12, vitamin C, vitamin D.
4. Vascular disturbances: Oedema, Thrombosis, Embolism, Haemorrhage and Shock
5. In brief: About Anaemia, Leukaemia, Haemorrhagic disorders.
6. Clear Concepts about Tumours, Definition, Classification, Aetiology and spread of tumours. Benign versus Malignant tumours.
7. In brief about:

a. Resp. diseases- Pneumonia,BronchitisAsthmaEmphysema, Tuberculosis,Lungcancers and Occupational Lung diseases.

b. C.V.S. – Rheumatic heart diseases, myocardial infarction, Atherosclerosis, congenital heart disease.

c. Alimentary system – Peptic ulcer, Carcinoma of stomach, Ulcerative lesions of Intestine.

d Liver – Hepatitis, Cirrhosis and Hepatoma.

e Pancreas – Pancreatitis, Carcinoma of Pancreas, Diabetes.

8. Details about:

Central nervous system – Meningitis and Encephalitis, brief outline of C.N.S. Tumours and peripheral nerve lesions.

Bones and Joints – Osteomyelities, Osteoarthritis, Septic, Arthritis, Gout, Rheumatic Arthritis and Bone Tumours.

Muscle – Poliomyelitis, Myopathies, Volkman's ischemic contracture.

Skin – Scleroderma, Psoriasis, Autoimmune disorders.

9. In brief about

a. Urinary system – Nephrotic syndrome, Nephritis, Iomerulonephritis
b. Prostate –Prostatitis, BPH, Carcinoma of Prostate
c. Endocrine – Thyroid, Thyroiditis, Thyroid Tumours
d. Salivary gland – Salivary gland tumours.

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Practical

Normal total and differential WBC count, Haemoglobin, RBC.
Demonstration of slides:

- Anaemia
- Leukaemia
- Acute inflammation – Appendix
- Chronic inflammation – Non – specific.
- Tuberculosis of lymph Node – specific inflammation.
- Leprosy – Skin and Leprabacilli.
- Squamous cell carcinoma – skin.
- Osteogenic sarcoma – Bone tomour.
- Osteoclastoma – Bone tumour.
- Ewings – Bone tumou:
- Multiple Myeloma – Bone tumour

MICROBIOLOGY

I. **General Microbiology**

Introduction and historical background.
Classification of Microorganisms.
Morphology of bacteria.
Sterilization and disinfect ion.
Immunity – Antigens and Antibodies, General overview ofantigen antibody reaction and practical applications.

II Systemic Microbiology

1. Gram Positive cocci – Staph, Strepto, Pneumococci.
2. Gram-negative cocci – Goncocci and Meningococci.
3. Gram positive bacilli – Tubercule bacilli, Leprabacilli,Clostridiumtetani Clostridiumoerfrigens etc.
4. Gram negative bacilli – Salmonella, Coloforms, pseudomonas, proteusetc
5. Anaerobic non – sporingcocci and bacilli.
6. Virology – General introduction, brief description of polio virus, Rubella Hepatitis-B and AIDS (diagnosis, prevention and treatment).
7. Spirocheles- Syphilis (congenital and acquired).
8. Malana
9. Mycology – Actinomycosis, Maduramycosis, Mucosal Candidosis.
10. Applied microbiology as relevant to diseases of bones, Joints, Muscles, Skin, Infection and Buns.

III. Demonstration

1. Demonstration of collection of clinical specimen.
2. Demonstration of morphology and culture of organisms.
3. Demonstration of simple, Gram's and Ziehl- Neelsenstaining.
4. Sterilization and Disinfection techniques.
5. Demonstration of serological tests for syphilis, Hepatitis etc

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PAPER-3
BPT-203
GENERAL SURGERY, OBSTETRICS & GYNAECOLOGY, E.N.T AND OPHTHALMOLOGY
Total No. of teaching Hrs.- 100

Course Objectives:

The objective of this course is that students at the end of course shall have a broad understanding about common surgical diseases, which they would be handing as a physiotherapist. They should have a brief idea about eliology, pathology and type and degree of disability the patient will have as a result of the disease, so that he/she as a Physiotherapist with surgeon should help the patient to achieve cure and/or ameliorate his/her illness and sufferings

Course Outcome:

1. Knowledge of principles of surgery and the application of basic sciences tosurgical treatment.
2. Describes abdominal surgical incisions.
3. Analysis the causes, indication, types of incisions, pre operative assessment ,procedure, post operative assessment , its complications and management for various surgeries.
4. Evaluation of burns and its management.
5. Principles of plastic surgery and splinting procedures
6. Knowledge about Flap design, tissue handling, haemostasis and oedema control.
7. Role physiotherapy in general surgery.
8. The students assess, evaluate and frames physiotherapy management in Pre andpost operative conditions.

Introduction:

Description of events frequently accompanying general Anesthesia, Blood transfusion and physiological response of the body.Wounds, scars, ulcers, boils, carbuncles etc. Principles of pre- and post –operative physicalexamination, investigations, postoperative complications and their management.

Abdominal surgery: Incisions, complications and management of following:Nephrectomy, Apendicectomy, Herniorrhaphy, Mastectomy, Thyroidectomy, Colostomy, Adrenalectomy, Cystectomy, Hysterectomy, Prostatectomy, Cholecystectomy, Ileostomy, Incisional hernia and its prevention.

Burns: Causes, Classification, Medical management and precautions in the acute stage complications of burns and their management.

Plastic Surgery:

a. Principles of plastic surgery, post – operative management and complications
b. Cineplasty.
c. Principles of cosmetic surgery.
d. Skin grafting.
e. Surgery of Hand with emphasis on management of traumatic & leprosy hand.
f. Burns and plastic surgery management

Ophthalmology:

Etiology, symptomatogy and treatment of visual defects emphasis on Errors of Refraction, Squint, Conjunctivitis, Trachoma,Corneal ulcers, Iritis, Cataract, Retinitis, Detachment of retina and Glaucoma (lecture demonstration only)

E.N.T:

Aetiology, symptomatology and treatment of sinusitis, Rhinitis, Acute and Choronic Otitis, Otosclerosis, Mastoidectomy and loss of hearing.

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Obstetrics and Gynecology:

a. Anatomy and physiology of female reproductive system.
b. Principles of clinical examination, investigation, diagnosis and prognosis in female reproductive and system disorders.
c. Menstruation and disorders of menstruation.
d. Physiological changes during pregnancy.
e. Antenatal care and diagnosis of pregnancy including high-risk pregnancy.
f. Labour, stage of labour, normal and abnormal labour and management of neonate.
g. Puerperium& postnatal care, socialobstetrics- maternal & perinatal mortality.
h. Pelvic pain and its management.
i. Importance Gnaecological condition, a short review of PID, Tumors, malignancies, infertility, Endometriosis, Ectopic pregnancym, Vesicular mole.
j. Prolapse Uterus, causes of incontinece of urine, type and management.
k. Abortion and Birth control.
l. Surgical consideralions in obstetrics and Gynecology.

Book References

Surgery by Nan.
Baily & Love – Short Practice of Surgery by Rain &Ritalife.
Gynaecology and Obstetrics in the Health care of a Woman by Seymoul L. Romney, Mary Jane Gray, J. A. Merrill.
Shaw's Textbook of Gynaecology.
Jeffcoat's Principles of Gynaecology

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PAPER-4
BPT-204
GENERAL MEDICINE
Total No. of Hrs.- 130

Course Objective:

The objective of this course is that students at the end of course shall have a broad understanding about common medical diseases, which they would be handing as a physiotherapist. They should have a brief idea about Etiology, pathology, Type and Degree of Disability the patient will have as a result of the disease, so that he/she as a physiotherapist with physician should help the patient to achieve cure and/or ameliorate his/her illness and sufferings. To understand a Paediatrics patient and its special needs in relation to physical therapy.

Course outcome

1. This helps in study the of medicines encountered in the management of physiotherapy
2. This course gives basic idea of different diseases and infections
3. This provides brief knowledge on symptoms and pathology of diseases
4. This gives knowledge on analyzing and interpreting imaging findings into the physical therapy diagnostic process
5. This provides the foundation of differential diagnosis
6. This provides a basic knowledge on physiological and pathological changes during old age
7. This provides information on normal and abnormal developmental disorders inpediatrics

A) Infections

Outline briefly the Etiology, symptoms and brief management of the following disease
Bacterial – Tetanus, Typhoid
Viral – Herpes simplx, Herpes Zoster, Measles, Hepatitis –B and HIV
Protozal – Filanasis, Malaria, Amoebiasis

B) Diseases of blood

Define and describe clinical aspects of Nutritional Anaemias
1. Brief description of Bleeding Disorder with emphasis to Haemophilia.
2. Lymphadenopathy and splenmegaly.
3. Leukaemia – acute and Chronic.

C) Diseases of Liver

1. Jaundice
2. Viral Hepatitis.
3. Cirrhosis of Liver

D) Renal Diseases

Brief description of acute and Chronic renal Failure.
Urinary Tract Infection
Acute Nephritis, NephroticSyndrome.

E. GIT Diseases

Brief description
Peptic Ulcer
Diarrhoea and Dysentery

F. Nutritional and Metabolic Diseases

Balanced normal diet
Protein Calorie Malnutrition
Avitaminosis of both water and fat-soluble vitamins.
Diabetes mellitus – Definition, diabetes, Classification and complications, brief description of management of diabetes mellitus.
Obesity – Aetiology and management.
Hyper and Hypo-thyroidsm.
Calcium Homeostasis Gigantism and Acromegaly.

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G. Diseases of Bones, Joints and Connective tissue

Brief introduction to understanding of Autoimmunediseases

Rheumatic fever and Rheumatoid arthritis – Aetiopathogenesis, Clinical features, complications, diagnosis and briefly outline the management.

Brief description of Systemic Lupus Erthematous,

PolyartisNodosa, Dermatomyosities, Sclafoderma

Osteoarthritis – Aetiopathogenesis, clinical feature, diagnosis, complication and management.

H. Genetics and Diseases

Common inherited disorders.

Prevention of genetic disorders.

I. Miscellaneous

Allergy Drug reactions.

J. Dermatology

Common skin infections. Psoriasis

Leprosy- aetiopthogenesis, clinical features and treatment.

Venereal diseases – Syphilis, HIV etc., brief description and prevention (lecture demonstration only).

K. Geriatrics

Common Geriatric Disorders and their management

L. Radiology

(Both in normal and Pathology conditions).

Radiology of Bone and Hoints.

Radiology of chest including Heart.

(Lecture demonstration only)

M. Paediatics

Common Paediatric diseases and their management.

(Lecture demonstration only)

Book References

Davidso's Principles and Practice of Medicine
(Churchill Livigstone)

Medicine and Neurology by Davidson.

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PAPER-5

BPT-205

ORTHOPAEDICS

Total No. of Teaching Hrs.- 130

Theory: - 100 Hrs.

Practical:- 30 Hrs.

Objective of Course:

1. To understand an orthopedic patient, common orthopedic conditions and procedures
2. To understand applications of physical therapy in various orthopedic conditions
3. To understand the implications of various orthopedic conditions, and procedures on physical therapy
4. At the end of syllabus and instructional course and demonstrations, the student shall be able to understand orthopedic conditions causing disability and manage them by physiotherapy point of view.
5. In addition, the students shall be able to fulfill with 75% accuracy (as measured by written, oral and practical internal evaluation) the following objective of the course

Course outcome:

1. Knowledge about fractures of various bones, Types, mechanism, clinical features,complications and management of fractures gained.
2. Dislocation of major joints and prevention are understood.
3. Knowledge about major surgical procedures in orthopaedics including amputationsgained.
4. Knowledge about bone and joint infectious diseases gained.
5. Knowledge about tumors in bones and joints gained.
6. Knowledge about arthritis and other degenerative disorders of bones and joints gained
7. Knowledge about various musculo-skeletal problems its clinical diagnosis andmanagement gained.
8. Knowledge about congenital and postural deformities gained.
9. Sports injury mechanism, treatment and prevention are understood
10. Knowledge about peripheral nerve injuries and deformities gained

Theory

Introduction to Orthopeaedics: Terminology, types of common outhology, clinical examination, Common investigation, Outline of management – Operative & Non-Operative.

Principles of operative Managements: Osteotomy, Arthrodesis, Spinal Stabilization, Tendon operations, External fixation, Arthroscopy, total joint replacements, limb re-attachments.

Spratures and Strains: Common sites of sprains and muscle strains, their clinical manifestations and treatment.

Fractures and Dislocations: Briefly mention Types of fracture and dislocations, symptoms and signs of above injuries and their Principle of management and Complications.

Prevention and treatment of common complications: Fracture disease, Volkmansischaemic contracture, Sudeck'sosteo dystrophy, Myositis ossificans, Ligament injuries,Shoulder- hand syndrome etc.

Spinal column: fractures, management and complications of Spinal injures spinal deformities like Scoliosis, Kyphosis, and Lordsis etc

Injuries of upper limb and lower limb, enumerate major fracture and joint injuries, brief description of principle of management and complications.

Amputations: Classification, indications, pre-operative, operative and post-operative management.

Arthritis: Outline of Pathology, clinical features, management, complications of Rheumatoid arthritis, osteo- arthritis and Ankylosingspodylitis.

Bone and Joint Infections: Aetiology, clinical feature, management and complications of Septic arthritis, Osteomyelitis, Tuberculosis and leprosy.

Congenital anomalies and other deformities: C.D.H, CTEV, Scoliosis etc.(Salient features only).

Bone and Joint Tumors: Classification, clinical features and management of Osteoma, Osteosarcoma, Osteoclastoma, Ewings tumor, Multiple myeloma and Secondaries.

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Low backache: Causes, management.

Frozen shoulderand other painful conditions of shoulder. Painful heel conditions. Tendinitis and Fascilis.

Poliomyelitis: common deformities due to PPRP and their management.

Miscellaneous condition: Spondylitis, Prolapse inter-Ventbral disc, Tennis elbow, Carpal tunnel syndrome, Spondylolisthesis etc.

Practicals
Students does clinical checking, ward work, hospital posting for a period of one month to acquaint himself about traumatology and orthopaedic conditions.

Book References
Outline of fracture by Adams.
Outline of Orthopaedics by Adams.
Orthopaedics and Traumtology by Natarajan.
Aplay'sOrthopaedics.

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PAPER-6
BPT-206
ELECTROTHERAPY

Total No. of teaching Hrs. - 200 **Theory: - 120hrs. Practical: - 80hrs.**

COURSE OBJECTIVE:

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 OUTCOME:

1. Knowledge about different types of low and medium frequency currents its indication, contraindication, method of application gained.
2. Knowledge about high frequency currents and its effects , uses gained.
3. Knowledge about LASER therapy and its uses gained.
4. Effects of moist heat therapy and method of application is understood.
5. Knowledge about cryotherapy and its method of application, effect and uses gained
6. Practical application of electrotherapy modalities for various conditions gained.

Theory

I. Low Frequency Current

A. Nerve Muscle Physiology

Reasting potential, Action potential, propagation of action potential, Motar unit, Synapse and Syanaptic transmission of Impulse. Effect of negative and positive electrodes on nerve and accommodation.

B. Faradic Current

Definition, Characteristic and modified Faradic current, sinusoidal current
Parameters of Faradic stimilation.
Physiological and Theraprulic effects of Faradic simulation.
Indications, contraindication and precautions
Techniques of stimulations & Group muxcle stimulation.
Faradic foot bath, faradic under pressure and pelvic floor muscle re-education

C. Galvanic Current

Introduction and characteristics
Parameters of Stimulation
Physiological and Therapeutic effect of stimulation.
Indications and Contraindications.
Principles of tratment and Techniques of stimulation.
Precautions.

D. Electro-Diagnosis

F.G. Test
S.D. Curve
Chronaxae and Rheobase
Nerve Conduction
EMG
Nerve conduction Velocity Measurement(outline only).

E. Iontophoresis

Definition, Principles of Iontophoresis, Physiological and Therapeutic effects, Indications
Techniques of Iontophoresis, Principles of treatment, Contraindications and Dangers

F. TENS

Definition, pain Gate theory, theories of Modulation, principle of I.F.current Indications,
Techniques of application, Contraindication and precaution.

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B. Medium FrequencyCurrent(InterferentialCurrent).

A. Short Wave Diathermy

Introduction, Physiological effects and therapeutic effects of SWD Methods of application (Capacitor field method and cable method etc.)Techniques of treatment, Indications, Contraindications and Dangers.

B. Pulsed SWD

Definition, Characteristic, Mechanism of work, physiological effects and Therapeutic effects Indications, Technique of application, Principles of Treatment and Contraindications

C. Microwave Diathermy

Introduction and characteristics
Physiological effects
Therapeutic effects
Techniques of application and principles of treatment.
Danger of Microwave diathermy.

D. Ultraviolet Radiation

Introduction, Physiological effect of UVR, Indications, Contraindications, Dangers of UVR, Techniques of application, Dodage.

E. Infra-Red

Introduction, Therapeutic uses ofIR, Techniques of application, Dangers and Contraindications

F. Introduction and Characteristics, Effects on tissue, Therapeutic effects, Principles of application, Indication, Contraindications and Dangers

IV. Ultrasonic Therapy

Introduction and characteristics, U.S. therapy parameters, Coupling media, Therapeutic effects, Indications, Contraindication and Dangers, Testing of Apparatus, Techniques of application and dosage.

V. Other Heating Modalities

Wax-bath- Introduction, Preparation, Method of application, Effects , Indications and Contraindications, heating pad, Moist heat.

VI. Cryotherapy

Introduction, Physical Priciples, Physiological effects, Indications, Contraindications.Therapeutic effects & Techniques of Appliction.

VII. Bio Feedback

Introduction, principles od Bio feedback, therapeutic effects of Bio Feedback, Indication and Contraindications, Techniques of Treatment.

VIII. Advanced Electrotherapy

Computerization in Electrotherapy, Programming of Parameters of treatment, appropriate selection of parameters and combination in therapy, Combined therapy – Principle, Therapeutic uses and indications like U.S. Therapy with stimulation or TENS etc

Practical

Testing of above apparatus
Techniques of application of above treatment modalities(Demonstration & Practice)
Electro diagnosis (demonstration and Practice of following electrodiagnostic Measures)
F.G. Test
S.D. Curve

Suggested Readings Books:

1 Froster, A. and Palastanga, N. Clayton's Electrotherapy: Theory and Practice AITBS, Delhi
2 Jhon, Low and Ann, Reed Electrotherapy Explained: Principles Butterworth Heine, Oxford
3 Nelson, R.M. and Currier, D.P. Clinical Electrotherapy Appleton and Lange
4 Cameron, M.H. Physical Agents in Rehabilitation W B Saunders, London
5 Michlovitz, S L Thermal Agents in Rehabilitation F A Davis, Philadelphia
6.B.K.Nanda, Electrotherapy , Jaypee Publication, New Delhi 7. Jagmohan Singh- Electrotherapy ,Jaypee Publication, New Delhi

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PAPER-7

BPT 202

PHYSIOTHERAPHY IN EXERCISE THERAPY(INCLUDING YOGA)

Total No. of teaching Hrs. - 200 **Theory :- 120hrs. Practical:- 80hrs.**

Courses Objective:

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

COURSE OUTCOME:

1. Demonstrate the various re-education techniques and facilitating methods on various groups of muscles.
2. Demonstrate the progressive re-education exercises in strengthening using various applications: (according to their muscle power) Grade I - Grade V.
3. Muscle strengthening – PNF Hold relax, slow reversal, Rhythmic stabilisation, repeated contractions.

Theory

Introduction to Exercise Theapy Exercise and physiology of body.

Psychogenic aspects of exercise Pharmacological aspects of exercise

Starting positions - Fundamental starting positions.Standing, sitting, Kneeing, Lying and Hanging, All the devrived positions of the above five fundamental starting. Muscle work for all the fundamental starting positions.

Classification of movements in details.

Active voluntary movements, involuntary movements, passive movements.

Assisted exercises- Classification, Free exercises, Assisted exercises, Resisted on various systems etc.

Free exercises – Classification technique effects of free exercise on various systems etc.

Resisted exercises – technique and types of resistance, SET system (heavy resisted exercise, Oxford method, Delorme method, Macqueen's method)

Relaxed passive movement- Definition, Classification of relaxed passive movements,Technique, effects and uses of relaxed passive movements.

Passive stretching- Aim, Principles, Indications, Techniques & contraindications

Muscle strength– anatomy and Physiology of muscle tissue, Causes of muscle weakness/paralysis, Prevention of muscle weakness/paralysis Type of muscle works and contractions, Tinge of muscle work, Principles of muscle strengthening/re-education Early re-education of a paralyzed muscle etc

Joint movement – Classification of joint movements, Causes for restrictions of joint movement, prevention of restriction of joint range of motion etc, principles of mobilization of joint increasing its range of motion, technique of mobilization of stiff joint.

Relaxation: Technique of relaxation, Principle to obtain relaxation in various positions.

Posture.

Neuromuscular coordination and P.N.F.

Functional Re-education Exercises.

Suspension Therapy: Principles of suspension, Type of suspension, Therapeutic effects and uses of suspension therapy, their application either to mobilize a joint or to increase muscle power.

Hydrotherapy.

Massage: Definition of massage, local effects of individual manipulation (physiological effects), Contraindications, Techniques of application of manipulations, Kneading and picking up, rolling (back) Clapping, Tapping, Friction

Isometric exercise and Isotonic exercise.

Exercises of the shoulder and hip and evaluation.

Exercise of hand, food and evaluation

Exercise of the knee and elbow and evaluation

Spinal exercises including neck exercises

Normal gait analysis.

Pathological gaits.

Gait training.

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Crutch walking.
Types of paraplegic gaits.

Oedema: Types and treatment.

Manipulation therapy: Introduction, Principles of therapy, Indications and Contraindication (no clinical application of these techniques).

Traction: Types, Principles, Indications and Contraindications.

Group Therapy: Indication, contraindication, types.

Therapeutic Gymnasium.
Endurance training.
Strengthening technique
Coniometry
Manual muscle assessment
Walking aids and crutch walking

Yoga

Yogasanas and their scientific studies.
Concept of total yoga discipline.
Psycho physiological aspects yoga procedures.
Psychological aspects of yoga
Psycho-social aspects of yoga.
Yogasanas for physical culture, relaxation and meditation.
Application of Yogasana in physical fitness, flexibility, cardio-respiratory rehabilitation.
Neuro motor learning.
Yoga – A holistic approach.

Practicals

Demonstration and practice of movement to Upper limb.Lower limb. Cervical and Lumbar spine.

Massage: Demonstration and practice of all types of massage manipulation, stroking, Effuerage, Kneading – Circular Kneading. Thumb kneading., Finger kneading, Picking up. Skin rolling (back) Clapping etc.

The above various types of manipulations should be demonstrated and practiced to Upper limbs. Lower Limbs. Neck and Face appropriately.

Suspension Therapy

Demonstration and practice of putting suspension to shoulder & Elbow joint in Upper limb, hip joint and knee joint in lower limb for all movements (except circumduction at shoulder and hip joint).

Demonstration of total suspension.
Demonstration and Practice of Techniques of all joints of Upper limb and Lower limb
Demonstration and Practice of Techniques of Strengthening.
Demonstration of exercises at different joints of Upper limb, Lower limb and Spine
Demonstration of normal and pathological gaits and crutch walking.
Demonstration and Practice of Functional Re-education Technique.

Book Reference

1. Principles of Exercise therapy by M.DenaGaeder.
2. Practical Exercise Therapy by Hollis M.

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IIIrd YEAR
BPT

		Internal Assessment		University Examination			
Code	Title of Papers	Theory	Practical	Theory	Viva	Practical	Total
BPT-301T	Neurology, neurosurgery ,Cardiothoracic Disease & surgery	20	-	80	-	-	100
BPT-302T	Physiotherapy in Orthopedic	20	20	100	20	40	200
BPT-303T	Physiotherapy in Neurology & Neurosurgery	20	20	100	20	40	200
BPT- 304T	Physical Evaluation	20	20	100	20	40	200
BPT-305 T	Bio-mechanics and Bio-Engineering	20	20	100	20	40	200
TOTAL							900

Note

Passing marks in all subject candidate must obtain 50% in aggregate with minimum of 50% in Theory, including viva and minimum 50%in practical.

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SYLLABUS FOR BACHELOR OF PHYSIOTHERAPY
BPT-IIIRD YEAR (4 YEAR PROGRAMME)
PAPERE-I
BPT-301
NEUROLOGY, NEUROSURGERY, CARDIOTHORACIC DISEASE AND SURGERY
Total No. of Hrs.- 150

Course Objectives:

1. To understand clinical manifesations of Neurological.

Course outcome :

1. This helps in study the of medicines encountered in the management of physiotherapy
2. This course gives basic idea of different diseases and infections.
3. This provides brief knowledge on symptoms and pathology of diseases
4. This gives knowledge on analyzing and interpretating imaging findings into the physical therapy diagnostic process.
5. This provides the foundation of differential diagnosis
6. This provides a basic knowledge on physiological and pathological changes during old age
7. This provides information on normal and abnormal developmental disorders in paediatrics

NEUROLOGY AND NEURO SURGERY NEUROLOGY

1. **Basic Neurophysiology**
   a) Motor (Pyramidal, extrapyramidal & cerebellar)
   b) Sensory
   c) Reflexes, Bladder and Bowel Control.
2. Principle of Clinical Examination, Diagnosis, Differential diagnosis and Prognosis of Neurological disorders.
3. Salient clinical Feature and Management of Common Neurological Disorders
   a) Cerebral Palsy
   b) Strokes
   c) Neuro-infections - Meningitis, Encephalitis, Poliomyeiitis
   a. Movement disorders (Parkinsonism, Dystonia, Chorea, Tremors And Writer's Cramps, Cerebellar Ataxia, Friedreich's Ataxia etc.)
   c) Motor Neuron Disease.
   f) Dementia.
   g) Diseases of Spinal Cord - Compressive (Spondylotic, Tumors); Non-compressive.
   h) Peripheral Neuropathies - G.B. Syndrome, Diabetic; Entrapment neuropathies.
   i) Muscle Disorders - Dystrophies; Polymyositis; Myasthenia Gravis.

NEUROSURGERY

THEORY

A) Neurophysiology

Reviews in brief the neurophysiological basis of tone and Disorders of tone and Posture, Bladder control, Muscle convection, Movement and Pain.

B) Clinical Features and Management

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

1. Congenital and Childhood disorders
   a) Hydrocephalus.
   b) Spinal Bifida.
2. Trauma - Broad localization, first aid and management of sequelae of Head injury and Spinal Cord injury.
3. Diseases of the Spinal Cord:
   a) Craniovertebral junction anomalies.
   b) Syringomyelia.
   c) Cervical and lumbar disc disease
   d) Tumours.
   e) Spinal arachnoiditis.
4. Peripheral Nerve Disorders:
   a) Peripheral nerve injuries: Localization and Management

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b) Entrapment Neuropathies.

5. Intracranial tumours: Broad Classification, Signs and Symptoms.
6. Miscellaneous:
7. Pre-operative assessment, Indications and Contraindications for Neurosurgery.
8. Management of Pain, Electrical Stimulation of Brain and Spinal cord.

Book References

1. Davidson's Principles and Practice of Medicine
2. Brains Clinical Neurology.
3. Medicine and Neurology by Golwala.
4. Surgery by Nan.
5. Baily & Love's - Short Practice of Surgery.

CARDIO - THORACIC DISEASES AND SURGERY

Theory

A) Brief idea of Anatomy and Physiology of Cardio- respiratory systems.

B) Outline Aetiopathogenesis of Cardio-respiratory disorders. Investigations, Diagnostic, Differential diagnosis and principles of management.

C) Cardio - Vascular System

i) Cardiac failure - Definition, Causes, Symptoms and Signs and Brief management of Cardiac failure.

ii) Rheumatic Fever - Definition, Brief description of Aetiology, Clinical features, Complication and Treatment.

iii) Congenital Heart Diseases: Classification and brief outline of diseases like ASD, VSD, PDA, Fallots'sTetrology with complication.

iv) Ischaemic Heart Disease - Aetiopathogenesis, Classification. Symptoms, Diagnosis and Medical and Surgical treatment.

v) Hypertension - Definition, Classification, Symptomatology, Complications and Treatment,

vi) Infective Endocarditis - Brief aetiopathogenesis, clinical features, Diagnosis and Treatment.

vii) Brief description of Deep Vein Thrombosis and Pulmonary embolism.

viii) Vascular Disease: Atherosclerosis, Burgers disease, Phlebitis etc.

D) Respiratory System

(Respiratory diseases including diseases of chest wall)

1. Chronic Bronchitis and Emphysema, Definition.
   Clinical features, and investigation, complication and treatment.
2. Bronchial asthma - Definition, Aetiopathogenesis, clinical features, Diagnosis and Treatment.
3. Pneumonia - Definition, Classification, clinical features, Complications and Treatment.
4. Tuberculosis - Aetiopathogenesis, clinical test of pulmonary tuberculosis, Diagnosis Complication & Treatment.
5. Lung abscess and Bronchiectasis - Definition, clinical features, Diagnosis and Treatment.
6. Chest wall deformities- Describe various deformities of chest wall, its effect and Pulmonary diseases associated with it.
7. Occupational Lung Diseases - Clinical features, Diagnosis and Treatment.
   Respiratory failure - Classification, Causes and Treatment.

Cardiothoracic surgery

Theory

(1) Introduction

types of incision, pre and post operative assessment, management and complications of cardio thoracic surgery and their management.

(2) Cardiac Surgery

Outline indication, contra indication, site of incision, pre and post Operative management and complications of the following:

1. Valvotomy and Valve Replacement.
2. Open heart surgery/ cardiac by pass surgery

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3. Surgery of pericardium
4. Heart transplantation
5. Pacemaker
6. Coronary angioplasty
7. Balloon angioplasty and vascular surgery.
   (Outline surgery and artery and veins)

(J) Thoracic Surgery

a. Outline clinical features and management of the following: fracture of ribs, Flail chest, stove in chest, Pneumothorax, Haemothorax, Lung contusion and Laceration and injury to vessels and brounchus.

b. Outline indications, contradiction, site of incision, pre and post operative management and complication of following- Lobectomy, Pneumonectomy, segentectomy, pleuro-pneumonectomy, Thoracoplasty, decortion, Tracheostomy.

c. Outline clinical features and managemen of carcinoma of lung.

d. Describe in detail the following procedure: management of endotracheal tubes, tracheal Suction, Weaning the patient from ventilator, Extubation and Post-extubation care.

e. Describe the principles of cardio-pulmonary Resusciation, cardiac Massage, Artificial respiration, defribrillators and their use.

Book References

Medicine

1. Davidson's Principles and Practice of Medicine.
2. Harrison's internal Medicine.
3. Geneva Surgical Operations - by Kirkl Williamson.
4. Surgery by Nan.

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PAPER-I
BPT-302
Physiotherapy in Orthopedic
Total No. of teaching Hrs. – 200 Theory: - 120hrs.Practical : - 80hrs
Course objective :

1. To identify various Musculo skeletal dysfunction clinically
2. To set goals and apply therapeutic skills in different orthopaedic conditions to restore musculoskeletal function

Course outcome:

1. Knowledge about assess , diagnose and plan the physiotherapy treatment for variousmusculo skeletal problems gained.
2. Physiotherapy management for various fractures are understood.
3. Knowledge about physiotherapy management for various orthopaedic surgeries gained.
4. To Know about the different types of postural deformities and correction of postural deformities.
5. Physiotherapy management for various degenerative disorders of bones and joints are understood.
6. Knowledge about physiotherapy management for amputation gained.
7. Knowledge about soft tissue injury diagnosis and physiotherapy management gained.
8. Knowledge about burns and physiotherapy management for burns gained.
9. Pre and post operative physiotherapy management for major orthopaedic surgeries are understood.

PHYSIOTHERAPEUTICS -I

1. Traumatology and Orthopaedics

a) Classification of feature causes and Types.
b) Signs and symptoms of fracture,
c) Complications of Fracture.
d) Healing and factors affecting it.
e) Principles of fracture management.
f) Principles of Physiotherapy management.
g) Physiotherapy management of complication.
h) Dislocation - Common sites, signs and symptoms.
Principles of physiotherapy Assessment and Management in shoulder dislocation, Hip dislocation etc.
i) Specific fractures and their complete physiotherapy Assessment and management.
Upper Limb: Scapula, Clavicle, Humerus, Ulna and Radius, Colles fracture and Crush injuries of Hand.
Lower Limb: Fracture of Pelvis, Neck of Femur, Shaft of Femur, Patella, Tibia and Fibula, Pott's Fracture, Fractures of Tarsal and Metatarsal bones.
j) Management of Fracture of Spine with or without neurological deficit.
k) Soft Tissue injuries Soft tissue injuries.Synovitis, Capsulitis, Volkmansischamic contracture etc. Tear of semilunar cartilage and cruciate ligament of knee. Rotator cuff tendinitis, Ankle sprains, Tennis elbow, Golfer's Elbow, CT. Bursitis, Retrocalcaneal bursitis

2. Degenerative and infective Conditions

Osteoarthritis of major joints.Spondylosis, spondyiitis, Prolapsed intervertebral disc. Lesion, Spondylolisthesis, periarthritis, Rotatorcuff lesion of shoulder. Tuberculosis of spine, Bone and Major joints, perthes disease, Rheumatoid arthritis, Ankylosingspondylities, etc. and other miscellaneous orthopaedic conditions commonly treated by physiotherapy

Deformities

Congenital: Torticollis and Cervical rib, C.T.E.V., Pescavus and PesPlanus and Other common deformities.
Acquired: Scoliosis, Kyphosis, Lordosis, Coxavara, Genu Valgum, Genu varum and Genu recurratum etc.
Orthopaedic Surgery: Pre and Post operative assessment and management of surgeries like Arthroplaty, Arthrodesis, Osteotomy, Tendon transplant, Soft tissue release, Grafting, Partial and complete joint replacement, Arthroscopy, spinal Stabilisation, reattachment of limbs, Illizarove techniques, operation in C.P. and Polio.

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Amputations: Levels of Amputation of upper and lower extremity, stump bandaging, Pre and Post Prosthesis fitting assessment and management (check-out of Prosthesis Training etc.) ComplicaTions of Amputations and their management.

Manipulation Therapy) Assessment, Principles and Techniques of Therapy and Factores considered in therapy.

Practicals

Various physiotherapy modalities and treatment techniques for the above-mentioned cond~ions to be demonstrated and practiced by the students.

Book References

1. Cash's textbook of Orthopaedics and Rheumatology.
2. Physiotherapy in Rheumatology.
3. Physiotherapy in disorders of brain.
4. Clinical Orthopaedics for Physical Therapy - by Campbell
5. Tidy's Physiotherapy.
6. Clinical Orthopaedics for Physical Therapy - by Richardson's &Sadowsky

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PAPERE-3
BPT-303

PHYSIOTHERAPY IN NEUROLOGY & NEUROSURGERY

Total No. of teaching Hrs. – 200 **Theory: - 120hrs.** **Practical:80hrs**

Course Objectives:

1. To understand clinical manifestations of Neurological.

Course outcome:

1. Evaluate, differentiate, and comprehend the neuroanatomical and neurophysiological basis of the structure and functions of the brain and spinal cord.
2. Become well known about the analysis of the different aspects of the neurological physiotherapy assessment which includes assessment of Central nervous system and peripheral nervous system.
3. Learn about the principles of various treatment techniques and thereby students will be able to construct their own treatment protocol for neurological conditions.
4. Understand the clinical features and management of the paediatric, adult neurological conditions that includes congenital & acquired disorders.
5. Identify the motor, sensory perceptual dysfunction of the adult and paediatric neurological conditions.

PHYSIOTHERAPY IN NEUROLOGY

Theory

1. Review of Basic Neuro-anatomy and Physiology.
2. Symptomatology of Neurological disorders, Role of investigations in differential diagnosis, diagnosis and clinical examination of C.N.S. functions including cranial nuclei,
3. Principles of examination of higher function and applicability in training.
4. Developmental disorders of C N S Early detection of brain damaged child, Risk babies, Neuro – Paediatric examination.
5. Developmental programmes and Delayed milestones. Neuro - developmental screening test.Minimum Brain Damage.
6. Sensory, Motor, Functional Psycho-social behaviours of a child, Perception development and training.
7. Neuro developmental approaches (like Bobath technique, Rood's approach, Vojta technique, Biofeed-back. Yoga etc.), Primftive patterns and abnormal motor behaviour due to brain damage, its control and training with reference to gait and hand function.
8. Assessment and Treatment techniques in Stroke, Meningitis, Encephalitis, Parkinson's diseases. CR., Cerebellar Ataxia.Friedreich's Ataxia, Head Injury, Brain tumours.
9. Assessment and Treatment of spinal cord lesions such as Motor Neuron Disease, Disseminated sclerosis, Transverse myelitis, spinal tumors) poliomyelitis, syringomyelia, Spinal cord injury and Subacute combined degeneration of spinal cord.
10. Assessment and treatment of neuropathies and Nerve injuries.
11. Assessment and treatment of Myopathies.
12. Pre and Post surgical assessment and treatment in Neurosurgery.
13. Electro-diagnostic procedures and prognosis in neurological disorders.

Book References

1. Cash's Textbook of Neurology for Physiotherapist by John Cash.
2. Key issue in Neurological Physiotherapy by Ada/Canning.
3. Elements of Paediatric Physiotherapy by Eckers-y.

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PAPERE-4

BPT 304

PHYSICAL EVALUATION

Total No. of teaching Hrs. – 200

Theory :- 120hrs.

80hrs

Practical:-

Courses Objective

1. Student shall be able to acquire the concept of evaluation of functions and measurements in general and in disorders of different systems.

2. Able to diagnose and measure the physical problems presented by the patients.

Course outcome:

1: Students should have through understanding of patients medical record.Students should have a good communication skills in gathering the required subjective data in framing the hypothesis and reasoning out the hypothesis.

2: Students should have understood the various concepts of orthopaedic manual therapy .Students should understand the grades of mobilizing techniques on based on different concepts.

3: Students should understand the different approaches available for the treatment of neurological conditions.

4: Student should have understood the assessment of cardio-respiratory patients & should have a clear understanding in interpretating the investigations and reasoning out the differential diagnosis.

5:Students should have understood the differential test procedure available in field of cardiorespiratory.

PHYSICAL EVALUATION

Theory

(A) Introduction.

(B) General considerations

(C) Cardio-respiratory system. Physical evaluation of cardio respiratory normal and pathological condition.

Posture (recumbent, erect orthopnoeic)

Breathing pattern and breath hold (rate, rhythm, use of accessory muscle) Chest deformity, Cough, Sputum, Tactile and vocal fremitus, Mobility of thoracic spine and rib cage, Percussion, Breath sound,

Chest expansion measurements

Measurement of lungs volumes and lung capacities, blood gas level exercise tolerance test etc.

Heart rate, blood pressure, heart Sound, pulse rate (volume and pressure) exercise tolerance test

(D) Nervous system

Evaluation of function and measurement in general and with reference to:

Upper motor and lower motor neuron lesions.

Myotomes and Dermatomes

Nerve entrapments

Muscle Tone Voluntary movement and voluntary control tests (isolated and skilled)

Test for disorder of programmes (i.e. cerebellum basal ganglia lesions) etc. and co-ordination tests.

Abnormal movements -Clonus, Tremor, Chorea Athetosis etc.

Reflexes (Superficial Reflexes and Deep Reflexes, Primitive Reflexes etc)

Neural control of bladder

(E) Musculoskeletal System

Goniometry, manual muscle assessment

Postures and postural disorder evaluation

Physical examination of joints in non-vital and patho-mechanical conditions.

Muscle strength and endurance.

Range of motion at joints flexibility.

Measurement of muscle girth,leg-length, pelvic inclination, segmental

Measurement of body part (femur, tibia etc.)

Angle of scoliotic curve etc.

Gait analysis in pathological conditions and measurement of gait parameters

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Assessment of pelvic floor muscle strength and function
(i) Digital evaluation of Vagina
(ii) Perionometer
(iii) Pad Test
Disability Evaluation
Gait and Gait parameter percentage of disability, temporary or permanent
Functional Evaluation
(i) Mobility in bed. Transfer, Ambulation.
(ii) Personal care - Eating. Dressing. Washing, Bathing etc.
(iii) House hold Jobs
(iv) Work and Recreation
Book References
1. Rehabilitation Medicine - Rusk
2. Tidy's Physiotherapy
3. Cash's Text Book for Physiotherapist (all volumes).
4. Physical Rehabilitation Assessment and Treatment by Osulivio

PAPERE-5
BPT-305
BIOMECHANICS AND BIO-ENGINEERING
Total No. of teaching Hrs. - 100

COURSE OBJECTIVE:

1. To understand the Musculoskeletal surgical anatomy normal and pathological deviations

Course outcome:

1: Students should have understood the principles and mechanics behind the construction of orthotics and prosthetics, should be able answer what are the other mobility aids which are available in the market.

2: Students should be able to answer biomechanical principles behind the construction of each and every orthotics and prosthetics.

3: students should have understood the differentiation of both the upper motor and lower motor neuron lesion and cerebellar dysfunction & should be able to explain the safety measures to the patient should understand while using this devices.

4: Student should have understood the basis of ergonomics and how it is going to be important in diagnosis & should have understood how to perform a quick ergonomic evaluation in a work place of a person.

5: Student should have understood the basics about the yogic exercises, will have better understanding about patanjali and tirumantram exercises and the repetitions.

BIOMECHANICS

1 Introduction Definition and Aim, Scope and Importance in physiotherapy bioengineering. Force axes and planes, center of gravity, levers classifications of force system.The linear force system, resultant force equilibrium Development of Biomechanics.Definition of kinetics and kinematics Origin of human movements and ~s significanceForms of human movements.— their characteristics and factor affecting them

2. Biomechanics of Bone tissue collagenous tissue and muscle
3. Biomechanics of Spine
4. Biomechanics of Upper extremity joints
5. Biomechanics of Lower extremity joints.
6. Biomechanics of Locomotion.
7. Biomechanics of Activities of daily living and Sports, and Work analysis.

BIO-ENGINEERING

1. Introduction.

Prosthesis and Orthosis - Definition, Biomechanical Principles and Design Materials used in manufacturing.

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2. Designing and Manufacturing of Upper and Lower extremity Orthosis and Spinal orthosis including indications and Check Out.
3. Upper Extremity and Lower Extremity Prosthesis. Indications. Biomechanical principles of Design, fitting and Checkout,
4. Prescription and Design of foot wear and modification.
5. Wheel Chairs.
6. Design and Construction of Adoptive devices.

Book References

1 Normal Human Locomotion - Published by ALIMCO
2. Applied Kinesiology and Biomechanics.
3. A Premier of Orthopaedic Biomechanics by George van B. Cochran.
4. Basic Biomechanics of the skeletal system by Victor H. Frankel, Margareta Nordin.
5. Structural Kinesiology by E.P. Braham U.N. Wooten.
Atlas of Orthotics.

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IVth YEAR
BPT

		Internal Assessment		University Examination			
Code	Title of Papers	Theory	Practical	Theory	Viva	Practical	Total
BPT-401T	Physical Diagnosis & Prescription	20	20	100	20	40	200
BPT-402T	Physiotherapy in Cardiothoracic condition	20	20	100	20	40	200
BPT-403T	Sports Physiotherapy	20	20	100	20	40	200
BPT- 404T	Community medicine community PT, Field Visits & Physiotherapy Ethics	20	-	80	-	-	100
BPT-405 T	Rehabilitation Therapy & Biostatistics	20	-	80	-	-	100
TOTAL							800

Note

Passing marks in all subject candidate must obtain 50% in aggregate with minimum of 50% in Theory, including viva and minimum 50%in practical.

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SYLLABUS FOR BACHELOR OF PHYSIOTHERAPY
BPT-4TH YEAR (4 YEAR PROGRAMME)
PAPERE-1
BPT-401
PHYSICAL DIAGNOSIS AND PRESCRIPTION

Total No. of teaching Hrs. – 200

Theory :- 120hrs. **Practical:- 80hrs**

Courses Objective

1. Student shall be able to acquire the concept of evaluation of functions and measurements in general and in disorders of different systems.
2. Able to diagnose and measure the physical problems presented by the patients

Course outcome:

1. One can understand the knowledge about clinical diagnosis of orthopaedic conditions
2. One can understand the knowledge about clinical diagnosis of neurological conditions
3. One can understand the knowledge about clinical diagnosis of cardiac conditions
4. One can understand the knowledge about clinical diagnosis of respiratory conditions
5. One can understand the knowledge about clinical diagnosis of OBG conditions

Theory

1. Developmental Disorders;
   a) Neonatal behaviour abnormalities.
   b) Sensory motor integration and infant behaviour
   c) Perceptual motor dysfunction.
   d) Movement disorders in brain damaged children
2. Developmental deformities and congenital abnormalities:
   a) Persistence of Embryonic attitudes and alignments.
   b) Congenital dislocation of hip and congenital foot deformities
   c) Deformities in poliomyelitis.
   d) MenigoMyelocele and Hydrocephalus.
   e) Arthrogryposis.
3. Posture and Alignment, (Biomechanical and Neural factors),
4. Pulmonary function test, Spirometry and Gas analysis.
5. Cardiac Efficiency Tests:
   a) Principles of E. CO. Ultrasonography.
   b) Clinical Efficiency Tests.
   c) Clinical Monitoring.
   d) Stress EGG, Treadmill and Ergometry.
6. Work Physiology and Exercise prescription:
   a) Ergonomics considerations for Exercise
   b) Work Physiology Considerations.
   c) Exercise Analysis and Planning
   d) Work adjustment as per Biomechanical and Clinical ConsKieration
7. Electro-diagnosis:
   a) Review of Electro-physiology.
   b) Surface and Needle Electromyograpv.
   c) Nerve conduction velocity Test (Motor and Sensory),
   d) Reflex Study.
   e) 'H' and 'F Waves.
   f) Cerebral Evoked Potential S.D. curve and E.M.C.
   g) Analysis in Nonral and Pathological conditions. Like peripheral Nerve Injuries. Myopathy etc.
8. Principles of Investigative Methods in Medern Medicine like EEC, MRI, CT Scan etc.
9. Biophysical Measurements.
10. Prescription Writing

    Principles of writing Prescriptions and Therapeutic Modalities.

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Book References

1. Text Book of Physical Diagnosis —. by Mark M. Swartz.
2. Rehabilitation medicine — by Joel A. Delisa.
3. Differential Diagnosis in Physical Therapy — Goodman and Snyder.
4. Manual of Exercise Testing — CRDET
5. Clinical Electromyography — by Basmajian.

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PAPERE-2
BPT-402
Physiotherapy in Cardio thoracic Conditions
Total No. of teaching Hrs. -100

Course Objectives:

The objective of this course is that lectures,demonstrations, practical and clinics the student will be able to identify cardio respiratory dysfunction, set treatment goals and apply their skills in exercises therapy, electrotherapy and massage in clinical situations to restore cardio respiratory function.

Course outcome:

1. Basic anatomy , physiology of heart and lungs
2. Basic treatment for all cardiac and pulmonary diseases are deeply
3. Importance of physiotherapy intervention for cardiac and pulmonary disease.
4. Pre and post operative care for all surgery
5. Importance of ICU and its various treatment methods
6. Assessment of both cardiac and pulmonary patients
7. Adjuncts used along with physiotherapy and ventilators
8. Deep knowledge aboul investigative procedures

Theory

1. Review of basic cardio-Respiratory anatomy and Physiology.
2. Symptomatology of Cardio-Respiratory disorders, nvestigations, Diagnosis Differential Diagnosis and Prognosis.
3. Clinical examination of respiratory system Disorders.
4. Principles and techniques of physiotherapy in diseases of Respiratory system.
5. Physiotherapy assessment and management technique in the following: Bronchitis Asthma, Bronchiectasis. Pulmonary Embolism, Pulmonary Tuberculosis, Emphysema, Pleurasy& Empyema, Atelectasis, Pneumothorax, Bronchopulmonary,Fistula etc.
6. Pulmonary Rehabilitation:
   Definition Aims and Objectives.
   Patho-Physiology of Diseases, Physiotherapy Assessment
   Techniques of Rehabilitation including Bio-feedback
7. Clinical Examination of Cardio-vascular systems Disorders. Principles and Techniques of Physiotherapy in Cardio-vascular diseases.
   Physiotherapy Assessment and Techniques of Management in the following Cardio-vascular diseases.
   Congestive heart failure, Myocardial infarction, Endocarditis,Valvular diseases of heart congenital vascular diseases, PIA. Hypertension, Thrombosis, Phlebitis and Phlebothrombosis, Burger's Disease Varicose Veins and ulcers.
9. Cardio-Thoracic Surgery, Incision. Types, Indications & Contra Indications.
10. Pie and Post Operative Evaluation. Principles and techniques of Physiotherapy management of Heart and Vascular surgery.
11. Evaluation, Principles and Techniques of Physiotherapy, Management in Traumatic and Surgical conditions of Chest, Lung, Pleura and Mediastinum.
12. Principles of chest Physiotherapy in I.T.U. and I.C.C.U.
13. Pre and Post Operative Physiotherapy assessment and management in the following conditions, Segmental Resection, Lobectomy, Pneumonectomy, Decortication, Thoracoplasty, Pneumothorax, Bronchopulmonary Fistula, Valvotomy and Valve Replacement, Surgery on Pericardium, Open Heart Surgery and Heart Transplant, Congenital Abnormalities of Heart, Peripheral Vascular Disorders.
14. Cardiac Rehabilitation:
    Definition, Aims and Objectives, Patho-Physiology of Diseases, Physiotherapy Assessment, Techniques of Cardiac Rehabilitation including Yoga and Biofeedback.

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Practical

Various physiotherapy modalities and treatment techniques for above mentioned Surgical and Medical conditions should be demonstrated and practiced by the student.

Book References

1. Cash's text Book of General Medical and Surgical conditions for Physiotherapist.
2. Cash's Text Book of Chest, Heart and Vascular disorders for Physiotherapist.
3. The Brompton Guide to chest physiotherapist — D.U. Gasked (Completed)
4. Physiotherapy of Paediatrics — Shepherd.
5. Elements of Paediatric Physiotherapy by Pamel M. Eckersly.
6. Essentials of Cardiac-pulmonary Physical Therapy by Hillegass and Sandowsky.
7. Cardiac pulmonary Symptoms in physical Therapy practice Cohen and Michael.
8. Chest Physiotherapy in Intensive care Unit by Mackenzie.

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PAPERE-3
BPT-403
Sports Physiotherapy
Total No. of teaching Hrs. -100

Course Objectives The objectives of this course is that the student will be able to understand about current and latest intervention used for various sports conditions.

Course outcomes:

1. Students will know about how to prevent athletic injuries
2. Students will be able to identify the general conditioning principles
3. Students will be able to know about the warm – up schedule
4. They will have broad idea about the application of proper protective & supportive devices like taping & wrapping techniques.
5. Students will be able to do the emergency sports management.
6. Students will be able to apply various electrotherapy moadities in sports injuries.
7. Students will be able to treat all kind of sports injuries that can occur in upper & lower limbs.
8. Students will be able to treat the all running related injuries & swimming injuries.

Theory

1. Introduction
2. Sports
   a) Evaluation of Sports
   b) Evaluation of Physical, Cardio-respiratory Psycho-social and Emotional aspect of sports.
   c) Dietics and Nutrition in sports.
   3. Sports and Sports Training
   a) Evaluation of Pre-requisite for sports and sports Training.
   b) Principles of Sports Training.
   c) Instrumentation in sports Training. Isokinetic Exercise, Treadmill with Cardio respiratory evaluation apparatus etc.
   d) Modern Principles of Sports Analysis and Training.
4. Sports and Sports Injuries
   a) Introduction.
   b) Frequency and site of injury.
   c) Aetiological Factors.
   d) Investigation in sports injury.
   e) Diagnosis and prognosis.
5. Sports Injuries Management.
   a) Principles of sports injuries managements at the following stages
      i) Immediately after injury
      ii) Acute stage
      iii) Chronic stage
      iv) Rehabilitation stage
6. Soft tissue injury management.
7. Injuries and management in the following.
   a) Hip, Knee, ankle and Foot injuries.
   b) Shoulder, Elbow, wrist and Hand injuries
   c) Spine, Head and Neck Injuries.
   d) Chest, abdomen and Pelvic Injuries.
8. Pharmacology in Sports.
9. Rehabilitation in Sports.

Book References

1. Cash's Text Book of Rheumatology for Physiotherapist.
2. Modern Principles of Athletic Training — by Corl E. Klafs and Physiotherapist.
3. Sports Injuries: Diagnosis and Management for Physiotherapist
4 The Children's Sports injuries by David Kennedy.
S Dynamics of Clinical Rehabilitative Exercise by Order
8. Basic athletic Training by Cramer.

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PAPERE-4

BPT-404

COMMUNITY MEDICINE, COMMUNITY PT, FIELD VISITS & PHYSIOTHERAPY ETHIC

Total No. of teaching Hrs. 150

Course Objective

The objective of this course is give lecture demonstration to the student after which student will be able to have a community based perspective with Physiotherapeutic approach.

Course outcome:

1. One can very well understand about the members of rehabilitation team and their role in Rehabilitating the patient.
2. Geriatric assessment, evaluation and rehabilitation can be known
3. Student can under stand about the importance of therapeutic exercise in treating various condition like diabetes, hypertension, obesity etc.,
4. Communication and behavioral disorders can be well understood
5. The student can understand about the principles of disability evaluation
6. The knowledge of role of physiotherapy in managing cancer patients can be gained

Community Medicine Theory

1. General Concepts of health and diseases with reference to natural history of disease with pre-pathologenic and pathogenic phase.The role of socio-economic and cultural environment in health and disease.Epidemiology and scope. Role of Epidemiological investigation in public health.
2. Public Health Administration — Overall view of the health administration setup at Central State and Local self-government levels. Role of Non-Government Organisations in public health care delivery system.
3. The National Health Programmes — Highlighting the role of social, economic and cultural factors in the implementation of the National Programmes. Primary Health Care, objectives and implementation.
4. Health Problems of vulnerable groups — Pregnant and Lactating women Infants and Pre-school children, Occupational groups (see below) and Geriatrics.
5. Occupational Health: Definition, scope, occupational diseases, prevention of occupational diseases and hazards. Role of E S .5.In occupational health of industrial workers.
6. Social security and other measures for the protection of occupational hazards, accidents and diseases. Details of Factory Act, Environmental safety and Compensation acts. E.G. 5 Acts
7. Family Welfare Programme — Objectives of National Family Welfare Programme and Family Planning Methods. A general idea of advantages and disadvantages of methods Reproductive Child Health Services, Concept, of plan d pregnancies, population dynamics.
8. Mental Health — Community aspects of Mental Health: Role of Physiotherapists. Therapist in Mental Health Problems such as Cerebral Palsy, Mental retardation etc.
9. Communicable diseases — Diseases transmission concepts, an overall view of communicable diseases (Malaria, Filaria, Tuberculosis, Leprosy, Poliomyelitis, and Viral Encephalitis etc.) classified according to principal mode of transmission, Role of Insects and other Vectors in disease transmission. Control and prevention of communicable diseases, universal immunizatEonprogramme, Programmes such as ARI, Diarrhoea and Polio Control Programmes.
10. International Health Agencies and National NGOs.
11. Non-communicable diseases, Blindness, Accidents, Cancer, IHD, Hypertension, Stroke (CVA)
12. Vital and health statistics — Basic concepts, Morbidity and Mortality rates, Period, Age and Cause of specific death rates and role of these rates as indicators of health and diseases

Health Education

1. Health education philosophy, Main principles and objectives, Health education versus health legislation, Education versus Propaganda.
2. Review of Beliefs, Values, Norms, Habits and Taboos among practices, Mores in human groups and their importance in learning and change process.

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3. Review of concepts of perception, Attitudes, socialization process, Learning and Theories of learning, social change and change process, Motivation needs and drives.
4. Principles and process of communication.
5. Methods and tools of health education, individual and group methods, A critical evaluation of the theories, toll and health education
6. Role of health personnel in Health Education, Coordination and Cooperation, Health Education with other members of the health team. Health education component in National Health Programmes
7. Elements of planning a Health Education Programme with special emphasis on community participation.

Book Reference

1. Textbook of Preventive and Social Medicine by Dr J E Park.

COMMUNITY PHYSIOTHERAPY, FIELD VISITSAND PHYSIOTHERAPY ETHICS

Theory

Health care delivery programme in Urban and Rural areas Population studies and Health statistics.

Disabilities surveys, Epidemiological aspects and demands or' Physiotherapy services, Concept of rural camps and integration of infrastructural service and voluntary agencies. Extension services and mobile units.

Parental education programmes.

Home exercise programme packets in various physiotherapy conditions, Community awareness and participation in preventive aspects of health disorders, disability evaluation and screening for deformities and developmental disorders, pediatric disorders screening and advice, maternal care and home advice, Sports, Industrial and Occupational disorders, and preventive programme, Geriatric diseases.

FIELD VISITS

1. Visit to different physiotherapy colleges.
2. Visit to different National and Regional Rehabilitation Centre.
3. Visit to different Health Institutions. Book References

Book References

1. Rehabilitation Medicine by Joel A. Delosa.
2. Krusens, Handbook of Physical Medicine and Rehabilitation by Sliwell and Lehmann.

PHYSIOTHERAPY ETHICS

Course Description

This course enables the students to have knowledge about the ethical consideration in health care in particular to Phydiotherapy and Laws and Legal concepts related to Physiotherapy.

Course Objectives

The objectives of this course is that after 20 hours of Lectures, Demonstrations, Practicals and Clinics, the students will be able to understand the ethics of Physiotherapy practice and Laws and Legal concepts related to Physiotherapy Practice.

Theory

History of Physiotherapy.
Philosophy and Philosophical Statements.
Major Ethical principles applied to moral issues in health care.
Rules of professional conduct scope of practice.
Relationship with patients
Relationships with medical colleagues
Relationships between professionals with careers
Relationships with the profession.
Confidentiality and Responsibility
Provision of Services and Advertising
Sale of Goods.
Personal and Professional Standard.
Professional and Governmental Licensing, Accreditation and Education Standards.
Laws and Legal concepts.

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Protection from Malpractice claims, Consumer Protection Act
Liability and Documentations.

Book References

British Journal of Physiotherapy - 1994 Issue.
Medical Ethics by C.M. Francis.

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PAPERE-5

BPT-405

REHABILITATION THERAPY & BIOSTATISTICS

Total No. of teaching Hrs. -100

COURSE OBJECTIVES:

This course will enable the student to understand the basic knowledge of research design, measurements, scaling techniques and processing and analyzing data .

Course Outcome:

1. The student will be able to implement hypothesis testing
2. Important concepts relating to research design and measurements and scaling techniques.
3. To analyze experimental and observational study
4. Knowledge of Processing and analyzing data can be gained
5. To implement and calculate frequency distribution.
6. Interpretation and Report Writing can be well understood
7. Desire to face the challenge in solving the unsolved problems and to be of service to society

REHABILITATION THERAPY

1) (i) The Philosophy and need of rehabilitation.
Principles of Physical medicine.
Basic principles of Administration and Organisation.

2. (i) The evaluation process and treatment planning
Principles of prescription writing.

3. Principles of Orthotics:
Lower Extremity Orthotic
Upper Extremity Orthotic
Spinal Orthotic

4. Principles of Prosthetics
Lower Extremity Prosthetics
Upper Extremity Prosthetics

5. Principal of Rehabilitation
Nursing
Communication problems.
Social Problems.
Vocational Problems and Vocational Placement

BIOSTATISTICS

Syllabus

1. Introduction – uses of statistical methods of Physiotherapy – measurement scales, variables & their measurements, symbolic Data, operations.
2. Statistical data – Tabulation – Calculation of Central tendency & dispersion – Linear regression & correlation – presentation of data in diagrammatic & graphic form.
3. Probability & sampling as a mathematics system – population & samples – sampling distribution – sampling methods.

Books Recommended

1. Statistics: Theory, methods and application by Sancheti and Kapoor.
2. Statistical Methods by S.P. Gupta.
Bio-Statistics by Dr. Mahajan.

Collateral Reading

1. Statistical methods by Snedecor
2. Research methods by C.R. Kothari
3. Statistics in biology by N.T.J. Bailey

A short textbook of medical statistics by A.B. Hills.

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