Bachelor of Physiotherapy

Four and Half years Degree Course

Institute of Health Sciences

Chandaka,Bhubaneswar
www.ihsindia.org

City Office: Institute of Health Sciences N-2/41, IRC Village, Nayapalli, Bhubaneswar, Odisha - 751015 Landline – 0674-2553640	**Campus:** Institute of Health Scinces Chandaka, Bhubaneswar Khurda – 754005, Odisha Landline – 0674-2115846

SEMESTER-I

PAPER-1

PSYCHOLOGY AND SOCIOLOGY

Instruction Hrs:
Theory-150

Section A-Psychology

1. General psychology (50 hrs)
   1. Definition of psychology
   (i) Science of mind consciousness and behavior
   (ii) Scope and branches of Psychology

2. Methods of introspection, observation and experimentation

3. Hereditary and environment
   I) Relative importance of hereditary and environment
   II) Physical characteristics intelligence and personality
   III) Nature Vs nature controversy

4. Learning
   i. Types of learning
   ii. Trial and error
   iii. Classical learning
   iv. Instrumental learning
   v. Insight for learning

5. Memory
   i. Steps of memory
   ii. Measurement of memory
   iii. Causes of forgetting
   iv. Concept of STM & LTM

6. Perceptual process
   i. Nature of perceptual process
   ii. Structural and functional factors in perception
   iii. Illusion and hallucination

7. Emotion
   i. Emotion and feeling
   ii. Physiological changes
   iii. Theories of emotion(James-Lange and Cannon-Bird)
8. Motivation
   i. Motive ,need and drive
   ii. Types of motive: Physiological, psychological and social
9. Intelligence

   Definitions: theory and assessment

10. Personality: Definition: Types and measurements

II. Child Psychology (10 hrs.)

1. Concept of child psychology
   a. Meaning: nature and subject, matter of child psychology
   b. Practical importance of studying child psychology for rehabilitation professionals.
2. Methods of studying child development
   a. Baby biography
   b. Case history
   c. Behavior rating

III. Industrial Psychology (30 hrs.)

1. Human engineering
   Importance of human engineering
   Development of human engineering
   Problems n human engineering
2. Decision making
   Process and steps in decision making
   Individual decision making
   Decision making in organization
3. Stress and mental health
   Causes and reaction to stress
   Stress management
4. Work culture, morale and rewards of work discipline
5. Guidance and counseling
   Meaning, types and objectives of counselor

Section B- Sociology (60 Hrs.)

A. Introduction

Definition of sociology: Sociology as a science, uses of the study of sociology, application of knowledge of sociology in physiotherapy and occupational therapy

B. Sociology and health

Social factors affecting health status social consciousness and perception of illness social consciousness and meaning of illness decision making in taking treatment institutions of health their role in the improvement of health and the people.

C. Socialization

Meaning of socialization influence of social factors on personality socialization in hospital and socialization in rehabilitation of patients.

D. Social groups

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

E. Family

Influence of family on human personality, discussion of changes in the functions of a family, influence of family on the individuals family and psychosomatic disease.

F. Culture

Components of culture, impact of culture of human behaviors, cultural meaning of sickness, response to sickness and choice of treatment (role of culture as social consciousness in molding the perception of reality). Culture induced symptoms and diseases, sub-culture of medical workers.

G. Caste System

Features of the modern caste system and its trends.

H. Social

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

I. Social problems of the disabled

Consequences of the following social problems in relation to sickness and disability.
Remedies to prevent these problems.
Population explosion
Poverty and unemployment
Beggary
Juvenile delinquency
Prostitution
Alcoholism
Problems of women in employment

J. Social security

Social security and social legislation in relation to the disabled

K. Social worker

The role of a medical social worker

PAPER-II

THERAPEUTICS-I

Instruction Hrs:
Theory-55 hours
Practical-75 hours

Section A- EXERCISE THERAPY

1. Basic Physics in Exercise Therapy
   Mechanics: Force, Gravity, line of gravity, centre of gravity in human body, Base, equilibrium, Axes and planes, Mechanical principles-Lever order of lever, examples in human body, pendulum spring . Friction, Weight & pulley circuit, friction.

2. Massage: Definition of massage, types of massage, general effects and uses of massage, local effects of individual manipulation (Physiological effects). Contra-indications, techniques of application of all manipulations-stroking Effleurage, Kneading and picking up, skin rolling (back) clapping tapping friction etc.

Practical:

Demonstration and practice of all types of massage manipulation: Stroking Effleurage, Kneading-circular kneading. Thumb kneading, finger kneading (to joints) etc., picking up, skin rolling (back) clapping etc.

The above various types of manipulation should be demonstrated and practiced to upper limbs, lower limbs, back and face appropriately.

3. Introduction to Exercise therapy

4. Starting Positions-Fundamental staring positions-standing, sitting, kneeling, lying and hanging. All the derived positions of the above five fundamental starting positions. Muscle work for all the fundamental starting positions. Derived positions
5. Classification of movements in details:
   Active Movement: Voluntary movements, involuntary movements.
   Passive movements
6. Voluntary movements: Free exercise, assisted exercises, resisted exercises.
7. Assisted exercises: Technique and uses.
8. Free exercises-Classification, technique, effects of free exercises on various systems etc.
9. Resisted exercise- Technique and types of resistance, SET system (Heavy resisted exercises, Oxford method, Delorme's method. Mc Queens's method)

10. Relaxed passive movements, basic knowledge of classification of relaxed passive movements, definition technique, effects and uses of relaxed passive movements.

    Demonstration and practice of relaxed passive movements to upper limb, lower limb and spine.

11. Bed rest-complications. Effects of physiological standing &use of tilt table.

12. Suspension therapy:

    Principles of suspension, types of suspension therapy, effects and uses of suspension therapy their application either to mobilize a joint to increase joint range of motion or to increase muscle power-explaining the full details of components uses for suspension therapy.

    Demonstration and practice of putting suspension to shoulder joint, elbow joint in upper limb, hip joint and knee joint in lower limb for all movements.

13. Posture:

    Types, factors responsible for good posture, factors to poor posture.

    Principles of development of good posture. Faculty posture, correcting technique.

Section B-ELECTROTHERAPY- I

Instruction Hrs:
Theory-50 hours
Practical-70 hours

(LOW FREQUENCY CURRENTS):

1. Electrical fundamentals- Physical Principles-Structure and properties of matter, molecular atom, proton, neutron, electron, ion, etc.

   Electrical Energy: Nature of electricity-Current-Static electricity Current-electric potentials generated by cell-Gem's Law, Joule's Law.

   Magnetic Energy: Nature and property of a magnet, Magnetic induction-Snow rule-Maxwell's cork & screw rule.

   Electro magnetic induction-Principle and working of choke coil-Transformer –Rectification of AC to D C.Metal Oxide rectifier, Semiconductor-Diode and Triode.

   Valves-Principle of working-condenser-principle-Details of charging and discharging etc. Transistors measurement of current intensity, EME and power-moving coil mill ammeter and voltmeter.

Wiring of components in series and parallel. Distribution of electrical energy-Earth Shock and electrical Shock, Safety Devices.

2. Low frequency currents: Nature and principles of production of muscle Stimulating currents-Types of Low frequency currents used for treatment Therapeutic electric stimulation-Lontophoresis. High voltage galvanic current.

   Rectifying currents.

   Electrogenic membrane response-chemo responsive electrogenic system.

   Neuromuscular junction-synapses-Muscle electrogenic-Electro physiology of C.N. S

   Constant direct and interrupted direct currents-Modified current –physiological and therapeutic effects and uses. Technique and method of application-Precautions against dangers.

   Accident and treatment of them if they occur.

   Muscle stimulating current-To innervated and denervated muscle-Long and short duration-various pulses-Accommodation.

   Principles of electro diagnosis-Strength duration curve-Chronaxie and Rheobase-Their relationship etc.

3. Therapeutic heat:

   Definition, production, physiological & therapeutic effect, uses, contraindication, technique of application of following.

   a) moist heat
   b) paraffin wax bath
   c) contrast bath
   d) whirl pool bath
   e) fluido therapy
   f) electric heating pads

PRACTICALS – Low frequency current treatment:

Preparation of electro-therapy, preparation of apparatus, patient treatment technique.Following treatment techniques should be demonstrated and practiced by students.

a) Stimulating the muscles of extremity, back and face through the motor point.
b) Quadriceps inhibition.
c) Deltoid inhibition
d) Faradism under pressure
e) Faradism under tension
f) Nerve conduction method
g) Re-education of a transferred muscle. Various techniques in LF current treatment using interrupted/modified D.C.
   (i) Stimulation of motor point
   (ii) Stimulation of muscles directly

SEMESTER – II

Paper- I

ANATOMY

Instruction Hrs.
Theory – 100
Practical & Demonstration - 100

General Anatomy (16 HRS)
Introduction to anatomy

Cell : (Parts name of cytoplasmic organelles and inclusion with their functions)

Epithelium : Types with examples and light microscope structure

Connective tissue : Classification with emphasis to tendon

Cartilage : Type with example

Bone : Types with examples, types of ossification (Stages of ossification not required), blood supply, Fracture repair

Joints : Classification with example, emphasis to synovial joint.

Muscles : types (details of E M picture not required)

Nervous tissue : Structure of a neuron, synapse reflex arc, degeneration and regeneration of Nerve.

REGIONAL ANATOMY

Superior extremity (32 Hrs.)

Theory-(14 Hrs)

Axilla, brachial plexus, shoulder joint, sternoclavicular joint, axillary lymph nodes, elbow joint, superior radio-ulnar joint, nerves of arm and fore arm, synovial bursa of hand and palmar space, ulnar nerve in hand, cutaneous distribution according to dermatome, clinical anatomy, surface anatomy.

Practrical/ demonstration (18 Hrs.)

Pectoral Region, Axilla, Scapula and Clavicle, Humerus, Muscles of arm (front & Back), Radius, Front of forearm, ulna, back of forearm, muscles of palm & arterial arches, articulated hand (carpals and meta carpals name and arrangements in order only)

Inferior, extremity (32 hrs)
Theory-13 (Hrs)

Lumbar plexus, inguinal group of lymph nodes, hip joint, femoral triangle and femoral sheath, knee joint, venous drainage of inferiors extremity, sciatic nerve and its distribution, obturator nerve, arches of foot, mid tarsal and sub taller joint, cutaneous distribution according to myotome, clinical anatomy, surface markings.

Practical / Demonstration (19 Hrs)

Hip bone, Gluteal Muscles, Femur, front of thigh, back of thigh, medial side of thigh, tibia, anterior compartment of leg , fibula, lateral compartment of leg, back of leg, articulated foot (Identification of tarsal meta tarsal only)

Abdomen and Pelvis (34 Hrs).
Theory-(15 Hrs)

Abdominal wall, inguinal canal, stomach, liver, pancreas, kidney with ureter and spleen, small intestine, large intestine, abdominal aort, a portal vein, diaphragm.Sacral plexus, sacro-iliac joint, intervertebral disc.

Practical /demonstration (19 Hrs)

Abdokminalvisceras, sacrum, bony pelvis, visceras of pelvis and blood vessels.

Thorax (16 Hrs).
Theory (7 Hrs).

Thoracic cage and mediastinum, heart with its internal and external features, blood vessels, typical spinal nerve, typical intercostals space, mechanism of respiration, surface markings of heart and lungs.

Practical / Demonstration (9 hrs).

Superior mediastinal structures, sternum, ribs (only general features), vertebrae (Identification, general features, functional components, development, vertebral columns with weight transmission), heart, pleura & Lungs.

Head & Neck (22 Hrs).

Theory (11 Hrs)

Tempero mandibular joint, atlanto-occipital and atlanto-axial joint.Cutaneous distribution of trigeminal nerve.

Practical / Demonstration (11 Hrs)

Mouth cavity, nasal cavity pharynx and larynx (Parts, sensory distribution), cranial bones (Identification of Individual bone general features, different foramina in relation to cranial nerve cranial fossae and their relations to brain and hypophysis).

Identifications of anterior and posterior triangles of neck with their contents.

Nervous system (24 Hrs).

Theory-(12 Hrs)

Geneal introduction and classification, autonomic nervous system (Idea about sympathetic and par swympathetic with their difference in distribution and function).

Spinal cord with its meninges, spinal Reflex, Pyramidal and extrapyramidal tracts (detail Nucleus not required) Blood supply.

Parts of brain, meninges, Gross discussion of Hind Brain, Mid Brain (cranial nerve nucleus position should be mentioned).

Fore brain- cerebral hemisphere, functional areas and blood supply

Practical / Demonstration (12 Hrs).
Spinal cord and parts of brain.

Cranial nerve (12 Hrs).

Names in order, individual cranial nerve distribution, idea about upper motor neurone and lower motor neurone, applied anatomy.

Histology Practical (12 Hrs.)

Epithelium (Simple, Compound)
Connective tissue (Cartilage & Bone)
Muscle (smooth & skeletal)
Nervous tissue (Neuron)
Blood vessels (Large artery and vein)

Paper-II
PHYSIOLOGY

Instruction Hrs
Theory-50
Practical & Demonstration-50

GENERAL PHYSIOLOGY

1. Introduction and scope of Physiology
2. Cell and tissue- its structure, principal constituents, properties and functions including cell division.
3. Body fluid

   Blood composition and general function of plasma.Blood cells -structure and function-red blood cells, white blood cells-including numbers and approximate length of life –position, structure and function of cells of reticulo endothelial system.

   Blood clotting including bleeding time and clotting time, factors accelerating or slowing the process.Blood groups and their significance, Rh factor, Haemoglobin and E.S.R.

   Formation of blood, tissue fluid and lymph.

4. Cardio-Vascular System.

   Structure and properties of Heart Muscles and nerve supply of Heart.
   Structure and function of arteries, capillaries and veins.

   Cardiac cycle and Heart sound.
   Cardiac output measurements factors affecting Heart Rate and its regulation, cardiovascular reflexes.
   Blood pressure its regulation, physiological variation, peripheral resistance, Factors controlling Blood Pressure.
   Haemorrhage.
5. Respiratory System

   Mechanism of Respiration, changes in diameters of thorax-intra-pleural and intrapulmonary pressure.

   Quantities of lung volume tidal and residual volume, vital capacity.

Gaseous interchanges in lung and tissues.

Control of respiration-Nervous and chemical significance of changes in rate and depth, transportation of oxygen and carbondioxide.
Respiratory states –anoxia, asphyxia cyanosis acceleration

6. Digestive System

General arrangement of alimentary canal, liver, pancreas-position, structure and functions.

Nutrition and Diet- carbohydrates protein, fat, salts water vitamins and minerals digestion, absorption and metabolism.

7. Reproductive system

Sex determination and development of puberty, male sex hormones, spermatogenesis, female sex hormones menstrual cycle, Ovulation pregnancy, function of placenta, lactation.

8. Excretory System

Gross and minute structures of kidney, renal circulation, mechanism of formation of urine glomerular filtration rate and tubular function renal function and renal tests.

Physiology of micturation

9. Endocrine system

Structure and function of pituitary (anterior and posterior).Thyroid, parathyroid, adrenal cortex, adrenal medulla.Thymus and pancease.

Blood sugar regulation.

10. Skin-structure and functions.

11. Neuromuscular physiology

Cell membrane-ionic and potential gradient and transport
Muscle-types of muscular tissue--gross and microscopic structure-function.Basis of muscle contraction-changes in muscle contraction, electrical-biphasic and mono-phasic action potentials, chemical, thermal and physical changes, isometric and isotonic contraction.
Motor units and its properties-clonus, fetanus, all or none law, Fatigue.

Nerve-Gross and microscopic structure of nervous tissue,one neurone –Generation of action potential-Nerve impulse-condition.

Neuromuscular junction

Degeneration-Regeneration of peripheral nerves Wallerian degeneration, Electrotonus and Diflagus law.

Types and properties, of receptions, types of sensations, synapse, reflex are its properties occlusion, summation, subminal fatigue etc.

Tracts-ascending and descending and extrapyramidal tracts.

Functions of E.E G

Functions of Cerebral cortex, cerebrum, cerebellum, Basal ganglia.

Thalamus-connection and functions.
Reticular formation-tone, posture & equilibrium, autonomic nervous system.

Special senses eye-errors of refraction, lesions of visual path ways.

Speech and its disorders.

Ear and vestibular apparatus, taste, olfaction somatic sensations.

12. Work physiology

Neuromuscular activity, human movement, physiological mechanism in movement behavior, skill, strength, endurance, analysis of movement.

Circulatory and respiratory response to exercises and work, the heart, blood circulation, body fluid changes, pulmonary ventilation, gas exchange and transport.

Effects of exercise and work on other body functions.

Paper-III

BIOCHEMISTRY

Instruction Hrs
Theory-50

1) BIOPHYSICS:
   Concepts of pH and buffers, Acid-base equilibrium, osmotic pressure and its physiological applications.

2) CELL:
   Morphology, Structure and functions of cell, cell membrane, Nucleus, Chromatin, Mitochondria, Endoplasmic reticulum, Ribosome.

3) CARBOHYDRATES:
   Definition, Functions, Sources, Classification, Monosaccharides.Disaccharides, polysaccharides, Mucopoly saccharides and its importance.

4) LIPIDS:
   Definition, functions, sources, classification, simple lipids, compound lipids, derived lipids. Saturated and unsaturated fatty acids.Essential fatty acids & their importance, Blood lipids and their implications, cholesterol and its importance.

5) PROTEINS:
   Definition, Sources, Functions, classification, Simple protein, Conjugated proteins and Derived proteins, Properties and reactions of proteins.

6) NUCLIC ACIDS:
   Structure and functions of DNA, RNA, Nucleotides,
   Nucleotides Genetic code, Biologically important Nucleotides.

7) ENZYMES:
   Definition, Classification, Mode of action, factors affecting enzyme action, Clinical importance of enzymes.

8) VITAMINS:
   Classifications, Fat soluble vitamins AD,E, K, Water soluble Vitamins-B Complex and Vitamin C Daily requirement, Physiological functions, and diseases of vitamins deficiency.

9) BIOENERGETICS:

Concept of free energy change, Exogenic reaction and

Endogenic reactions, Concepts regarding energy rich compounds, Respiratory chain and Biological oxidation.

10) CARBOHYDRATE METABOLISM

Glycolysis, HMP shunt pathway, TCA

Cycle, Glycogenesis, Glycogenolysis, Gluconeogenesis, Maintenance of blood Glucose, Interconversion of different sugars.

11) LIPID METABOLISM:

Fatty acid oxidation Fatty acid synthesis.Metabolism of cholesterol Ketone bodies, Atheroscleriosis and obesity.

12) PROTEIN METABOLISM:

Transamination, Transmethylation, Deamination, Fate of ammonia, Urea s synthesis and synthesis of creatinine, In born Errors of Metabolism.

13) WATER AND ELECTROLYTES:

Fluid compartments.Dally intake and output,Dehydration, Sodium and potassium Metabolism.

14) MINERAL METABLISM

Iron, Calcium, Phosphorous, Trace elements

15) NUTRITION

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

16) CONNECTIVE TISSUE:

Mucopolysaccharides, Connective tissue, Proteins, Glyco, proteins, Chemistry and Metabolism of bone and teeth.Metabolism of skin.

17) NERVE TISSUE:

Composition, Metabolism, Chemical mediators of nerve activities.

18) MUSCLE TISSUE:

Structure, Metabolism of muscles, Muscle contraction.

19) HORMONES:

General Characteristic and Mechanism of Hormone action, Insulin, Glucagon, Thyroid and Parathyroid hormones, Cortical and sex hormones.

20) ISOTOPES:

Isotopes and their role in diagnosis and treatment of diseases.

Paper-IV

THERAPEUTICS-II

Instruction Hrs.
Theory-55
Practical & Demonstration-75

Section A- EXERCISE THERAPY II

1. Muscle strength: Anatomy and physiology of muscle tissue causes of muscle weakness/paralysis, prevention of muscle weakness/paralysis. Types of muscle work and contractions. Ranges of muscle work. Muscle assessment M.R.C grading. Principles of muscle strengthening / Re- education. Early Re-education of paralysed muscles.

   Demonstration and practice of strengthening/re-educating weak/paralyzed muscles of both upper and lower extremity muscles, (individual/group muscles) abdominal muscle exercises, spinal extension exercises, free exercises.

2. Relaxation: technique of relaxation, principles obtaining relaxation in various position effects & uses.

3. P.N.F basic theory of proprioceptive-neuro muscular facilitation techniques. Different types of PNF techniques, their effects and uses.

4. Hydrotherapy: introduction, various types of hydrotherapy unit's construction and equipments used in hydrotherapy. Principles, indications, contraindications, effects and uses of hydrotherapy. Precautions towards patient, towards therapist, equipment unit etc.

5. Traction: manual and mechanical traction. Biomechanics of traction.
   Physiological effects and therapeutic uses.Technique of application.

6. Joint movement:
   Classification of joint movements causes for restriction of joint movement, prevention of restriction of joint range of motion etc.
   Principles of mobilization of a joint in increasing its range of motion.
   Technique of mobilization of stiff joints, goniometry.

   Demonstration and practice of techniques to improve joint range of motion of hip joint, knee joint, ankle foot in lower limb, shoulder joint, elbow joint, radio-Ulnar joint, wrist in upper limb.

Demonstration and practice of free exercises to improve joint range of motion (small joints, e.g. hand finger, toes etc.)

Passive stretching: Technique of passive stretching to Stemomastoid muscle, shoulder abductors, flexors, elbow flexors, supinator, wrist and finger flexors in upper limb. Passive stre5tching to hip flexors, adductors.IIio-tibial band tensor-fascia-lata, Quadriceps, knee flexors, tendoachilis etc.In lower limb.

7. Co-ordination exercises: definition of co-coordinated movements in co-coordinated movements, causes of in co-ordination, principles of re-education of coordinate d movements, technique of coordination exercise.

   Demonstration and practice of technique of Dr. Frenkel's exercise to improve co-ordination.

8. Gait: analysis of normal gait with muscle work, various pathological gaits.
   Demonstration of various pathological gaits.
9. Crutch gait: Introduction, crutch measurement, crutch balance, various types of crutch gait in details. Measurement of crutches, walking aids, strengthening of crutch muscles, crutch balance, demonstration and practice to all crutch gaits.
10. Breathing exercises: physiology of respiration, types of exercise, techniques of various types of breathing exercise, its effects and uses. Breathing exercises: Demonstration and practice of Diaphragmatic breathing. Localized expansion exercises.
11. Individual, group and mass exercise. Maintenance exercise, plan of treatment, tables and schemes.

Book Reference (Both theory and Practical's)

1. Principles of exercise therapy-by Dena Gardiner
2. Progressive exercise therapy-by Coson& Collision
3. Human movement-by Callie
4. Exercises I water- By Doffield
5. Practical exercise therapy –by Hoillis M
6. Muscle testing-by Daniels
7. Principles & Practices of therapeutic massage-A. G. Sinha
8. Muscle testing-by Kendal

Section-B

Electrotherapy-II

(HIGH FREQUENCY ELECTROTHERAPY AND ACTINOTHERAPY)

Instruction Hrs
Theroy-50
Practical & Demonstration-70

1. Physics of high frequency, currents-production of high frequency current principles Bio Physics of heat, physiology of heat and cold. Production, Physiological and therapeutic effects and uses, technique of treatment.
   Dangers and precautions-contraindication etc of the following.
   a) Short wave diathermy
   b) Ultrasound
   c) Micro wave diathermy

2. Medium frequency current:
   Definition, production (Brief) physiological and therapeutic effects, uses contra indication, technique of application of followings.
   a) Interferential current
   b) Russian current
3. Actinotherapy:
   Definition, production (Brief), physiological & therapeutic effects uses.
   Contra indication, technique of application of following.
   a) Infrared radiation
   b) Laser
   c) Ultraviolet radiation
   d) Helio therapy
4. Cryotherapy:
   Principles, physiological effects, uses, techniques of application and contra indication of followings.
   a) Cold packs
   b) Ice massage
   c) Commercial cold packs
   d) Ice towels
   e) Cold compression units
   f) Evaporating sprays.
5. Electromyography & bio feedback: Basic principles of amplifiers. Oscillators, cathode ray tube, Records, Sigma processing, display devices and indication their principles and uses in Electromyography.

Principle and application of Biofeedback & functional electrical stimulation.

PRACTICALS: (High frequency current treatment)

a) Short wave diathermy-setting up of apparatus including selection of method and electrodes. Technique-preparation of patient-checking contra indications-Application of SWD for various conditions and various parts of the boy-These must be practiced by the students.
b) Microwave diathermy-Same as above
c) Ultrasonics: Setting up of apparatus-selection of dose-Technique of application of various conditions and to various parts of the body.

Books References for both Theory and Practical's:

1. Clayton's electrotherapy and actinotherapy
2. Principles and practice of electrotherapy-by Kahn
3. Electrotherapy of Wolf
4. Electrotherapy explained-john Low and Annreed.

Paper-V
ENVIRONMENTAL STUDIES

CORE MODULE SYLLABUS FOR ENVIRONMENTAL STUDIES

Unit 1: The Multidisciplinary nature of environmental studies.

Definition, scope and importance
Need for public awareness.

Unit 2: Natural Resources:

Renewable and non- renewable resources:
Natural resources and associated problems,

a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
b) Water resources: Use and over- utilization of surface and ground water, floods, drought, conflicts over water, dam's benefits and problems.
c) Mineral resources: Use and exploitation, environmental effects extracting and using mineral resources, case studies.
d) Food resources: World food problems, changes caused by agriculture and organizing effects of modern agriculture, Fertilizer- pesticides problems, water logging case studies.
e) Energy Resources: Growing energy needs
f) Land resources: Land as a resource, land degradation. Man induced landslides, soil erosion and desertification.

- Role of an individual in conversation of natural resources.
- Equitable use of resources for sustainable lifestyles.

Unit 3: Ecosystem

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids

Introduction types characteristics features, structure and function of the following ecosystem:-

a) Forest ecosystem
b) Grassland ecosystem
c) Desert ecosystem

d) Aquatic ecosystems,(ponds, stream , oceans, estuaries)

Unit 4:- Biodiversity and its conservation

- Introduction- Definition: genetic, species and ecosystem diversity
- Biogeographically classification of India
- Value of biodiversity: Consumptive use, productive use, social ethical, aesthetic and option values.
- Biodiversity at global, National and local levels.
- India as a mega- diversity nation
- Hot- spots of biodiversity
- Threats to biodiversity: Habitat loss, poaching of wildlife, man- wildlife conflicts.
- Endangered and endemic species of India
- Conservation of biodiversity: In – situ and Ex- situ conservation of biodiversity.

(8 lectures)

Unit 5: Environmental Pollution

Definition

Causes, effects and control measures of :-

a. Air Pollution
b. Water Pollution
c. Soil Pollution
d. Marine Pollution
e. Noise Pollution
f. Thermal Pollution
g. Nuclear Hazards

- Solid waste Management: Causes effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution
- Pollution case studies.
- Disaster management: Flood, Earthquake, Cyclone and landslides

Unit 6: Social issues and the Environment

- From Unsustainable to Sustainable development.
- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management

- Resettlement and rehabilitation of people; its problems and concerns Case studies.
- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion nuclear accidents and holocaust case studies
- Wasteland reclamation
- Consumerism reclamation
- Consumerism and waste products
- Environment Protection Act.
- Air (Prevention and Control of Pollution) Act.
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation
- Public Awareness.

Unit 7: Human Population and the Environment

- Population growth, variation among nations.
- Population explosion – Family Welfare Programme.
- Environment and Human Health
- Human Rights
- Value Education
- HIV/ AIDS
- Women and Child Welfare
- Role of Information Technology in Environment and Human Health.
- Case Studies.

Unit 8: Field Work

- Visit to a local area to document environmental assets forest grassland/hill/mountain.
- Visit to a local polluted site / Urban/ Rural/Industrial/ Agricultural
- Study of common plants, insects, birds.
- Study of simple ecosystems- pond, river, hill slopes etc. (Field work Equal to 5 lecture hours)

SIX MONTHS COMPULSORY CORE MODULE COURSE IN ENVIRONMENTAL STUDIES:

Teaching Methodologies

The core Module Syllabus for Environmental Studies includes class room teaching and field work. The syllabus is divided into eight units covering lectures. The first seven units will cover 45 lectures which are class room based to enhance knowledge skills and attitude to environment. Unit eight is based on field activities which will be covered in five lecture

hours and would provide students firsthand knowledge on various local environmental aspects.

Field experience is one of the most effective learning tools for environmental concerns. This moves out of the scope of the text book mode of teaching into the realm of real learning in the field, where the teacher merely acts as a catalyst to interpret what the student observes or discovers in his/her own environment. Field studies are as essential as class work and form an irreplaceable synergistic tool in the entire learning process.

Course material provided by UGC for class room teaching and field activities is utilized.

The universities/colleges can also draw upon expertise of outside resource persons for teaching purposes.

Environmental core module shall be integrated into teaching programmes of all undergraduate courses.

Annual System: The duration of the course will be 50 lectures. The exam will be conducted along with the Annual Examination.

Semester System: The Environmental course of 50 lectures will be conducted in second semester and the examinations shall be conducted at the end of the second semester.

Credit System: The core course will be awarded 4 credits

Exam Pattern: In case of awarding the marks, the question paper should carry 200 marks. The structure of the question paper being

Part-A Short answer pattern	25 marks
Part-B Essay type with inbuilt choice	50 marks
Part-C Field Work	25 marks

SEMESTER-III

Paper-I

PATHOLOGY, MICRO BIOLOGY AND PHARMACOLOGY

Instruction hrs

Theory-100

Section A- PATHOLOGY & MICROBIOLOGY

1) Aims and objectives of study of pathology
2) Brief outline of cell injury, degeneration, necrosis and gangrene.
3) Inflammation: Definition, Vascular and cellular phenomenon, difference between Transudate and exudates, Granuloma.
4) Circulatory disturbance: Haemorrhage, Embolism Thrombosis Infarction, shock. Volkman'sIschaemic contracture
5) Neoplasia: Definition, characteristic features
    a) Benign and malignant Tumour
    b) Spread of tumours.
6) General approach to immunity and hypersensitivity Reaction SLE.
7) General approach to Bacterial, Viral, mycotic and parasitic infection with special importance to Tuberculosis, Syphilis and leprosy.
8) Diabetes Mellitus
9) Blood disorder: Anaemia, Leukaemia
    a) Bleeding disorder
10) CVS: Heart and Blood vessels
    a) Rheumatic heart disease, coronary heart diseases
    b) Aneurysm, Atherosclerosis
11) Respiratory System: Ch. Bronchitis, Asthma
    a) Bronchiectasis, Emphysema, COPD
12) Bones and joint: Rheumatoid arthritis, Septic arthritis
    a) Osteoarthrits, Sponyloarthropathy
    b) Including ankylosing spondylitis
    c) Bone tumour
13) Skin: Scleroderma, psoriasis
14) PNS and Muscles: Neuropathies
    a) Poliomyelitis
    b) Myopathies
15) CNS: Infection, Malformation, CVA
    a) Demyelinating disease
    b) Degenerative disease
    c) CNS tumours

Section-B- PHARMACOLOGY

1. General Pharmacology
2. Autonomic Pharmacology
3. Drugs acting on CNS
4. Drugs acting on CVS
5. Drugs acting on respiratory system
6. Antibiotics & Chemotherapeutic agents
7. Hormones and drugs affecting endocrine function
8. Drugs acting on G. I. system
9. Immunomodulators
10. Vitamins
11. Heavy metals & antagonists
12. Diagnostic agents

Paper-II

BIOMECHANICS & KINESIOLOGY & BIOENGINEERING

Instruction hrs
Theory-100

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

II) Kinematic concepts

III) Kinetic aspects of limb movement
   a. Classification of levers
   b. Physiological significance of negative mechanical advantage
   c. Muscle function and performance

IV) Lower extremity kinematics
   a. Hip and thigh
   b. Hip joint motion and forces of hip joint
   c. Two leg stances and one leg stances
   d. Virus and valgus of femoral neck
   e. Other factors affecting hip joint forces
   f. Effect of cane by lever approach

V) Knee and leg kinematics
   a. Motion of knee joint
   b. Forces of knee joint
   c. Patellofemoral joint

VI) Ankle and foot kinematics
   a. Motion of ankle
   b. Forces of ankle joint
   c. Stability of ankle joint
   d. Weight bearing of foot
   e. Arches of foot

VII) Biomechanics of gait

a. Gait
b. Parameters of gait
c. Myokinetics of human gait
d. Gait deviation
e. Crutch and cane exercises
f. Biomechanics of walking aids

VIII) Posture
a. Anatomical aspects of posture
b. Factors affecting posture

IX) Biomechanics of upper extremity
a. Shoulder joint
b. Elbow joint
c. Wrist joint and hand
d. Vicarious movement

X) Biomechanics of spine

Paper-III

COMMUNITY MEDICINE

Instruction Hrs.

Theory-50

A. Outline the objectives
B. Outline the various measures of prevention and methods of intervention-especially for diseases with disability.
C. Outline the national care delivery system and the public health administration system of the central and state level.
D. Outline selected national health programmes
E. Define Occupational health and list methods of prevention of Occupational diseases and hazards.
F. Outline the Employees State insurance scheme and its various benefits.
G. Describe the social security measures for protection from occupational hazards, accidents, diseases and the workman's compensation act.
H. Outline the objectives

Family Welfare Programme

I. Define community based and institution based rehabilitation. Describe the advantage and disadvantages of institution and community based rehabilitation.
J. Describe the following communicable diseases with reference to reservoir mode of transmission, rout of entry and levels of prevention. A) Poliomyelitis B)Meningitis C) Encephalitis D) Tuberculosis E) Filariasis F) Leprosy G) Tetanus H) Measles.
K. Describe the Epidemiology of Rheumatic heart disease, Cancer, Chronic degenerative disease and cerebrovascular accidents.
L. Outline the influence of nutritional factors such as Protein Energy Malnutrition, Anaemia, Vitamin deficiency and minerals on disability.
M. List the principles of health education, methods of communication and role of health education in rehabilitation services.
N. Define the role of community leaders and health professionals in health education.
O. Outline the role of international health agencies in rehabilitation of the disabled.

SEMESTER-IV

Paper-I

SURGERY-I

Instruction hrs.
Theory-100
Practical & Demonstration-100

(Including General Surgery Obstetrics and Gynecology, Cardiothoracic Surgery and Plastic Surgery)

Section –A- General Surgery, Obstetrics & Gynecology

(I) GENERAL SURGERY

1. Principles of general Surgery and Anesthesia including blood transfusion and physiological response of the body to surgery.
2. Principles of Pre and post operative management of surgical patients.
3. Role of physiotherapy in general surgery
4. Describe the abdominal surgical incisions.
5. Outline the post operative complications and management in Nephrectomy, Appendicectomy.

   Herniorraphy, Mastectomy
   Thyroidectomy
   Colostomy
   Adrenalectomy
   Cystectomy
   Hysterectomy
   Prostatectomy
   Cholecystectomy
   Ileostomy

(II) OBS and GYN

Pregnancy- Stage of Pregnancy- labour- stages of labour – delivery Common gynaecological problems

Section B- Cardiothoracic Surgery and Plastic Surgery

(I) CARDIO- THORACIC SURGERY

Inclusions for cardiothoracic surgery – General Pre and post operative management of Cardio-thoracic surgery- Various surgical procedures for various chest and cardiac conditions/ diseases.

(II) PLASTIC SURGERY

1. BURN- Degrees of Burns Managements and Reconstructive Surgery following
   a. Burns and complication of Burns.
   b. Types of Skin Graft and Flaps
   c. Principles of Tendon Transfers / Transplant.
   d. Cosmetic Surgery
   e. Surgery of the hand with emphasis on reconstructive surgery and replantation surgery in trauma and leprosy

Paper-II
MEDICINE –II (CARDIOLOGY& PAEDIATRICS)

Instruction hrs.
Theory-150

Section A- Cardiology & Work Physiology (100 hrs)

1. Basic anatomy of heart coronary circulation and development of heart
2. Normal cardiac contraction and relaxation mechanism and diagnosis.
3. Acute rheumatic fever: Aetiology, Diagnosis and management.
4. Valvular heart diseases: Mitral stenosis, mitral regurgitation, aortic regurgitation and aortic stenosis: diagnosis and management.
5. Ischaemic heart disease: Clinical features, diagnosis and management.
6. Hypertension : Classification and treatment
7. Congestive heart failure: Aetiology diagnosis and management
8. Peripheral vascular diseases, deep vein thrombosis: Aetiology and management.

WORK PHYSIOLOGY

1. Physiology of exercises
2. Cardiac output and cardiac cycle during regulation of exercise.
3. Cardiac rate during exercise
4. Oxygen consumption of the body at rest during exercise and after exercise
5. Effect of exercise on:
    I. Calorie intake
    II. Coronary circulation
    III. Metabolism
    IV. Renal blood flow
    V. Contractility of myocardium
    VI. Blood Pressure
    VII. Haemo dynamics variable
    VIII. Increase in Carbon Oxide tension and mixing various blood.
    IX. Increase in pulmonary variation

6. Equipment for work physiology
7. Ergometer- Cycle type
8. Ergo Meter- treadmill type

Section B- Pediatrics (50 hrs)

1. Describe growth and development of a child from birth to 12 year including physical, social, adaptive development.
2. List the maternal and neonatal factors contributing to high risk pregnancy. The neonate inherited diseases, maternal infection viral and bacterial, maternal diseases incidental to pregnancy, such as gestational diabetes, pregnancy induced hypertension, chronic maternal Diseases such as heart disease, renal failure, tuberculosis, diabetes, epilepsy, bleeding to mother at any trimester.
3. Briefly describe community programmes international (WHO), national and local for prevention of poliomyelitis, blindness, deafness, Mental Retardation and hypothyroidism. Outline eimmunisation schedule for children.
4. Cerebral Palsy: define and briefly outline etiology of prenatal, perinatal, and post natal causes, briefly mention pathogenesis, types of cerebral Palsy (Classification), finding on examination general exemption of C. N. S Musculoskeletal and respiratory system.

   Briefly outline associated defects: mental retardation, microcephally, blindness, Hearing and Speech impairment, squint and convulsions.

   Prevention: Appropriate management of high risk pregnancies, Prevention of neonatal and postnatal infections, metabolic problems.

5. Muscular dystrophy: Outline various forms odes of inheritance and clinical manifestation physical finding in relation to disabilities progression of various from and prognosis. Describe e treatment goals in forms which are and are not fatal.
6. Spinabifida, Meningomyelocele: Outline development, clinical sfeatues lower limbs, bladder and bowel control, complications UTI & hydrocephalus, medical treatment and surgical treatment.
7. Still's disease: classification, pathology in brief, physical findings, course & prognosis. Outline treatment, prevention and correction of deformity.
8. Acute C.N.S. infections: Classify (Bacterial and viral) and outline the acute illness, CSN sequelae leading to mental retardation, blindness, deafness, Speech Defect, Motor paralysis, bladder and bowel problems seizure disorder and specific problems such as subdural effusion, hydrocephalus, Pressure sores feeding difficulties.
9. Normal diet of new born and child list dietary calorie, fat protein, mineral and vitamin requirement in a normal child in a child with malnutrition. Classify and outline etiology, findings and treatment of Rickets: Vitamin D deficiency and resistant rickets.

Paper-III
Physiotherapy in cardio- pulmonary conditions

Instruction Hrs.
Theory-75
Practical-75

Section A - Physiotherapy in Cardiovascular Conditions:

1. Cardiac anatomy
2. Cardiac Physiology
3. Congenital heart diseases
4. Acquired heart diseases
5. Ischemic heart diseases
6. Life span development cardiovascular system.
7. Peripheral vascular diseases, Physiotherapy management for common arterial venous and lymphatic conditions.
8. Evaluations for cardio vascular system
9. Cardio pulmonary resuscitations
10. Cardiac rehabilitation
11. Incisions for cardiac surgeries, Drainage tubes and bottles, ventilators- uses and functions of ventilators

    Post- operative complications, Pre and post operative physiotherapy management of open heart and closed heart surgeries.

Section B – Physiotherapy in Respiratory Conditions:

Instruction Hrs.
Theory-80
Practical-100

1. Respiratory anatomy and physiology
2. Respiratory pathology of obstructive restrictive and infective conditions.
3. A comparative neonatal and pediatric respiratory anatomy, Physiology with adults.
4. Respiratory assessment
5. Respiratory investigations
6. Breathing strategies, chest clearance techniques, exercise testing & training. Managing chest conditions using these conditions.
7. Inclusion for Pulmonary Surgery. Drainage tubes and bottles Ventilators uses and functions of Ventilators
8. Post- operative respiratory complications. Physiotherapy for pulmonary surgeries, Pre and post operative physiotherapy management of the following conditions.
   a. Thractomy
   b. Labectomy
   c. Thoracoplasty
   d. Pneumonectomy
9. Management of atelectasis pneumethorax, fistula
10. Monitoring in ICU
11. Role of Chest Physiotherapist in ICU
12. Pulmonary Rehabilitation
13. Pediatric chest physiotherapy: Lung Infections: Outline the Clinical findings, complication and medical treatment of bronchiectasis. Lung abscess and bronchial asthma, cystic fibrosis, Primary complex in infant and children. Acute pediatric respiratory distress syndrome, intensive pediatric care. Intensive neonatological and pediatric surgical care Cardio respiratory rehabilitation in Children.

Paper-IV

MEDICINE-I

Instruction hrs.
Theory-150

I. General Medicine
Definition
- Etiopathogenesis
- Pathology
- Clinical Features
- Diagnosis
- Differential Diagnosis
- Principles of Management

1. Introduction to Medicine.
2. General Principles of Patient evaluation and Management including over all idea about use of laboratory and imaging techniques.
3. Diseases of Respiratory systems.
   i. Approach to a patient with Respiratory diseases.
   ii. Chronic obstructive pulmonary diseases.
   iii. Bronchial asthma
   iv. Pneumonia
   v. Lung abscess
   vi. Bronchiectasis
   vii. Pleural effusion & Empyema Thoracis
   viii. Pneumothorax
   ix. Pulmonary tuberculosis

4. Diseases of GIS Hepatobiliary Disorders, Approach to a patient of GIS Disease.
   a. U. GIT bleed
   b. Jaundice
   c. Viral Hepatitis
   d. Cirrhosis of Liver
5. Diseases of kidney
   a. Approach to a patient of Renal disease
   b. Acute glomerulonephritis
   c. ARF
   d. CRF
   e. Nephrotic Syndrome

6. Hematologic Diseases.
    a. Approach to a patient of Hematologic Diseases
    b. Anaemia
    c. Iron deficiency anaemia
    d. Haemolyticanaemia
    e. Magaloblasticanaemia
    f. Leukomias hemophilia
7. Oncology
    a. Lymphomas
8. Endocrine & metabolic diseases
    a. Acromegaly & gigantism Dwarfism
    b. Hypothyroidism
    c. Hyperthyroidism
    d. Adrenal Hyper function and Hypofunction
    e. Diabetes Mellitus
    f. Hypoglycaemia
    g. Vit D & Calcium Metabolism & Parathyroid gland disorders
9. Nutritional diseases
    a. Obesity
    b. Protein energy malnutrition
10. Connective tissue diseases
    a. Approach to a patient of Connective tissue diseases
    b. Rheumatoid arthritis
    c. Gout
11. Infectious Diseases
    a. Malaria
    b. Filarial
    c. Tetanus
    d. Leprosy
12. HIV & AIDS
13. Diseases of Skin
    a. Scabies
    b. Fungal Infections
14. Diseases due to Environmental Factors & Poisons
    a. Heat stroke
    b. Radiation Injury
    c. Snake Bite
    d. Organophosphorus Poisoning
    e. Oleander Poisoning

SEMESTER-V

Paper-I
Physiotherapy in Surgical Conditions

Instruction Hrs.
Theory-70 Hours
Practical-100 hours

1. Abdominal Surgery.
   Pre and Post operative, Physiotherapy, management of the following abdominal surgical conditions (Incision, Pre and Post operative complications must be explained) Total Gastrectomy, Partial, gastrectomy, appendectomy, Herniorrhaphy, Cholecystectomy, Hysterectomy, Redical mastectomy, Colostomy

2. Obsterics and Gynaecology: Antenatal and post natal training, prolapsed uterus, urogenital dysfunction, pre and post operative management of pelvic floor surgery, common Gynecological conditions.

3. Plastic Surgery and Burns:
   Physiotherapy management of burns-Degrees of burns Physiotherapy approach. Pre and post operative physiotherapy of skin grafting.Re-constructive surgery of hand.Tendon transfer etc.

Paper-II

ALTERNATIVE MEDICINE

Instruction Hrs.
Theory-80
Practical-50

A. Yoga: Definition-History-Principles-Concepts. General effects of yoga posture on musculo skeletal system.

Specific effects of individual yogic posture on musculoskeletal system.
Yoga and therapy rationale

B. Naturopathy: Definition-History-Principles-Concepts,. General effects of Naturopathy.

C. Accupuncture&Accupressure
   1. Accupuncture points and meridians-their function extra meridians.
   2. Forbidden points
   3. Complications-contraindications
   4. Specific important points (Luo and source points horary points)
   5. Mechanism of acupuncture-Physiology
   6. Techniques-equipment-methods for asepsis, sterilization
   7. Relevance of acupuncture to physical therapeutics Trigger points-electro-acupuncture.

SEMESTER-VI

Paper-I
MEDICINE-III (Neuro Science)

Instruction Hrs.
Theory-100
Practical & Demonstration-50

1. General principles of neurological diagnosis.
2. Cerebro vascular diseases.
   Cerebro vascular accident.
   Cerebral thrombosis, embolism &haemorrhage.
3. Intra cranial tumours.
4. Acute infection of CNS.
   Encephalitis, Meningitis, poliomyelitis.
5. Traumatic injury of the Head & spine.
6. Parkinsonism and other extrapyramidal disorders.
7. MS & other demyelinating diseases.
8. ALS (amyotropic lateral sclerosis) and other motor neurone diseases.
9. Diseases of Peripheral Nerves, cranial nerves, G.B.S. including
   Peripheral nerve injury.
10. Myasthenia Gravis
11. Diseases of muscles (Polymyositis, muscular dystrophy)
12. Seizure and epilepsy.
13. Headache and Migraine
14. Dementia
15. Cerebral Palsy.
16. Cervical and lumbar Spondylosis and discprolapse.

NEUROSURGERY

1. Principles of management of cranial & spinal trauma.
2. Neurosurgical intensive care study
3. Rehabilitation of neurologically disabled patients
4. Outline of clinical presentation & management of brain tumours& spinal cord compressions.
5. Use of operative microscope, endoscopy, stereotactic Surgery, minimally invasive surgery in Neurosurgical perspective.
6. Development anomalies of CNS & their brief management

7. Pathophysiology peripheral nerve injuries & principles of management.
8. Degenerative diseases of spine and outline of management.
9. Management of pain syndromes.

Paper-II

MEDICINE-IV (PSYCHIATRY)

Instruction Hrs-100

1. Neurosciences
   Neuroanatomy
   Neurotransmitter study etc.
2. Examination and diagnosis of psychiatric cases.
3. Clinical manifestations of psychiatric disorders.
4. Classification of mental disorders.
5. Theories of personality and psychoanalysis
6. Neuropsychiatric aspects of
   i. Cerebrovascular disorders
   iii. Brain tumours
   iv. Epilepsy
   v. Traumatic brain injury.
   vi. Movement disorders
   vii. Multiple sclerosis
   viii. HIV infection and aids
   ix. Headache
   x. Neuromuscular disorders

j. Delirium, dementia, amnestic and other cognitive disorders

k. Substance related disorders-alcohol, amphetamine, cannabis, opiod, caffeine, nicotine, hallucinogens etc.

l. Schizophrenia

m. Other psychotic disorders.
   Schizo-affective disorders, Schizophreniforn and brief psychotic disorders.
   Delusional disorders, shared psychotic disorder
   Acute and chronic psychotic disorder
   Postpartum psychotic syndromes.

n. Mood disorders.

o. Anxiety disorders-GAD, phobias panic disorders, ASD, PTSD, OCP

p. Somatoform disorders
   . Conversion disorder
   . Somatization disorder
   . Hypochondriasis
   . Pain disorder
   . Body dysmorphic disorder

. Chronic fatigue syndrome

q. Factitious disorder
r. Dissociative disorders
s. Normal human sexuality and sexual and gender identify disorders
t. Eating disorders
u. Sleep disorders
v. Impulse control disorders not classified elsewhere
w. Adjustment disorders
x. Personality disorders
y. Psychological factors affecting medical conditions
z. Disaster-types, psychiatric co-morbidities and management
aa. Biological therapies
. Dopamine receptor antagonists
. Serotonin-dopamine antagonist
. Benzodiazepine receptor agonists 2 and antagonists
. Mood stabilizers-lithium, valproate, carbamazepine, etc.
. Tricyclices and tetracyclics
. Selective serotonin reuptake inhibitors
. SNRI
. Antihistaminics
.Electro convulsive therapy
bb. Mental retardation
cc. Suicide
dd. Early onset schizophrenia
ee. Attention deficit disorder
ff. Conduct disorders
gg. Tic disorders
hh. Feeding and eating disorders of infancy and early childhood
ii. Psychotherapies
jj. Medical ethics

Paper-III

SURGERY-II (ORTHOPAEDIC)

Instruction Hrs.
Theory-175
Practical & Demonstration-50

ORTHOPAEDIC

1. Fractures and dislocations including soft tissue injuries. Pathology of factures and repairs of bones.
   Reasons for union, non union and delayed union fibrous union and myositis.

   Common fractures of upper extremity, lower extremity including spine management, complications etc.
   Dislocations of shoulder, elbow, hip, knee and spine, rupture, contusion and sprain of muscles, tendons and ligaments.

   Knee injuries-injury to medial ligament, internal derangement and meniscus tear, lateral ligament sprain of ankle.
   Volkman'sischaemic contracture, tennis elbow
2. Deformities: common congential and acquired deformities of foot, knee, hip, shoulder, elbow and wrist including hand and spine. Cervical rib, torticollis, metatarsalgia, claw hand.
3. Inflammatory conditions and lesions of joints and bones. Osteomyelitis, tuberculosis, pyogenic infection, osteoarthritis, rheumatoid arthritis, T. B. joints, tenosynovitis, synovitis, capuslitis, tendonitis, ostepoprosis and osteomalacia, sciatica, low back pain, brachiai neuralgia.
4. Operative procedures
5. Management after A. O. fixation
6. Bone tumour, classification and management.
7. Management of open wound with external fixator.

SEMESTER-VII

Paper-I
REHAB SCIENCE

Instruction Hrs.
Theory-100

A. Introduction

Define the term rehabilitation. Explain its aims and principles, scope of rehabilitation.

Discuss team work involved in rehabilitation, explaining briefly the role of each team member.

B. Therapeutic techniques
   1. Agencies involved in rehabilitation of a physically handicapped.
   2. Legislations for physically handicapped (in brief)
   3. Limitations of each team member in rehabilitation of a physically disabled individual.

C. Communication Problems

Identify communication problems, classify these and outline principles of treatment, outline of speech therapy & hearing aids.

D. Behavioral Problems.

Identify behavioral problems in the disabled and outline the principles of management.

E. Mobility Aids

Demonstrate knowledge of the indications for different types of mobility aids and their functions, e.g. wheelchairs, walkers, crutches.

F. Pre-vocational Evaluation

Discuss methods and team involvement in pre-vocational evaluation and training.

G. Architectural barriers

Describe architectural barriers and possible modifications with reference to rheumatoid arthritis, cerebrovascular accident, spinal cord injury and other disabling conditions.

H. Disability Evaluation

Outline the principles of disability evaluation and discuss its use.

I. Legal aspects

Outline legal aspects of disability in terms of compensation for disability and benefits available to the disabled.

J. Social implications
   Outline the social implications of disability for the individual and for the community.
K. Community based rehabilitation module
   Describe a CBR MOUDLE and compare this with an institutional based rehabilitation system.
L. Visual disability-definition and classification, mobility technique, communication skills, sensory re-education, emotional and psychological aspects of blindness, facilities for blind, prevention of blindness.
M. Mental retardation-definition and classification, prevention and existing facilities for mentally retarded children.
N. Outline of social and vocational counseling
O. Classification of aids and appliances.
   Measurement of P.O. P. Cast techniques.
   Simple splints techniques.
P. Principles and check out procedures for static and dynamic alignment, training.
   a. Spinal othosis
   b. L.L. orthotic & prosthetics
   c. U.L. orthotics & prosthetics

Paper-II

Professional Management and Ethics

Instruction Hrs.
Theory-100

A. Professional Ethics and legal issues
   1. The implications of and conformation to the rules of professional conduct.
   2. Legal responsibility for their actions in the professional context. Understanding liability and obligation in case of medico- legal action.
   3. A wider knowledge of ethics relating to current social and medical policy on the provision of health care.
   4. National and International professional bodies as a professional association and education body- Difference between scientific association (Professional body) and statutory body.
   5. The role of International health agencies such as WHO.

B. Management studies
   1. Definition- Branches of Management. Principles of health Sector management.
   2. General principles of Management- Theories of Management, Basic concepts and theories.
   3. Personal Managements- Policies and procedures: basic concepts and theories.
   4. Financial issues including budget and income generation.
   5. Principles of an Organization chart.
   6. Organization of a department- planning, space, manpower, materials basic requirements.
   7. Resource and quality Management- Planning with change and coping with change
   8. Self Management
      I. Preparing for first job
      II. Time Management
      III. Career development

Paper-III
Physical Diagnosis and Physical Fitness

Instruction Hrs.
Theory-50 Hours
Practical-100 hours

PHYSICAL DIAGNOSIS:

A.1. Problem oriented medical record- history- concept- advantages

2. Communication with the patient- Principles and methods

B. Physical Diagnosis on the basis of

a. Musculo Skeletal system
   1. Maitland's concept, Kaltenborn
   2. Cyriax approach
   3. Mckenzie's concept
   4. Mennel's concept
   5. Neural tension tests- normal and abnormal findings

b. Neuro Muscular system: (For CNS Problems)
   1. Motor Training
   2. Bobath's approach (Normal movement concept)
   3. Voijta Approach

c. Clinical reasoning and Clinical decision making

d. Rationale of Plan of treatment

PHYSICAL FITNESS & ERGO THERAPEUTICS

1. Factors responsible for occupational hazards- stress faulty working conditions (Biomechanical aspects)- Thermal stress, over- use, Pollution- noise, air, water, food.
2. Accidents- electrical, Mechanical, thermal, Chemical.
3. Disability evaluation (Functional) interpretation and legislation- principles- techniques- suggestions for compensations
4. Ergonomic evaluation- evaluation of working area, type C' work fitness testing for the same.
5. Preventive P.T. Measures
6. Fitness Programmes for specific work
7. Sports and industry
8. Planning, developing and management towards work efficiency, productivity, avoidance of accidents and other use.
9. Relaxation programme for stress.

Paper-IV

Research Methodology, Biostatistics and introduction to Computer Science

Non University Examination

Instruction Hrs.
Theory-50

1. Review of literature
2. Study design
3. Sample Size
4. Sampling variability & significance
5. Protocol writing
6. Ethical aspects
7. Data collection analysis interpretation and presentation
8. Common statistical terms
9. Measures of location, average & percentiles
10. Variability & its measures
11. Normal distribution & normal curve
12. Probability
13. Significance of difference in mean
14. Chi- Square test
15. Correlation & regression
16. Demography & vital statistics
17. Correlation of measures of population & vital
18. Use of micro computer research

SEMESTER-VIII
Paper-I

Physiotherapy in Neurological conditions

Instruction Hrs.
Theory-80 hrs.
Practical-100 hrs.

INTRODUCTION

Briefly review of the following medical conditions and various modalities of physiotherapy, aims, means and techniques of Physiotherapy should be taught.

1. UMA Lesions
    a. Hemiplegia
    b. Cerebral Palsy
    c. Multiple Sclerosis
    d. Monoplegia, Paraplegia, Tetraplagia, syndrome
    e. Sub- acute combined degeneration of spinal cord
    f. Syringomyelia
    g. Transverse myelitis
    h. Parkinsons's disease
    i. Extra pyramidal lesions
    j. Motor neuron disease
    k. Ataxia
    l. Tabesdorsalis
    m. Acute CNS infection

Pre and post operative management and complications etc. of Head injury. Laminectomy surgery following brain Tumour etc. Craniotomy etc.

II. Muscle disorders and LMN lesions

a. Myopathy and muscular dystrophies
b. Poliomyelitis
c. Polyneuritis
d. Peripheral neuropathy
e. Leprosy
f. Peripheral, nerve injuries
g. Erb's Palsy
h. Sciatica
i. Brachial neuritis and neuralgia
j. Facial Palsy and bell's palsy

k. Peripheral nerve injuries- (Non Operative) – Pre and post operative management of nerve repair and grafting
l. General and physiotherapeutic management of Psychiatric patients.

Paper-II
Physiotherapy in Musculoskeletal Conditions

Instruction Hrs.
Theory-80 hrs.
Practical-100 hrs.

Introduction:

Briefly review of the following surgical conditions and various physiotherapy modalities aims, means and techniques of physiotherapy should taught.

Traumatology: General Physiotherapeutic approach for traumatic conditions.

Fractures and Dislocations
Classification- Types of displacement Methods of immobilization

Healing of features and factors influencing union, non union delayed union etc.
Common sites of fracture

Specific fracture and their complete physiotherapy management upper limb clavicle, humerus, Ulna and radius, Colles fracture & crush injuries of Hand.

Lower Limb
Fracture neck of femur, patella, tibia and fibula, Pott's fracture fractures of tarsal and metatarsal bones

Dislocation of shoulder, hip, ACJ, SCJ, elbow
Management of fracture spine with (paraplegia) as well as without neurological deficit.

Soft tissues injuries, synovitis, Capsulities, Volkman's ischemic contracture etc.
Tear of semilunar cartilage and cruciate ligaments of knee, Menisectomy and patellectomy, internal derangement of knee.

Sprain, strain, overuse syndrome, tendinits, tendinosis, bursitis.

Amputations: Levels of amputation of upper and lower Extremity – stump care stump bandaging, pre and post fitting prosthesis management (check out of prosthesis, training etc,)

Deformities:

Congenital Torricelli's and Cervical rib C.T.E.V pescavus and pesplanus and other common deformities
Acquired Scoliosis, Kyphosis, lordosis, coxavera genu valgum, genu varum and recurvatum

Degenerative and infective conditions:
Osteoarthritis of major joints, Spondylosis, Spondylitis, spondylolisthesis prolapsed intervertebral disc lesion Periarthritis(Rotator cuff lesion) of shoulder Tuberculosis of spine, bone and major joints Parthe's disease.

Rheumatoid arthritis, ankylosing spondylitis, psoriatic arthritis, Syphilitic arthritis scleroderma etc. and other miscellaneous orthopaedic conditions commonly treated by physiotherapy

Growth and development: Maternal and neonatal factors contributing to high risk baby, CP, Myopathy, spine bifida, Hydrocephalus, Still's disease. CTEV, CDH. Atthogryposis multiplex congenital, Rickets, torticolis, OsteogenesisImperfecta.

PAPER-III

Project Based on Research Methodology & Biostatistics