

ANATOMY-1

Total Lecture: 200 Hr s

Exam time: 3 Hrs.

Total marks: 200

Written: 100

Oral / Practical: 50

Sessional: 50

Musculo Skeletal System:

1. Basic Histology:

1. Cell, tissues of the body (epithelium, connective tissue), cartilage, bone, muscle, etc.

2. Myology:

(Origin, insertion, Innervation & Action of Muscles)

1. The fascia and muscles of head, neck and face.
2. The fascia and muscles of trunk, back & Abdomen.
3. The fascia and muscles of upper limb.
4. The fascia and muscles of lower limb.
5. Muscles of eye.

3. Osteology & Arthrology:

1. General structure and forms of all bones of skeleton and their attachments.
2. Classification of joints.
3. Movements of Joints.
4. Factors permitting and limiting movements of Joints.
5. Joints of Head & Neck and Temporo- mandibular Joints.
6. Joints of Trunk.
7. Joints of Upper Limb.
8. Joints of Lower Limb.
9. Shoulder girdle.
10. Pelvic girdle.
11. Structure and component of every joint.

Radiological Anatomy:

Radiographic appearance of Musculo skeletal system of Upper Limb, Lower limb, Skull & Spine.

Anatomy Practical

1. **Surface Anatomy:** To study, identify and mark the surface land marks on human body.
2. To study the muscles of trunk, back, abdomen, lower and upper extremities and face on a dissected human body.
3. To study the bones of human body with special emphasis on origin and insertion, nerve supply and function of muscles & ligaments.
4. To study the anatomy of joints of upper and lower extremities and vertebral column on a dissected human body.

Books Recommended:

1. L. Williams & Warwick, Gray's Anatomy – Churchill Livingstone.
2. Inderbir Singh, Textbook of Anatomy with colour Atlas – Vol. 1,2,3. Jaypee Brothers.
3. B.D. Chaurasia, Human Anatomy – Volume 1,2,3, CBS Publishers & Distributors.
4. McMinn's Last's Anatomy – Regional and applied, Churchill Livingstone
5. McMinn, et al – A Colour Atlas of Human Anatomy, Mosby,
6. Cunningham Manual of Practical Anatomy Vol. I, II, III, Churchill Livingstone.
7. Inderbir Singh, A Text book on Human Neuro Anatomy, Jaypee Brothers.
8. Snell – Clinical Anatomy – Lippincottincott.
9. Clinical oriented anatomy—Keith L moore.

PHYSIOLOGY –I

Total Lecture: 200 Hrs

Exam time: 3 Hrs.

Total marks: 200

Written: 100

Oral/ Practical: 50

Sessional: 50

General Introduction:

1. **Cell Introduction:** Outline of basic concepts of cell structure, functions of components and transport across membranes.
2. **Skin:** Functions, blood flow and temperature regulation.
3. **Blood and Lymph:** Cell renewal system, hemoglobin, erythrocyte granulocyte, lymphocyte, coagulation, regulation of hydrogen within concentration of body fluids, fluid distribution and exchange.

Physiology of the systems of the body:

1. **Digestion:** Control of food and water intake and secretion and absorption movements of the alimentary canal.
2. **Circulation:** Cardio-vascular system, mechanical and Electro-physiological activity of the heart, regulation of heart, coronary circulation, haemodynamics, circulation through brain, skin and skeletal muscle.
3. **Exertion:** Renal functions including formation of Urine & Micturition.
4. **Respiration:** Respiratory gases, pulmonary function & gas exchange, control and mechanics of breathing, respiratory adjustments in health & disease (hypoxia, asphyxia, dyspnoea, oxygen therapy, resuscitation etc).
5. **Endocrine system:** Outline of various hormones and their actions, pituitary gland, thyroid, parathyroid, adrenal glands & Gonads.
6. **General Metabolism:** Carbohydrate, Protein & Fat metabolism.

Neuro – Physiology:

1. **Neuron:** Properties and functions.
2. **Action potential.**
3. **Special properties of nerve trunks and tracts.**

4. **Motor units.**
5. **Reflex physiology.**
6. **Synapse and synaptic transmission.**
7. **Supraspinal Control.**
8. **Cerebellum and basal ganglia.**
9. **Autonomic nervous system.**
10. **Somatic sensation.**
11. **Pain.**
12. **Taste, Olfaction, Auditory and Vision.**
13. **Neuro physiological psychology.**

Physiology practical

To study the following Physiological Phenomena:

1. Identification of blood cells and different counts (W.B.C. Count, R.B.C. Count, Hemoglobin percentage and colour index.)
2. E.S.R. and Blood groups.
3. Bleeding time and clotting time.
4. Pulse rate, Heart rate and measurement of Blood Pressure.
5. Respiratory rate
6. Reflexes- Superficial & Deep.
7. Sensations & Motor function.

Books Recommended:

1. Text book of Medical Physiology – Arthur Guyton (Mosby.)
2. Text book of Physiology- Ann and & Manchanda, Tata McGraw Hiull.
3. Human Physiology- vol.1& 2, Chatterjee. CC, Calcutta. Medical Allied.
4. Concise medical Physiology. Chaudhari. S.K, New Central Agency, Calcutta.
5. Principles of Anatomy and Physiology. Tortora & Grabowski – Harper Collins.
6. Text book of Practical Physiology- Ghai- jaypee.

BIOCHEMISTRY

Total Lecture: 100 Hrs

Exam Time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

1. **Biophysics:** Concepts of pH and buffers, acid base equilibrium osmotic Pressure and its physiological applications.
2. **Cell:** morphology, structure & kinetics of cell, membrane, Nucleus, chromatin, Mitochondria, Endoplasmic Reticulum, Ribosomes.
3. **Carbohydrates:** Definition, functions, sources, classifications, Monosaccharide, Disaccharides, Polysaccharides, mucopolysaccharide and its importance,
4. **Lipids:** Definition, function, sources, classification, simple lipid, compound lipid, derived lipid, unsaturated and saturated fatty acid, Essential fatty acids and their importance, Blood lipids and their implications, cholesterol and its importance,
5. **Proteins:** Definition, sources, kinetics, classification, simple protein conjugated protein, derived proteins, properties and varieties and varieties of proteins.
6. **Nucleic acid:** Structure and function of DNA and RNA, Nucleosides, nucleotides, Genetic code, biologically important nucleotides.
7. **Enzymes:** Definitions, classification, mode of action, factor affecting enzyme action, clinical importance of enzyme.
8. **Vitamins:** Classification, fat-soluble vitamins, A, D, E & K, water-soluble vit. B complex & c, Daily Requirements, Physiological functions and deceases of Vitamin deficiency.
9. **Bioenergetics:** Concept of free energy change, Exogenic and endogenic reactions, concepts regarding energy rich compounds, Respiratory chain and Biological oxidation.
10. **Carbohydrate Metabolism:** Glycolysis, HMP shunt pathway, TCA cycle, glycogenesis, glycogenolysis, Glucogenesis, Maintenance of Blood Glucose. interconversions of different sugar.

11. **Lipid Metabolism:** Fatty acid oxidation, Fatty acid synthesis, Metabolism of cholesterol, Ketone bodies, Atherosclerosis and obesity.
12. **Protein Metabolism:** Transamination, Transmethylation, Deamination, Fate of ammonia urea synthesis and synthesis of creatinine, inborn errors of metabolism.
13. **Water and Electrolyte:** Fluid compartment, daily intake and output sodium and potassium metabolism.
14. **Nutrition:** Balance, diet, metabolism in exercise and injury, Diet for chronically ill and terminally ill patients.
15. **Connective tissue:** Mucopolysaccharide connective tissue proteins glycoproteins, chemistry & Metabolism of bone and tooth metabolism of skin.
16. **Nerve tissue:** Composition, metabolism chemical mediators of nerve activity.
17. **Hormones:** General characteristics and mechanism of Hormone action insulin, glucagone Thyroid and Parathyroid hormones, cortical & sex hormones.
18. **Isotopes:** Isotopes and their role in treatment and diagnosis of diseases.

Books Recommended:

1. Textbook of Biochemistry – Chatterjee M.N.-Jaypee Brothers.
2. Textbook of Biochemistry for Medical Students- Vasudevan D.M- Jaypee Brothers.
3. Clinical Biochemistry- Metabolic & Clinical aspects- Marshall & Bangert – Churchill Livingstone.
4. Biochemistry -Southerland- Churchill Livingstone.

KINESIOLOGY

Total Lecture: 100 Hrs
Time: 3 Hrs.

Total marks: 150
Written: 100
Oral / Practical: 30
Sessional: 20

1. Introduction to human movement.

- The anatomical position.
- The planes of the body, sagittal, frontal and transverse.
- The axis of movement and the movements occurring in this axis.
- Musculo-skeletal principles of movement.
- The main issues in human motor control and the causes of motion.

2 Joints.

- Joint function.
- The close packed and loose packed position of all joints and its importance in the therapeutic setting
- The classification of synovial joints in producing movement, and the factors limiting movement in each classification.
- Joint chains and their use in measuring and recording movement and the difference between open and closed chain segments.
- Degrees of freedom.
- Practical measuring of the range of movement of various joints using a variety of methods.

3. Muscles:

- Classification of skeletal muscle and differentiate between contractile and non-contractile components.
- Roles of muscles as prime movers, agonist, antagonists, fixators and synergists and their interaction to produce purposeful movement.
- Types of muscle contraction including eccentric and concentric.
- The practical skills necessary to test length and strength of muscles.

4. Basic principles of mechanics and their involvement in movement:

- The basic principles of mechanics including matter, mass, inertia, and weight.
- Centre of gravity and line of gravity and their application to patient handling..
- Force, levers and torque and their relevance to physiotherapy techniques..
- Balance and stability and the factors affecting these.
- Equilibrium – stable, unstable, neutral.
- Motion in relation to Newton’s laws of motion and its application to physiotherapy.

5. The neuromuscular basis of human motion

- The nervous system and basic nerve structures.
- The motor unit.
- Sensory receptor.
- Reflex unit.
- Volitional movement.
- Neuromuscular analysis.

6. Joint and muscular movement of fundamental mental movements

The upper extremity:- Shoulder, Elbow, Wrist and Hand Region.

The lower extremity:- Hip, Knee, Ankle and Foot Region.

The Spinal and Thorax

7. Analysis of normal movement:

- The essential features of everyday movements.
- Rolling over and sitting up
- Standing from sitting
- Sitting down from standing
- Walking
- Reaching and manipulation

8. Analysis of posture both normal and abnormal.

- Definition of posture
- Normal posture
- Types of posture and the essential components of standing and sitting postures.
- Systematic evaluation of posture, common postural abnormalities.

- Causes of poor or bad posture.
- Postural re education

9. Gait:

- Definition of gait cycle
- Components of gait
- Characteristics of gait
- Gait analysis
- Abnormal pattern of gait.
- Swing to, swing through, two point and four point of gait.
- Gait re-education.

10. Motor skill acquisition.

- The basic aspects of motor skill acquisition.
- Moving objects – pushing and pulling, throwing, striking and kicking
- Locomotion – solid surface, Aquatic environment when suspended and support.

11. Lifting and handling.

- The principles of safe lifting and handling.
- Practical sessions on lifting techniques in a safe and effective manner.

Books Recommended

- 1 Adrian, M. S. and Cooper, J. M., (1989) *Biomechanics of human movement*, Brown and Benchmark, Wisconsin.
- 2 American Academy of Orthopaedic Surgeons, (1965) *Joint Motion: Method of Measuring and Recording*, Churchill Livingstone, London.
- 3 Carr, J. H. and Shepherd, R. B., (1987) *A motor relearning programme for stroke*, Heinmann, London.
- 4 Gally, P. M. and Foster, A. I., (1981) *Human Movement*, Churchill Livingstone, Melbourne.
- 5 Hollis, M., (1987) *Practical Exercise Therapy*, Blackwell Scientific Publications, London.
- 6 Luttgens, K. and Wells, K., (1982) *Kinesiology: Scientific Basis of Human Motion*, (7th ed), Saunders College Publishing, Philadelphia.

ELECTROTHERAPY

Total Lecture: 100 Hrs

Exam time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

Electro Physical Principles:

1. Structure and properties of matter- solids, liquids and gases, adhesion, surface tension, viscosity, density and elasticity.
2. Structure of atom, molecules, elements and compounds.
3. Electron theory, static and current electricity.
4. Conductors, Insulators, Potential difference, Resistance & Intensity,
5. Ohm's Law- Its application to AC & DC currents.
 - a) Rectifying Devices – Thermionic valves, Semiconductors, Transistors, amplifiers, Oscillator circuits.
 - b) Capacitance, condensers in DC and AC Circuits.
 - c) Display devices & indicators- analogue & digital.

Effects of Current Electricity:

1. Chemical effects- Ions and electrolytes, Ionisation, Production of a E.M.F by chemical actions.
2. Magnetic effect, Molecular theory of Magnetism, Magnetic fields, Electromagnetic Induction.
3. Milli ammeter and Voltmeter, Transformers and Choke Coil. thermal Effects – Joule's Law and Heat production.
4. Physical Principles of sound and its properties.
5. Physical Principles of light and its properties.
6. Electromagnetic spectrum – biophysical application.

Electrical supply:

- a) Brief outline of main supply of electric current.
- b) Dangers – short-circuits, electric shocks.
- c) Precautions – safety devices, earthing, fuses etc.
- d) First aid & initial management of electric shock.

Low Frequency Currents:

1. Introduction to direct, alternating & modified currents.
2. **Production of direct current** – Physiological and therapeutic effects of constant current, anodal and cathodal Galvanism, Ionisation and their application in various conditions.
3. **Iontophoresis** – Principles of clinical application, indication, contraindication, precaution, operational skills of equipment & patient preparation.
4. **Modified direct current** – various pulses, duration and frequency and their effect on Nerve and Muscle tissue. Production of interrupted and surged current & their effects.
5. **Modified direct current** – Physiological and therapeutic effects, principles of clinical application, indications, contra indications, precautions, operational skills of equipment & patient preparation.

Transcutaneous Electrical Nerve Stimulation's (TENS):

- a) Types of Low Frequency, pulse widths, frequencies & intensities used as TENS application.
- b) Theories of pain relief by TENS.
- c) Principle of clinical application, effects & uses, indications, contraindications, precautions, operational skills of equipment & patient preparation.

Electrical Reactions and Electro – diagnostic tests:

Electrical Stimuli and normal behavior of Nerve and muscle tissue.

Types of lesion and development of reaction of degeneration.

Faradic – Intermittent direct current test.

S.D. Curve and its application.

Chronaxie, Rheobase & pulse ratio.

Infra Rays:

Wavelength, frequency, types & sources of IRR generation, techniques of irradiation, physiological & therapeutic effects, indications, contraindications, precautions, operational skills of equipment & patient preparation.

Ultra – Violet Rays (UVR):

- a) Wavelength, frequency, types & sources of UVR generation, techniques of irradiation, physiological & therapeutic effects, indications, contraindications, precautions, operational skills of equipment & patient preparation.
- b) Dosimetry of UVR.

Superficial heat:

Paraffin wax bath, moist heat, electrical heating pads.

- a) Mechanism of production.
- b) Mode of heat transfer.
- c) Physiological & therapeutic effects.
- d) Indications, contraindications, precautions, operational skills of equipment & patient preparation.

Practical

1. To study the basic operation of electric supply to the equipment & safety devices.
2. To experience sensory and motor stimulation of nerves and muscles by various types of low frequency currents on self.
3. To locate and stimulate different motor points region wise, including the upper & lower limb, trunk free.
4. Therapeutic application of different low frequency currents faradic footbath, Faradism under pressure, iontophoresis.
5. To study the reactions of degeneration of nerves, to plot strength duration curves.
6. To find chronaxie and Rheobase.

7. To study a hydrocollator unit, its operations and therapeutic application of Hot packs – region wise.
8. To study the various types of Infrared lamps and their application to body region wise.
9. To study a paraffin wax bath unit, its operation and different methods of application – region wise.
10. To study the different types of Ultra violet units, their operation, and assessment of test dose and application – of U.V.R – region wise.
11. To study a TENS Stimulator, its operation and application –region wise.

Books Recommended:

1. Electrotherapy Explained: Principles & Practice – Low & Reed – Butterworth Heinemann.
2. Clayton's Electrotherapy, (9th edi.) Forster & Palastanga Bailliere Tindall.
3. Therapeutic Heat and Cold – Lehmann – Williams & Wilkins.
4. Principles and Practice of Electrotherapy – Kahn – Churchill livingstone.

THERAPEUTIC EXERCISE-I

Total Lecture: 100 Hrs

Exam Time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

Introduction to Exercise therapy, Principles, techniques and general areas of its application, Assessment & its importance.

Description of fundamental starting positions and derive position including joint positions, muscle work, stability, effects and uses.

Introduction to Movements including analysis of joint motion, muscle work and Neuro – muscular co – ordination.

Classification of movements – Description of the types, technique of application, indications, contraindications, effects and uses of the following:

- a) Active movement
- b) Passive movement
- c) Active assisted movement
- d) Resisted movement
- e) To study the principles, techniques of application, indication, Contraindication, precaution, effects and uses of Suspension Therapy.

Manual Muscle Testing

- a) Principles and application techniques of Manual muscle testing.
- b) Testing position, procedure and grading of muscles of the upper limb, lower limb and trunk.

Goniometry

Goniometre and its types

- a) Principles, techniques and application of Goniometry
- b) Testing position, procedure and measurement of ROM of the joints of upper limbs, lower limbs and trunk.

Soft Tissue Manipulation (Therapeutic Massage)

- a) History, various types of soft tissue manipulation techniques.
- b) Physiological effects of soft tissue manipulation on the following systems of the body: Circulatory, Nervous, Musculoskeletal, Excretory, Respiratory, Integumentary system and Metabolism.
- c) **Classify, define and describe:** - effleurage, stroking, kneading, petrissage, deep friction, vibration and shaking etc.
- d) Preparation of patient Effects, uses, indications and contraindications of the above manipulation.

Motor Learning

- i) **Introduction to motor learning**
 - a) Classification of motor skills.
 - b) Measurement of motor performance.
- ii) **Introduction to motor control**
 - a) Theories of motor control.
 - b) Applications.
- iii) **Learning Environment**
 - a) Learning of Skill.
 - b) Instruction & augmented feed back.
 - c) Practice conditions.

Relaxation & Therapeutic Gymnasium

Relaxation

1. Describe relaxation, muscle fatigue, muscle spasm and tension (mental & physical).
2. Factors contributing to fatigue & tension.
3. Techniques of relaxation (local and general).
4. Effects, uses & clinical application
5. Indication & contraindication.

Therapeutic Gymnasium

1. Set-up of a gymnasium & its importance.
2. Various equipments in the gymnasium.
3. Operational skills, effects & uses of each equipment

Practical:

1. To practice all the soft tissue manipulative techniques region wise – upper limb, lower limb, neck, back and face.
2. To practice the measurement of ROM of joints – upper limb, lower limb & trunk.
3. To practice the grading of muscle strength region wise– upper limb, lower limb and trunk.
4. To study the position of joints, muscle work, and stability of various fundamental and derived positions.
5. To study the different types of muscle contraction, muscle work, group action of muscles and co-ordinated movements.
6. To practice the various types of suspension therapy and its application on various parts of body – region wise.
7. To study & practice local & general relaxation techniques.
8. To study the structure & function along with application of various equipment in a gymnasium.

Books Recommended:

1. Practical Exercise Therapy – Hollis – Blackwell Scientific Publications.
2. Therapeutic Exercises – Basmajian – Williams and Wilkins.
3. Therapeutic Exercises Foundations and Techniques – Kisner and Colby – F.A. Davis.
4. Proprioceptive Neuromuscular Facilitation – Voss et al – Williams and Wilkins.
5. Principle of Exercise Therapy – Gardiner – C.B.S. Delhi.
6. Beard's Massage – Wood – W.B. Saunders.
7. Motor Control: Theory and Practical Applications Shumaya – Cook & Wallcott – Lippincott.
8. Hydrotherapy, Principles and Practices – Champion – Butterworth Heinmann.
9. Muscle testing and functions – Kendall – Williams & Wilkins.
10. Daniels and Worthingham's – Muscle testing – Hislop & Montgomery – W.B. Saunders.
11. Measurement of joint motion: A Guide to Goniometry – Norking & White – F.A. Davis.
12. Therapeutic Massage- Holey A Elizabeth.

COMMUNITY MEDICINE

Total Lecture: 100 Hrs

Exam time: 2 Hrs.

Total marks: 100

Written: 50

Oral / Practical: 30

Sessional: 20

Course Contents:

- Basic terminologies used in Community Medicine including: Health, Public Health, Preventive Medicine, Community Health, Community Medicine, Infection, Inflammation, Epidemiology, Epidemic, sporadic, pandemic, incidence, prevalence, incubation period, antiseptic, disinfection, sterilization, isolation, notification, surveillance and quarantine.
- The concept of health, disease and causation of disease.
- Indicators of health.
- Introduction to the National health system in urban and rural areas.
- Personal hygiene.
- Epidemiology of infectious diseases:
 - ◆ Ecological triad
 - ◆ Transmission of disease
 - ◆ Prevention and control of diseases
 - ◆ Diseases spread through food, drink or poor hygiene: Diarrhoea, Cholera, Dysentery and Food poisoning.
- Air borne diseases: Diphtheria, Meningitis, Tuberculosis and methods of prevention and control.
- Insect borne diseases: Malaria, Dengue and methods of prevention and control.
- Contact diseases: Leprosy and methods of prevention and control.
- Other diseases: Tetanus, Acquired Immune Deficiency Syndrome (AIDS) and Hepatitis.

- Nutrition and nutritional disorders: Protein energy malnutrition (PEM), Goitre and Vitamin deficiency diseases- Vitamin A, B1, C, D, K, Nicotinic and Riboflavin.

Bacterial Diseases: - Tuberculosis, Leprosy, Rheumatic fever, Tetanus, Typhoid fever, Diphtheria, Pneumonia, Bacillary Dysentery and Measles.

Viral Diseases:- Herpes – simplex and zoster, Varicella, measles, hepatitis B & C, AIDS & influenza.

Metabolic and deficiency Diseases: Diabetes, Anemia, diseases of the endocrine glands.

Diseases of Digestive Systems: - Pharyngitis, spasm of the Oesophagus, Diverticulum stenosis, Gastric ulcer, Hemetemesis, Pyloric stenosis, Dyspepsia, Vomiting, Diarrhoea, Duodenal ulcer etc.

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

Disease of Kidney: Polyuria, Hematuria, Uremia, Anuria, Nephritis, Urinary infections, Urinary calculi.

Diseases of Skin:- Characteristics of normal skin, abnormal changes, types of skin lesions.

Conditions – Leprosy, Acne, Boil, Carbuncles, Impetigo, Infections of skin, Herpes, Urticaria, Psoriasis, Skin disorders associated with circulatory disturbances, Warts, Corn, Defects in Pigmentation, Psoriasis, Leucoderma, Fungal infections, Alopecia, Dermatitis, Eczema, Skin – allergies, Venereal diseases.

- Primary Health Care.
- Extended Programme of Immunisation (EPI).
- Health Education.
- Motivation.
- Family planning, principles and population control.
- Basic first aid principles and practice.
- Providing for patient Elimination: Giving and taking bed pan ,Urinal, Observation of stool, Urine, Sputum, Understanding of use and care of catheter.
- Method of giving nourishment: Feeding, Tube feeding, Drip, Transfusion.
- Care of rubber good: Observation, Reporting and recording Temperature, Respiratory rate and pulse. Sterilization and disinfection.
- Surgical dressing
- Parental administration of medicine: Injection. IV saline.

Books Recommended:

1. Davidson's principles and Practices of Medicine – Edward – Churchill Livingstone.
2. Hutchinson's Clinical Methods – Swash – Bailliere Tindall.
3. A Short Text book of Medicine – Krishna Rao – Jaypee Brothers
4. A Short Text book of Psychiatry – Ahuja Niraj – Jaypee Brothers

PSYCHOLOGY

Total Lecture: 50 Hrs

Exam time: 3 Hrs.

Total marks: 100

Written: 80

Sessional: 20

- Introduction to psychology
- Perspectives of psychology
- Psychology and Disability, Illness and Rehabilitation
- Branches of psychology.
- Method of psychology.
- **Behavior.**
Definition, type, Development and growth, Infancy, Childhood and adolescence
- **Motivation**
Definition, Classification, Motivation cycle, Maslow's theory, Relationship between motivation and behavior, Impact of motivation on rehabilitation
- **Learning**
Definition, Classification, Conditions of learning
- **Memory**
Definition, Types, Process and elements of memory, Memory upgrading techniques, Memory loss (forgetting), Definition, Causes.
- **Cognition**
Cognitive development (incl. Piaget and stages of play), Intelligence, Intelligence quotient (IQ) measures
- **Socialization**
Definition, Agents of socialization, Types of socialization, Secondary socialization: Role, status & career
- **Conflict**
Definition, Types, Frustration
- **Abnormal behavior**
Definition, Types, Causes
 - **Heredity and Environment:** Twins, Relative importance of heredity and environment, their role in relation to physical characteristics, intelligence and personality, nature – nature controversy.
 - **Development and Growth Behavior:** Infancy, childhood, adolescence, adulthood, middle age, old age. .

- **Psychological needs:** Information, security, self-esteem, competence, love and hope.
- **Emotions:** Definitions: Differentiate from feelings, psychological changes of emotion, Role of RAS, hypothalamus, cerebral cortex, sympathetic nervous system, adrenal gland, heredity and emotion, Nature and control of anger, fear and anxiety.
- **Personality:**
 - a) **Definitions:** List of components: Physical characteristics, character, abilities, temperament, interest and attitudes.
 - b) Discuss briefly the role of heredity, nervous system, physical characteristics, abilities, family and culture of personality development.
 - c) **Basic concepts of Freud:** unconscious, conscious, ID, ego and superego, List and define the oral, anal and phallic stages of personality development list and define the 8 stages as proposed by Erickson, 4 concepts of learning as proposed by Dollard and Miller; drive, cue, response and reinforcement.
 - d) **Personality assessment:** interview, standardized, non-standardized, Exhaustive, and stress interviews, list and define inventories BAL, CPI, and MMPI, projective test: Rorschach, TAT and sentence completion test.
- **Thinking:** Definition, concepts, creativity, steps in creative thinking, list the traits of creative people, delusion.
- **Frustration:** Definition, sources, solution, Conflict; Approach – approach, Avoidance – avoidance, and approach – avoidance solution.
- **Sensation, Attention and Perception**
 - a) List of senses: Vision, Hearing, Olfactory, Gustatory and coetaneous sensation, movement, equilibrium and visceral sense. Define attention and list factors that determine attention: nature of stimulus intensity, colour, change, extensity, repetition, movement size, curiosity, primary motives.
 - b) Define perception and list the principles of perception: Figure ground, constancy, similarity, proximity, closure, continuity values and interests, past experience context, needs, moods, religion, sex and age perceived susceptibility perceived seriousness perceived benefits and socioeconomic status.
 - c) Define illusion and hallucination.

d) List visual, auditory, cutaneous, gustatory and olfactory hallucination.

- **Democratic and Authoritarian Leadership:** Qualities of leadership: Physical factors, intelligence, self-confidence, sociability, will and dominance. Define attitude. Change of attitude by: Additional information, changes in-group – affiliation, enforced modification by law and procedures that affect personality. (Psychotherapy, Counseling and religious Conversion).
- **Defence Mechanisms of the Ego:** Denial, rationalization, projection, reaction formation, identification, repression, emotional insulation, undoing, interjection, acting out depersonalization.

Health Psychology

1. **Psychological Reactions of Patient:** Psychological reactions of a patient during admission and treatment anxiety, shock, denial, suspicion, questioning, loneliness, regression, shame, guilt, rejection, fear, withdrawal, depression, egocentricity, concern about small matters, narrowed interests, emotional over reactions, perpetual changes, confusion, disorientation, hallucinations, delusions, illusions, anger, hostility, loss of hope.
2. **Reactions to Loss:** Reactions to loss, death and bereavement shock and disbelief, development of awareness, restitution, resolution. Stages of acceptance as proposed by Kubler. – Ross.
3. **Stress:** Physiological and Psychological relation to health and sickness: psychosomatic, professional stress burnout.
4. **Communication:**
 - a) Types verbal, non-verbal, elements in communication, barriers to good communication, developing effective communication, specific communication techniques.
 - b) Counseling: Definition, Aim, differentiates from guidance, principles in counseling and personality qualities of counselors.
5. **Compliance:** Nature, factors, contributing to non-compliance, improving compliance.
6. **Emotional Needs:** Emotional needs and psychological factors in relation to unconscious patients, handicapped patients, bed – ridden patients, chronic pain, spinal

cord injury, paralysis, cerebral palsy, burns, amputations, disfigurement, head injury, degenerative disorders, parkinsonism, leprosy, incontinence and mental illness.

7. **Geriatric Psychology:** Specific psychological reactions and needs of geriatric patients.
8. **Pediatric Psychology:** Specific psychological reactions and needs of geriatric patients.
9. **Behavior Modification:** Application of various conditioning and learning principles to modify patient behaviors.
10. **Substance Abuse:** Psychological aspects of substance abuse: smoking, alcoholism and drug addiction.
11. **Personality Styles:** Different Personality styles of patients.

Books Recommended.

- 1.Strongman, K. T., (1979) *Psychology for the paramedical professions*,
- 2.Kubler, R., (1973), *On death and dying*, Routledge, London.
- 3.Strongman, K. T., (1979) *Psychology for the paramedical professions*.
- 4.Kubler, R., (1973), *On death and dying*, Routledge, London.
- 4.Alloy, L.B., Acocella, J., Rootzin, R.R. (1996) *Abnormal Psychology, 7th Ed*, Mc Craw Hill inc., New York.
- 5.Carson, C.R., Butcher, N.J., (1992) *Abnormal Psychology and Modern Life, 9th Ed*, Harper Collins Publishers.
- 6.Franzoi, S.L., (1996), *Social Psychology*, Brown and Benchmark Publishers, London.
- 7.Crider, A.B., Solomon P.R. *et al* (1989), *Psychology, 3rd Ed*, Harper Collins Publishers.
- 8.Calhoun, C., Light, D., Kelper, S., (1994) *Sociology, 6th Ed*, Mc Craw Hill inc., New York

SECOND PROFESSIONAL Bachelor of Physiotherapy (Second Professional)

ANATOMY-II

Total Lecture: 300 Hrs

Exam time: 3 Hrs.

Total marks: 200

Written: 100

Oral / Practical: 50

Sessional: 50

General Introduction:

1. **Histology** – Cell, tissues of the body, epithelium, connective tissue, cartilage, bone, Vessels (Blood & lymph), muscle, nerve, etc.
2. **Osteology** – Formation, function, growth & repair of bones.
3. **General Embryology**– Ovum, spermatozoa's, fertilization, differentiation, development, of various systems and fetal circulation.

Systems of the Human Body:

1. **Vascular System** (Blood & Lymph)– Arteries, capillaries, veins, and lymph vessels.
2. **Cardio-Respiratory System** – Anatomy of heart, upper & lower respiratory tract including nose, larynx, trachea, bronchi, pleura & lungs.
3. **Digestive System** – Anatomy of the gastro intestinal tract.
4. **Urogenital System** – Anatomy of Urinary system, male and female reproductive system.
5. **Endocrine System** – The various organs and production of hormones including definition, structures in general, control of secretions, function and role of hypothalamus.
6. **Integumentary System.**
7. **Surface Anatomy.**

Neuro – Anatomy (Nervous System): Microscopic and gross study of:

1. Peripheral Nerves
2. Neuromuscular Junction
3. Sensory End Organs
4. Spinal Cord Segments & Areas.
5. Brain stem
6. Medulla & Cerebellum
7. Inferior colliculi
8. Superior Colliculi
9. Diencephalon & Mesencephalon
10. Hypothalamus
11. Epithalamus
12. Thalamus
13. Cerebral hemispheres
14. Corpus striatum
15. Rhinencephalon
16. Lateral ventricles
17. Meninges
18. Blood supply of the brain
19. Internal Capsule
20. Visual radiation
21. Auditory radiation
22. Thalamocortical radiations
23. Pyramidal systems
24. Extra – pyramidal systems
25. Anatomic integration
26. Intra- cortical integration
27. Sympathetic system
28. Para – sympathetic system
29. Cranial nerves
30. Sinus of head & nose

Practical Anatomy

- 1. Surface Anatomy:** To study, identify and mark the surface land marks on human body.
- 2.** To study the anatomy of C.N.S. and P.N.S. on a dissected human body.
- 3.** To study the gross anatomy of Respiratory, Cardiac, Vascular, Digestive, Endocrine, Urinary and Genital system on a dissected human body.

Books Recommended:

1. L. Williams & Warwick, Gray's Anatomy – Churchill Livingstone.
2. Inderbir Singh, Textbook of Anatomy with colour Atlas – Vol. 1,2,3. Jaypee Brothers.
3. B.D. Chaurasia, Human Anatomy – Volume 1,2,3, CBS Publishers & Distributors.
4. McMinn's Last's Anatomy – Regional and applied, Churchill Livingstone
5. McMinn, et al – A Colour Atlas of Human Anatomy, Mosby,
6. Cunningham Manual of Practical Anatomy Vol. I, II, III, Churchill Livingstone.
7. Inderbir Singh, A Text book on Human Neuro Anatomy, Jaypee Brothers.
8. Snell – Clinical Anatomy – Lippincottincott.

PHYSIOLOGY-II

Total Lecture: 200 Hrs

Exam time: 3 Hrs.

Total marks: 200
Written: 100
Oral / Practical: 50
Sessional: 50

Muscle Physiology:

Gross and Microscopic

1. Structure and function of Muscle tissue – skeletal and cardiac.
2. Chemical processes involved in muscle contraction.
3. Physiology of muscle contraction.

Physiology of exercise and work:

1. Neuromuscular activity, human movement, physiological mechanism in movement behavior, strength, endurance, analysis of movement.
2. Circulatory and respiratory response to exercise including effects on the heart blood circulation, body fluid changes, pulmonary ventilation, gas exchange and transport, etc.
3. Effects of exercise and work on other body functions.
4. Metabolic and environmental aspects of exercise and work – metabolism, energy requirement, efficiency of muscular work, nutritional aspects, heat and body temperature regulation & environmental factors.
5. Effects of Exercise training – endurance, fatigue and recovery.
6. Fitness and health – age, sex, body type, race, stress and medical aspects of exercise.

Physiology practical

To study the following Physiological Phenomena:

1. Identification of blood cells and different counts (W.B.C. & R.B.C. Count, Hemoglobin percentage and colour index).
2. E.S.R. and Blood groups.
3. Bleeding time and clotting time.

4. Respiratory efficiency tests.
5. Artificial respiration and C.P.R.
6. Pulse rate, Heart rate and measurement of Blood Pressure.
7. Respiratory rate and Auscultation.
8. Normal E.C.G.
9. Reflexes- Superficial & Deep.
10. Sensations & Motor function.
11. Tests for functions of Cerebrum.
12. Tests for functions of Cerebellum.

Books Recommended:

1. Text book of Medical Physiology – Arthur Guyton (Mosby.)
2. Text book of Physiology- An and & Manchanda, Tata McGraw Hiull.
3. Human Physiology- vol.1& 2, Chatterjee. CC, Calcutta. Medical Allied.
4. Concise medical Physiology. Chaudhari. S.K, New Central Agency, Calcutta.
5. Principles of Anatomy and Physiology. Tortora & Grabowski – Harper Collins.
6. Text book of Practical Physiology- Ghai- jaypee.

PATHOLOGY & MICROBIOLOGY-I

Total Lecture: 100 Hrs

Exam time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

1. **Introduction:** Concepts of diseases, classification of lesions.
2. Bacterial, viral and parasitic infections – a general outline.
3. Inflammation and repair, degeneration, necrosis and gangrene.
4. Hemorrhage, shock, embolism, thrombosis.
5. Tuberculosis, Leprosy, Typhoid.
6. Deficiency diseases.
7. **Tumours:** Etiology & spread, common tumours.
8. **Blood:** Anaemia, Heart and blood vessels common congenital anomalies, Rheumatic & Coronary heart diseases.
9. **Respiratory System:** Pneumonias, Bronchiectasis, Emphysema, Chronic, Bronchitis, and Asthma.
10. Bone and Joints: Autoimmune diseases, septic arthritis, Osteomyelitis.
11. **Skin:** Leprosy.
12. Urinary System.
13. **Central nervous system:** CNS infections, vascular disorders.
14. Rheumatoid Arthritis.
15. Scleroderma and Psoriasis.
16. Diseases of muscle including poliomyelitis, Myopathies.
17. Volkmann's Ischaemia.

Books Recommended:

1. Robbins Pathological Basis of Disease – Cotran, Kumar & Robbins – W.B. Saunders.
2. General Pathology – Walter & Isracl – Churchill Livingstone.
3. Muirs Textbook of Pathology – Anderson – Edward Arnold Ltd.
4. Text book of Pathology – Harsh Mohan – Jaypee Brothers.
5. Pathology: Implications for Physical Therapists – Goodmann and Boissonnault – W.B. Saunders.
6. Essential of Medical Microbiology – Bhatia & Lal – Jaypee Brothers.
7. Medical Microbiology – Mims – Jaypee Brothers.
8. Microbiology: An Introduction for the Health Sciences – Ackeman and Richards – W.B. Saunders Co.

BIOMECHANICS

Total Lecture: 100 Hrs

Exam time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

Mechanics

- a) Introduction to Biomechanics and terminology.
- b) Introduction to mechanics including motion, forces, parallel forces system
- c) Newton's law of motion, concurrent force systems – composition forces, muscle action line etc.
- d) Kinematics description of motion – forces that modify motion.
- e) Work, Power and Energy.
- f) The analysis of linear motion.
- g) Centre of Gravity, line of gravity, stability and equilibrium.

The condition of Rotary Motion:

- Rotary force.
- The lever.
- Newton's laws and rotational equivalents.
- Centripetal and centrifugal forces.
- The analysis of rotary motion.

Joint Structure and Function:

- a) Basic principle of Joint design and a human joint.
- b) Tissues present in human joint including fibrous tissue, bone cartilage and connective tissue.
- c) Classification of joints.
- d) Joint function, Kinematics chains and range of motion.
- e) Recall anatomy and study the biomechanics of the spine, shoulder girdle, joints of the upper extremity, pelvic girdle and the joints of the lower extremity.

Muscle Structure and function:

- a) Mobility and stability functions of muscle.
- b) Elements of muscle structure and its properties.
- c) Types of muscle contractions and muscle work.
- d) Classification of muscles and their functions.
- e) Group action of muscles, Co-ordination of movement.

Posture & Gait:

- a) Posture – Definition, factors responsible for posture, relationship of gravity on posture.
- b) Postural imbalance – factors responsible for imbalance in Static and dynamic positions including ergonomics.
- c) Description of Normal gait, determinants of gait, spatio temporal features and analysis.
- d) Gait deviations – Types, Causative factors and analysis.

Practical

- 1. To study the effects of forces on objects.
- 2. To find out the C.G. of an object.
- 3. To identify axis and planes of motion at the joints of spine, shoulder girdle, joints of upper extremity, Pelvic girdle and joints of lower extremity.
- 4. To study the different types of muscle contraction, muscle work, group action of muscles of coordinated movements.
- 5. Analysis of Normal posture respect to L.O.G. and the optimal position of joints in Antero-posterior and lateral views.
- 6. Analysis of normal gait and measurement of spatio temporal features.

Books Recommended:

- 1. Joint Structure and Function-A Comprehensive Analysis-Norkins & Levangic-F.A. Davis.
- 2. Measurement of Joint Motion–A Guide to Goniometry - Norkins & White – F.A. Davis.
- 3. Brunnstrom’s Clinical Kinesiology – Smith et al – F.A. Davis.
- 4. Basic Biomechanics explained – Low & Reed – Butterworth Heinmann.
- 5. Kinesiology: Applied to Pathological Motion – Soderberg Lippincott.

RADIOLOGY & IMAGING

Total Lecture: 100 Hrs

Exam time: 2 Hrs.

Total marks: 100

Written: 50

Oral / Practical: 30

Sessional: 20

- 1 Basic about radiology & imagine.
- 2 Introduction of Radiology: -
- 3 Plain X-ray, Barium meal x-ray, contrast x-ray, CT scan, MRI,
- 4 Radiological Anatomy and interpretation: - Such as bones, joints, spine, chest, skull, brain etc.
- 5 Radiological pathology: - such as Osteomalacia, Osteoporosis, Osteoarthritis, Rheumatoid Arthritis, Ankylosing Spondylosis, Spondylosis, Spondylitis, Spondylolesthesis, Rectrolisthesis, Bone Fractures, Carcinoma, Different Arthritis, Frozen Shoulder, Vulgus Deformity, Varus Deformity, Club Feet, Grade of Sprain, PLID, Osteomyelitis, Osteochondritis, Tuberculosis, Bone Cyst, Head Injury, Stroke, Pneumonia, Bronchitis, Emphysema, Asthma, Lung Abscess, Pneumothorax, Encephalitis, Spinabifida, Tumour, Infection, Congenital Anomalies, foreign body etc.

ORTHOPAEDICS AND RHEUMATOLOGY

Total Lecture: 100 Hrs

Exam time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

1. **Introduction to Orthopedics:** Introduction to orthopedic terminology. Types of pathology commonly dealt with, clinical examination, common investigations X – Rays & imaging techniques and outline of non-operative management.
2. **Principles of operative treatment:** List indications, contraindication and briefly outline principle of: Athrodesis, Arthoroplasty, Osteotomy, Bonegrafting, Tendon – Transfers and Arthroscopy.
3. **Sprains and Muscle Strains:** List common sites of sprains and muscle strains and describe the clinical manifestations and treatment. Viz. tennis elbow, golfer’s elbow, Dequervan’s disease, tenovaginitis, tigger finger, carpal tunnel syndrome and plantar fasciitis.
4. **Sports Injuries:** Injuries related to common sports their classification and management.
5. **Fractures and Dislocations:** General Principles, outline the following:
 - i. Types of Fractures including patterns. Open and closed fractures and fracture - dislocations.
 - ii. Differences between dislocation & subluxation.
 - iii. General & Local signs & symptoms of fractures & symptoms of fractures & dislocation.
 - iv. Principle of management of fractures & dislocations.
 - v. Prevention & treatment of complication including: Fracture – disease, Volkmann’s ischaemic contracture, Sudeck’s Atrophy, Carpal Tunnel Syndrome. Myositis ossificans and shoulder – hand Syndrome.

- vi. Fracture healing.
6. **Upper Limb Fractures & Dislocations:**
 - a) Enumerate major long bone fractures and joint injuries.
 - b) Briefly describe their clinical features, principles of management (Traction, Plaster of Paris etc) and complications.
7. **Lower Limb Fractures & Dislocations:**
 - a) Enumerate major long bone fractures and joint injuries.
 - b) **Spinal Fractures and Dislocations:** Details about spinal cord injury. Outline the mechanism, clinical features, Principles of management and complications of spinal cord injuries.
8. **Recurrent Dislocations:** Outline the mechanism, clinical features, and principles of management and complications of spinal injuries.
9. **Amputations**
 - a) Classify amputations. List indications for surgery,
 - b) Outline pre-operative, operative and prosthetic management.
 - c) Outline prevention and treatment of complications.
10. **Bone & Joint Infections:** Outline the etiology, clinical features, management and complications of septic arthritis Osteomyelitis, Tuberculosis (including spinal T.B).
11. **Bone Joint Tumors:** Classify and outline the clinical features, management and complications of the following (benign/ malignant bone and joint tumors, osteomas, osteosarcomas osteoclastomas, Ewing s sarcoma multiplemyeloma.
12. **Chronic Arthritis:** Outline of pathology: clinical features, mechanism of deformities, management and complications of: Rheumatoid arthritis Osteoarthritis of major joints, osteoporosis and spine Ankylosing spondylitis.
13. Neck & Back Pain Painful Arc Syndrome, Tendonitis, Facitis & Spasmodic Torticollis, Outline the above including clinical features and management.
14. **Spinal Deformities:** Classify spinal Deformities and outline the salient clinical features management and complications of Scholiasts, Kyphosis and Lordosis.
15. **Poliomyelitis:** Describe the pathology, microbiology, prevention, management and complications of polio; Outline the treatment of residual paralysis including use of orthoses. Principles of muscle transfers and corrective surgery.

16. **Congenital Deformities:** Outline the clinical features and management, of CTEV, CDH, Flat deficiencies meningocele, Arthrogryphosis multiplex congenita and Osteogenesis imperfecta.
17. **Peripheral Nerve Injuries:** Outline the clinical features and management, including re-constructive surgery of:
- a) Radial, median and ulnar nerve lesions.
 - b) Sciatic and lateral popliteal lesions.
 - c) Brachial plexus injuries including Erbs, klumpke's, and crutch palsy,
- 19 **Hand Injuries:** Outline of clinical features management and complications of: skin and soft tissue injury, tendon injury, bone and joint injury.
- 20 **Leprosy:** Outline of clinical features, management and complications of neuritis, muscle paralysis, tropic ulceration and hand & feet deformities.
21. **Soft tissue Rheumatism:** Adhesive Capsulitis, Lateral Epicondylitis, Carpal Tunnel Syndrome, work related upper limb disorder, Planter Fasciitis and Hyper mobility Syndrome.

Practical:

1. Application of plaster of Paris.
2. Application of different types of traction.
3. Application of different types crape bandages.
4. Application of different types of external fixation.

Books Recommended:

1. Watson – Zones, Fractures and Joint Injuries - Wilson – Churchill Livingstone.
2. Clinical Orthopaedic Examination – Mcrae - Churchill Livingstone.
3. Concise System of Orthopaedics and Fractures – Apled – Butterworth Heinemann.
4. Outline of Fractures – Adam – Churchill Livingstone.
5. Outline of Orthoaedics – Adam – Churchill Livingstone.
6. Physical Examination in orthopaedics – Apley – Butterworth Heinmann.
7. Clinical Orthopaedics Diagnosis – Pandey & Pandey – Jaypee Brothers.

THERAPEUTIC EXERCISE-II

Total Lecture: 100 Hrs
Time: 3 Hrs.

Total marks: 150
Written: 100
Oral / Practical: 30
Sessional: 20

Therapeutic Exercises:

1. Principle, classification, techniques, physiological & therapeutic effects, indications & contraindications of therapeutic exercises.
2. Assessment & evaluation of a patient (region wise) to plan a therapeutic exercise program.
3. **Joint Mobility** – Etiogenesis of Joint stiffness, general techniques of mobilization, effects, indications, contraindications & precautions.
4. **Muscle Insufficiency** – Etiogenesis of muscle insufficiency (strength, tone, power endurance & volume), general techniques of strengthening, effects, indication, contraindications & precautions.
5. **Neuromuscular In co-ordination** – Review normal neuromuscular coordination, Etiogenesis of neuromuscular in co-ordination & general therapeutic techniques, effects, indications, contraindications & precautions.
6. **Functional re-education** – General therapeutic techniques to re-educate ADL's function.

Posture, Balance, Gait:

Normal Posture – Overview of the mechanism of normal posture.

Abnormal Posture – Assessment, Types, etiogenesis, management, including therapeutic exercises.

Static and Dynamic Balance – Assessment & management including therapeutic exercises.

Gait – Overview of normal gait & its components.

Gait deviations – Assessment, Types, etiogenesis, and management, including therapeutic exercises.

Types of walking aids, indications, effects & various training techniques, Gait Re-education.

Special Techniques:

1. Introduction to special mobilization & manipulation techniques (Maitland, Cyriax, Mulligan) effects, indications & contraindications.
2. Conceptual framework, principle of proprioceptive neuromuscular facilitation (PNF), Bobath, Rood techniques, including indications, therapeutic effects, and precautions.
3. Principles of traction, physiological & therapeutic effects classification, types, indications, contraindications, techniques of application, operational skills & precautions.
4. Review normal breathing mechanism, types, techniques, indications, contraindications, therapeutic effects & precautions of breathing exercises.
5. Group theory – Types, advantages & disadvantages.
6. Exercises for the normal person – Importance and effects of exercise to maintain optimal health & its role in the prevention of diseases. Type, advantages, disadvantages, indications, contraindications & precautions for all age groups.
7. Introduction to Yoga – Conceptual framework, various “asanas”, the body – mind relationship, effects & precautions.

Practical

1. To practice assessment & evaluative procedures, including motor, sensory, neuromotor co-ordination, vital capacity, limb length & higher functions.
2. To study & practice the various techniques of mobilization & manipulation of joints region wise.
3. To study & practice the various techniques of progressive strengthening exercises of muscles region wise.
4. To study & practice the use of various ambulation aids in gait training.
5. To assess & evaluate ADL's and practice various training techniques.
6. To study & practice mat exercises.
7. To assess & evaluate normal & abnormal posture & practice various corrective techniques.

8. To assess & evaluate equilibrium/balance & practice various techniques to improve balance.
9. To study the structure & functions of hydrotherapy equipment & their application.
10. To study & practice various traction techniques, including manual, mechanical & electrical procedures.
11. To study & practice various group exercise therapies.
12. To practice & experience effects of basic yoga “asanas”.
13. To study, plan & practice exercise programmes for normal persons of various age groups.

Books Recommended:

1. Practical exercise Therapy – Hollis – Blackwell Scientific Publications.
2. Therapeutic Exercises- Basmajian- - Williams & Wilkins.
3. Practical Exercise Foundations and Techniques – Kisner & Colby – R.A. Davis.
4. Proprioceptive Neuromuscular Facilitation – Voss et al – Williams and Wilkins.
5. Principle of Exercises Therapy – Gardiner – C.B.S. Delhi.
6. Orthopaedic Physical Therapy – Woods – Churchill Livingstone.
7. Manipulation and Mobilisation extremities and spinal techniques – Edmond – Mosby.
8. Aquatic Exercise Therapy – Bates and Hanson – W.B. Saunders.
9. Manual examination and treatment of spine and extremities – Wadsworth – Lippincott

ELECTROTHERAPY AND HYDROTHERAPY

Total Lecture: 100 Hrs

Exam time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

1. **Review of Neuro** – muscular Physiology including effects of electrical stimulation.
2. Physiological responses to heat gain or loss on various tissues of the body.
3. Therapeutic effects of heat, cold and electrical currents.
4. **Physical principles of Electro** – Magnetic radiation.
5. Physics of sound including characteristics and propagation.
6. **High frequency currents (S.W.D. and M.W.D)** – Production, biophysical effects, types, therapeutic effects, techniques of application, indications, contraindications, precautions, operational skills and patient preparation.
7. **Medium frequency currents (Interferential Therapy)** – Conceptual framework of medium frequency current therapy, production, biophysical effects, types, therapeutic effects, techniques of application, indications, contraindications, precautions, operational skills and patient preparation.
8. **High frequency sound waves (Ultrasound)** – Production, biophysical effects, types, therapeutic effects, technique of application indications, contraindications, precautions, operational skills and patient preparation.
9. **Therapeutic light in Physiotherapy (LASER)** – Definition, historical background, physical principles, biophysical effects, types, production, therapeutic effects, techniques of application, indications, contraindications, precautions, operational skills and patient preparation.

10. **Therapeutic cold (Cryotherapy)** – Sources, biophysical effects, types, therapeutic effect, indications, contraindications, precautions, application techniques and patient preparation.
11. **Therapeutic mechanical pressure (Intermittent compression therapy)** – Principle, biophysical effects, types, therapeutic effects, indications, contraindications, precautions, operational skill and patient preparation.
12. **Electro – diagnosis** – Instrumentation, definition & basic techniques of E.M.G. and E.N.G.
13. **Bio-feedback** – Instrumentation, principles. therapeutic effects, indications, contraindications, limitations, precautions, operational skills and patient preparation.

HYDROTHERAPY

- Introduction to the physical properties of water, buoyancy, hydrostatic pressure, specific gravity, viscosity and resistance
- General procedure of treatment.
- Therapeutic effect of hydrotherapy
- The physical properties of water in relation to the therapeutic uses of water.
- Introduction to hydrotherapy modalities, whirlpool, Hubbard tank, hydrotherapy pools.
- Physiotherapy treatment techniques using the medium of water (both shallow and deep), exercises for muscle strengthening and increasing range of movement, Bad Ragaz techniques, balance training, and ambulating.
- Safety rules and practical safety skills in water.
- The indication, contraindications to the use of specific forms of hydrotherapy.

Practical

1. To study a short wave diathermy unit, its operation and different methods of application.
2. To study a Micro wave diathermy unit, its operation unit, its operation and different methods of application.
3. To study and Ultrasound unit, its operation and different methods of application.
4. To study a Laser unit, its operation and different methods of application.
5. To study various forms of therapeutic cold application including – ice, cold packs, vapour coolant sprays, etc.
6. To study an intermittent therapy unit, its operation and different methods of application
7. To study a Interferential pneumatic therapy unit, its operation and different methods of application
8. To observe various Elector – myography (EMG) procedures.

9. To observe various Electro – neurography (EMG) procedures.
10. To study a Bio feedback unit, its operation and different methods of application

Books Recommended:

1. Electrotherapy Explained: Principles & Practice Low & Reed – Butterworth Heinmann.
2. Clayton's Electrotherapy (10th edition) – Kitchen & Bazin – W.B. Saunders.
3. Therapeutic Heat and Cold Lehmann – Williams & Wilkins.
4. Principles and Practice of Electrotherapy – Kahn – Churchill Livingstone.
5. Electrotherapy: Clinics in Physical Therapy – Wolf – Churchill Livingstone.

PAEDIATRIC

Total Lecture: 100 Hrs

Exam Time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

1. Review normal foetal development & childbirth, including assessment of a neonate.
2. **Development of a normal child-** neuromotor, physical growth, cognitive, intellectual, social etc.
3. The examination & assessment of a pediatric patient.
4. **Congenital & acquired musculo-skeletal disorders-** etiology, clinical manifestation & principles of Management.
5. **Congenital & acquired Cardio- pulmonary disorders-** etiology, clinical manifestation & principles of management.
6. **Congenital & acquired neurological disorders (CNS & PNS) -** etiology, clinical manifestation & principles of management.
7. **Hereditary disorders-** etiology, clinical manifestation & principles of management.
8. **Nutritional Vitamins Deficiency & development disorders -** etiology, clinical manifestation & principles of management.
9. **Burns, Injuries & accident -** Types & principles of management, including preventive care.
10. **Surgical intervention-** Indications & common surgical procedure.
11. **Prenatal**
 - The process of conception and timeline of development of major anatomical structures in the developing foetus.
 - Maternal prenatal health and its effect on the developing foetus.
 - Childbirth and the associated complications.

12. **Normal development.**

- The principles of normal development.
- Reflexes and reactions- the types of reflexes and the age they are apparent in normal development
- Motor development, the course of motor development from birth, both in terms of gross and fine motor skills, learning about basic motor pattern in different position, and the average age of acquisition of particular skills.
- Sensory development with reference to vision and hearing and their intimate relationship with other fields of development.
- Social behaviour, the developmental process and skill acquisition including the importance of play in the overall development of the child. The progression from simple to more complex forms of play and the relevance of this transition
- Language and communication - The progression from initial eye contact to multidimensional communication.
- Cognitive Development - The concept of benefits and theory of knowledge, the concept of genesis.
- The intimate relationship between these different fields and the necessity of one to allow the progression of another.

13. **Psychology in development**

- Personality and its relationship to behaviour.
- Emotion, development to adulthood, emotion versus feeling.
- Socialization, self-concept and socialization, primary socialization, early childhood and the role of the family.
- Motivation, relationship to behaviour, motivation and learning theory.
- Intelligence, intelligence quotient measures and cognitive development.

14. **Abnormal development.**

- Common neurological and neuromuscular disorder
- Common Musculoskeletal disorder
- Common Genetic disorder.
- Common congenital disorder
- Common Orthopaedic disorder

- Common Respiratory diseases
- Common Endocrine disorders
- Common Metabolic disorder

15. **Emphasis will be placed on the following areas:**

- Review subjective and objective assessment with emphasis on relevance to paediatric conditions.
- Practical application and interpretation of objective tests.
- Physiotherapeutic techniques, the concept behind treatment approaches and their practical application.
- These should include:- The Bo bath concept, Conductive education methods for activities of daily living and play, positioning to decrease or increase tone, exercise and mobilisation, equipment, aids and appliances, respiratory treatment techniques, education of child and parent.
- Common medication and primary care.
- The role of the parent and the importance of play for a child.
- A problem orientated approach to paediatric conditions and suitable techniques to treat them effectively.
- How the conditions affect the various anatomical structures and the affect on the developmental process.
- Problems that result from the conditions including secondary problems, which arise as a result of, initial abnormalities and how they progress, as the child gets older.
- An understanding of the practical application of treatment differences between adults and children

Books Recommended

1. Motor Assessment of Developing Infant- Piper & Darrah - W.B, Saunders.
2. Paediatric Physical Therapy- Teckling- Lippincott.
3. Treatment of Cerebral Palsy and Motor Delay- Levitts - Blackwell Scientific Publications, London.
4. Aging the Health Care Challenge- Levis- F.A. Davis.
5. Physiotherapy in Paediatric- Shepherd- Butterworth Heinmann.

PHYSIOTHERAPY IN ORTHOPAEDIC

Total Lecture: 100 Hrs

Exam Time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

Introduction: Brief review of the following surgical condition and various physiotherapeutic modalities, aims, means and technique of physiotherapy should be taught.

Traumatology general physiotherapeutic approach for the following conditions:

Fracture and dislocations: Classification and type of displacement, method of immobilization, healing of fractures and factors affecting union, non union, delayed etc. common sites of fractures.

Specific fractures and their complete physiotherapeutic management:

Upper Limb: Clavicle, humerus, ulna, radius, crush injuries of hand etc.

Lower limb: fracture neck of femur, shaft of femur, patella, tibia, pott's fracture, fracture of tarsal and metatarsals etc.

Spine: fracture and dislocation of cervical, thoracic and lumbar vertebrae with and without neurological deficits etc.

Surgical procedures: Pre and postoperative management of common corrective procedure like arthroplasty, arthrodesis, osteotomy, laminectomy, disectomy, tendon transplants, and soft tissue release grafting, including polio residual paralysis and leprosy deformities corrections etc.

Injuries: Soft tissue injuries, synovitis, capsulitis, Volkmann's ischemic contracture etc. tear of semilunar cartilage and cruciate ligaments of knee, meniscectomy, patellectomy, internal derangement of knee etc.

Amputation: level of amputation of upper limb and lower limb, stump care, stump bandaging, pre and post prosthetic management including check out of prosthesis, training etc.

Deformities: congenital torticollis and cervical rib, CTEV, Pes cavus, pes planus and other common deformities.

Acquired: Scoliosis, kyphosis, lordosis, coxa vara, genu valgum, genu valgum and recurvatum.

Degenerative and infective conditions: osteoarthritis of major joints, spondylosis, spondylitis, spondylolisthesis, PIVD, Periarthritis of shoulder, Tuberculosis of spine, bone and major joint, perthes disease, Rheumatoid arthritis, Ankylosing spondylitis etc. and other miscellaneous orthopaedic conditions treated by physiotherapy.

Principles of sports physiotherapy: causes of sports injury, prevention of sports injuries management of acute sports injury, common occurred injuries. Role of physiotherapist in sports, principle & advanced rehabilitation of the injured athlete.

Practical

Various physiotherapy modalities and treatment techniques for the above mentioned conditions to be demonstrated and practiced by the students in clinical setup.

Books Recommended:

1. Cash textbook of Orthopaedics and Rheumatology for Physiotherapists – Downie – Jaypee Brothers.
2. Tidy's Physiotherapy – Thomson et al – Butterworth Heinmann.
3. Essentials of orthopaedics and applied physiotherapy – Joshi and Kotwal – B.L. Churchill Livingstone.
4. Tetraplegia & Paraplegia – Bromley – W.B. Saunders.
5. Orthopaedic Physiotherapy – Donatelli & Wooden – W.B. Saunders.
6. Rheumatological Physiotherapy – David – Mosby.
7. Orthopaedic Physiotherapy – Tids well – Mosby.
8. Physiotherapy for Amputee – Engstrom & Van de van – Churchill Livingstone.
9. Sports Injuries: Diagnosis and Management – Norris Butterworth Heinmann.

CLINICAL PRACTICE (ORTHOPAEDIC)

Total Practice: 150 Hrs

Total Mark: 100
Clinical practice: 100

- Revision of relevant subjective and objective Assessment
- Revision of, the definition of fractures, the clinical features of fractures and appropriate physiotherapy during the different stages of healing including cautions and contra-indications.
- Physiotherapy management (Pre and post operative) of all orthopaedic condition including fractures, diseases, dislocations, deformity, soft tissue injuries, soft tissue transfer, repair and reconstruction.
- Fractures of the lower limb, upper limb, pelvis and spine.
- Dislocation of the elbow joint, gleno-humeral joint, acromio-clavicular joint and sterno-clavicular joint.
- Therapeutic exercise: Isotonic, isometric, passive, active, and resisted.
- Planning a progressive exercise regime, and a home exercise programme.

Books Recommended:

1. Apley, A. G., (1982) *Apleys system of orthopaedics and fractures (6th edition)*, Butterworths, London.
2. Carrigan, B. and Maitland, G. D., (1983) *Practical Orthopaedic Medicine*, Butterworth Heinemann Ltd, Oxford.
3. Cyriax, J., (1982) *Textbook of orthopaedic Medicine volume one*, Bulliere Tindall, London.
4. Cyriax, J. H. and Cyriax P. J., (1983) *Illustrated manual of Orthopaedic Medicine*, Butterworth, London.
5. Downie, P. A., (1982) *Cash's Textbook of Orthopaedic conditions for Physiotherapy*, Faber and Faber, Londo

CLINICAL PRACTICE (SPINAL CORD INJURY)

Total Practice: 150 Hrs

Total Marks: 100
Clinical practice: 100

Clinical Teaching:

- Revision of relevant subjective and objective assessment, ASIA impairment scale and FIM scale.
- Revision of the definitions of SCI and the expected outcomes according to level & degree of injuries.
- Aims of treatment, protocols and goal setting.
- Sitting and standing balance, gait re-education with walking aids.
- Physiotherapy management in different stages including acute, stabilization stage, stage of rehabilitation and re-integration stage.
- Physiotherapy management of different problem related to spinal cord injury such as- Pain; Pressure sore, autonomic Dysreflexia, postural Hypotension, Spasticity, bowel bladder incontinence, constipation, and psychological problem.
- Wheel chair maneuver of spinal cord injuries patients.
- Revision of the anatomy of the spinal column and the effects of spinal cord injury.

Books Recommended:

1. Bedbrook, G., (?) *The care and management of spinal cord injuries*, Chapter 17. Potts paraplegia.?
2. Chapter 25-Paraplegia in developing countries.?
3. Bromley, I., (?) *Tetraplegia and paraplegia*, ?
4. Gundy, D., (?) ABC of spinal cord injury, *British medical journal*, ?
5. Guttman, L., (?) *Textbook of sport for the disabled*,
6. Hammed, M., (ed), (?) *Yes you can! A guide to self-care for persons with spinal cord injury*,
7. Sutton, N. G., (?) *Injuries of the spinal cord - The management of Paraplegia and Tetraplegia*,

PATHOLOGY & MICROBIOLOGY-II

Total Lecture: 100 Hrs

Exam time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

Introduction and history of microbiology:

1. Micro-organisms:

- a) Classification
- b) Shape and arrangement
- c) Special characteristics – spores, capsules, enzymes, motility, reproduction.

2. Disinfection and antiseptics.

3. Sterilization and asepsis.

4. Antibacterial agents – fundamental aspect, susceptibility tests.

5. Infection – source of infection, portals of entry, spread of infection.

6. Non-specific immunity.

7. Immunity – natural and acquired.

8. Allergy and hypersensitivity.

10. Outline of common pathogenic bacteria and diseases produced by them. Treatment and prevention

- i) Respiratory tract infections.
- ii) Meningitis.
- iii) Enteric infections.
- iv) Anaerobic infections.
- v) Urinary tract infections.
- vi) Leprosy, tuberculosis and miscellaneous infections
- vii) Wound infections
- viii) Sexually transmitted diseases
- ix) Hospital acquired infections.

11. Pathogenic yeast's and fungi

12. Virology – Virus infections with special mention of Hepatitis, Poliomyelitis & Rabies.

13. Definition of different pathological test. Such as

- Blood for CP
- RA test
- MT test
- TB culture
- AFB staining
- Blood sugar fasting or randomly
- ASO titre
- Widel test
- Serum calcium
- Urea creatinine
- Serum electrolytes\
- Serum bilirubin
- SGOT
- SGPT,
- Prothrombin time
- Alkaline Phosphatase
- Uric Acid, Cholesterol
- HLA B- 27
- SSS Test.
- Urine for RE/RME,
- C/S and Pregnancy test.
- For stool RE/RME, C/S, OBT etc those are related to the different pathological conditions.

Books Recommended:

1. Robbins Pathological Basis of Disease – Cotran, Kumar & Robbins – W.B. Saunders.
2. General Pathology – Walter & Israel – Churchill Livingstone.
3. Muir's Textbook of Pathology – Anderson – Edward Arnold Ltd.
4. Textbook of Pathology – Harsh Mohan – Jaypee Brothers.
5. Pathology: Implications for Physical Therapists – Goodmann and Boissonnault – W.B. Saunders.
6. Essential of Medical Microbiology – Bhatia & Lal – Jaypee Brothers.
7. Medical Microbiology – Mims – Jaypee Brothers.
8. Microbiology: An Introduction for the Health Sciences – Ackeman and Richards – W.B. Saunders Co.

PHARMACOLOGY-1

Total Lecture: 100 Hrs

Total Mark: 150

Exam. Time: 3Hrs:

Written: 100

Oral / Practical: 30

Sessional: 20

Course content:

Pharmacology to toxicology –

General Pharmacology, Unwanted effect and adverse drug reaction, Poisoning, Overdose, Antidotes.

1. **History of drugs**
2. **Classification of drugs**
3. **Administration of drugs**
4. **Pharmacodynamics of drugs:**
 - a) Absorption of drugs
 - b) Excretion of drugs
 - c) Threshold
- d) Indication, contra indication and side effect of the drugs
- e) Drug allergy
- f) Metabolic fate of drug.
- g) Chemical character of drugs

5. Infections and Inflammation:

- Antibacterial drugs.
- Viral, fungal, Protozoal and hemolytic infection.
- Vasodilator drugs.
- Vasoconstrictors drugs.
- Inflammation, Arthritis and non-steroidal anti-inflammatory and steroidal anti-inflammatory drugs and the skin.
- Ant diabetic drug.
- Detail about antihistamine.

6. Gastrointestinal system:

- Stomach and esophagus.
- Intestine.
- Liver, biliary tract, pancreases.

Books Recommended:

1. Pharmacology and pharmacotherapeutics – R.S. Satoskar – Publications, Bombay.
2. The Pharmacological Principles of Medical Practice – Krantg & Jelleff – Calcutta Scientific Book Agency.
3. Pharmacology – Praseem K. Das. – Churchill Livingstone
4. Essential of Medical Pharmacology – K.D. Tripathi – Jaypee Brothers.

NEUROLOGY

Total Lecture: 100 Hrs

Time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

1. **Neuroanatomy:** Review that basic anatomy of the brain and spinal cord including. Blood Supply of the brain and spinal cord, anatomy of the visual pathway, connections of the cerebellum and extrapyramidal system, relationship of the spinal nerves to the spinal cord segments, long tracts of the spinal cord, the brachial and lumbar plexus and cranial nerves.
2. **Neurophysiology:** Review in brief the Neurophysiological basis of tone and disorders of the tone and posture bladder control muscle contraction movement and pain
3. Assessment and evaluative procedures for the neurological patient.
4. Review of the principles of the management of a neurological patient

Briefly outline the etogenesis clinical features and management of the following Neurological disorders:

1. Congenital and Childhood disorders Cerebral palsy hydrocephalus and Spina Bifida
2. Cerebrovascular accidents General classification thrombotic embolic hemorrhage & inflammatory strokes gross localization and sequel.
3. Trauma localization first aid and management of sequelae of head injury and spinal cord injury
4. Diseases of the spinal cord Craniovertebral junction anomalies Syringomyelia Cervical and lumbar disc lesions Tumors and Spinal arachnoiditis
5. Demyelinating diseases (central and peripheral) - Guillain - Barre syndrome, Acute disseminated encephalomyelitis, Transverse myelitis and Multiple sclerosis.
6. **Degenerative disorders** - Parkinson's disease and dementia.
7. **Infections-** Pyogenic Meningitis sequelae, Tuberculosis infection of central nervous system and Poliomyelitis.

8. **Diseases of the muscle**- Classification, signs, symptoms, progression and management.
9. **Peripheral nerve disorders**- Peripheral nerve injuries, Entrapment neuropathies and Peripheral neuropathies.
10. **Epilepsy**- Definition, classification and management.
11. **Myasthenia Gravis**- Definition, course and management.
12. **Intracranial Tumors**- Broad classifications, signs and symptoms.
13. **Motor neuron disease**- Definition, classification and management.
14. **Cranial nerve**- Types of Disorders, clinical manifestation & management.
15. Introduction to neuropsychological.
16. General assessment procedures and basic principles of management.
17. Briefly discuss about neurosurgical conditions, procedures, possible complications and management.
18. Common surgeries of the cranium & brain.
19. Common surgeries of vertebral column & spinal cord.
20. Common surgeries of peripheral nerves.
21. Surgical interventions in traumatic head injuries.

Books Recommended:

1. Brain's Diseases of the Nervous System- Nalton- ELBS.
2. Guided to clinical Neurology- Mohn & Gaectier- Churchill Livingstone.
3. Principles of Neurology- Victor- McGraw Hill International edition.
4. Davidson's Principles and practices of medicine- Edward- Churchill Livingstone.

CARDIO-PULMONARY

Total Lecture: 100 Hrs

Exam time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

PULMONARY CONDITION

1. Definition of respiratory disease
2. Importance to learn respiratory disease for physiotherapist
3. Purpose to learn respiratory diseases
4. Types of respiratory disease
5. Common cause of respiratory disease

Definition, Cause/ Etiology, Etiology, Pathology, Clinical sign and symptom

Investigation, Treatment, Prognosis of below condition:

Bronchitis, Emphyema, Bronchiectasis, Emphysema, Tuberculosis, Lung abscess

Bronchogenic, carcinoma, Bronchial asthma, Plural effusion, Pneumothorax, Pneumonia.

Cardiovascular conditions

1. What is cardiovascular disease?
2. Importance to learn cardiovascular disease for physiotherapist
3. Purpose to learn cardiovascular diseases
4. Types of cardiovascular disease
5. Common cause of cardiovascular disease
6. Common sign and symptom of cardiovascular diseases

Definition, Cause, Types, Etiology Pathology Clinical sign and symptom Investigation

Treatment, Prognosis of below condition:

- Angina pectoris
- Myocardial infarction
- Heart failure

- Cardiac arrhythmia
- Sudden cardiac death

Congenital heart disease:

- Ventricular septal defect
- Atrial septal defect
- Patent ductus arteriosus
- Tetralogy of Fallot
- Transposition of the great vessels
- Coarctation of the aorta
- Ventricular septal defect
- Hypoplastic left heart
- Mitral Stenosis and regurgitation
- Aortic Stenosis and regurgitation

Books Recommended:

1. Cash Textbook of general medical and surgical conditions for physiotherapists-Downie-Jaypee Brothers.
2. Essentials of Cardiopulmonary physical therapy-Hillgass & Sadowsky-W.B. Saunders.
3. Cash Textbook of Chest, Heart and Vascular Disorders for Physiotherapists-Downie-J.P.
4. The Brompton Guide to Chest Physical Therapy.
5. Cardiopulmonary Physical Therapy-Irwin and Tecklin-Mosby.
6. Cardiovascular/Respiratory Physiotherapy-Smith & Ball – Mosby.
7. ACSM Guidelines for Exercise testing and Prescription-ACSM-Willims and Wilkins.
8. Chest Physiotherapy in Intensive Care Unit-Mackenzie et al-Williams and Wilkins.
9. Cash Textbook of general medical and surgical conditions for physiotherapists-Downie-Jaypee Brothers.
10. Essentials of Cardiopulmonary physical therapy-Hillgass & Sadowsky-W.B. Saunders.
11. Cash Textbook of Chest, Heart and Vascular Disorders for Physiotherapists-Downie-J.P.
12. The Brompton Guide to Chest Physical Therapy.
13. Cardiopulmonary Physical Therapy-Irwin and Tecklin-Mosby.
14. Cardiovascular/Respiratory Physiotherapy-Smith & Ball – Mosby.
15. ACSM Guidelines for Exercise testing and Prescription-ACSM-Willims and Wilkins.
16. Chest Physiotherapy in Intensive Care Unit-Mackenzie et al-Williams and Wilkins.

GENERAL SURGERY

Total Lecture: 100 Hrs

Exam Time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

1. Introduction to principles of surgery and its procedure.
2. **Shock** - definition, types, clinical feature, pathology & management.
3. **Hemorrhage** – common sites, complication, clinical features & management.
4. **Blood Transfusion** – Blood group matching, indication & complication.
5. **Anesthesia** – Principles of anesthesia, types & procedure.
6. **Wounds, Tissue repair, Classification** – Acute Wounds, Chronic wounds, Scars & their management.
7. **Wound infections:** - Physiology and manifestation, Types of infections & their management.
8. **Tumors and Ulcers:** -
 - a) Tumors – Types & management.
 - b) Ulcers – Types & management.
9. **Burn** – Causes, Classification, Clinical features & management
10. **Skin Grafting** – Indications, Types & management.
11. **Hand Infections** – Types & Procedures.
12. **General Injuries** – Types & management.
13. **Complications of Surgery.**
14. **Abdominal Surgery** – Types of Incisions & common surgical procedures.
15. **Thoracic and Cardiac Surgery** – Types of incisions & common surgical procedures.
16. **Common Neuro-Surgery-** Types of incisions & common surgical procedures, complications and their possible management.

Obstetrics & Gynecology

1. Pregnancy, stages of labour & its complications, indications & Types of surgical procedures.
2. **Gynecological disorders** – Salpingities, parametritis, retro – uterus, prolapse of uterus, pelvic inflammatory diseases, urinary incontinence.

Ophthalmology

1. **Common inflammations and other infections of eye.**
2. **Ptosis**
3. **Blindness** – common causes & management.
4. **Refractions** – Testing, errors & remedies
5. **Strabismus** – Types, features & corrective measures.

Ear, Nose & Throat (ENT)

1. **Introduction** – Outline mechanism of audition, olfaction & speech.
2. Classify causes of hearing impairment, assessment techniques, conservative & surgical management.
3. **Hearing Aids** – Types & indications.
4. Outline common ENT infections & which affect hearing, breathing, speech & their management.
5. Outline the function of vestibular organ, its common disorders & their management.

Books Recommended:

1. Baily and Love – Short Practice of Surgery – Mann and Rains – H.k. Levis Publications, London.
2. Undergraduate Surgery – Nan – Academic Publishers, Calcutta.
3. Textbook of Surgery – Gita R.L. – Jaypee.
4. Principles and Practices of trauma care – Kocher – Jaypee.
5. Clinical Methods – S. Das – Calcutta.

RESEARCH METHODOLOGY

Total Lecture: 100 Hrs

Exam time: 2 Hrs.

Total marks: 100

Written: 50

Course Work: 30

Sessional: 20

1. The role of research and the relationship between research, theory and physiotherapy practice.
2. The scope and applications of research.
3. The process of research.
4. Ethical considerations in human research.
5. Quantitative research.
6. The survey, descriptive and analytical.
7. Prospective longitudinal and retrospective cross-section designs.
8. The logic and structure of experimental, quasi-experimental and non-experimental designs.
9. Aims, objectives and hypotheses. Independent and dependent variables. Null and alternative hypotheses.
10. Principles of sampling, universes, populations and samples.
11. Sampling strategies, probability and purposive sampling, random and stratified random sampling and quota sampling.
12. Calculating sample size. Response rates and drop-out.
13. External and internal validity.
14. Principles of data collection - validity, sensitivity and reliability.
15. Sources of bias and their reduction.
16. Selection of measurement instruments. Types of data (nominal, ordinal, interval or ratio). Operational definitions, interventions and outcome measurement.
17. Descriptive statistics, measures of dispersion and central tendency. The normal distribution and standard deviation. Basic display techniques (e.g. line charts, histograms, bar charts). Choosing graphical forms.

18. Introduction to statistical inference; probability, p values. One and two-tailed hypothesis testing.
19. Inferential statistics, statistical tests, principals of test selection.
20. Tests for difference and tests for association. Related and unrelated, parametric and non-parametric.
21. Errors of inference: Type Type II errors and I.
22. Inputting data and generating and interpreting output from the computer.
23. Performing selected statistical tests on the computer with appropriate software.
24. Statistical, social and clinical significance.
25. Critical appraisal of quantitative research reports.
26. Generating “researchable” and relevant questions and identifying appropriate designs.
27. Constraints on the choice of design. Designing and planning experimental designs.
28. Qualitative research.
29. Survey research: questionnaires and interviews. Principles of questionnaire design.
30. Structured Vs unstructured interviews.
31. Designing questionnaires and interview schedules.
32. Organising and running focus groups.
33. The Delphi technique.
34. Other data collection instruments (e.g. diaries and other documentary sources).
35. Ethnographic research. Gathering observation data, covert and overt, participant and non-participant. Constructing field notes. Gaining trust and rapport in ethnographic research.
36. The design and analysis of single-system studies. Case studies.
37. Basic principles of qualitative data analysis: identifying concepts, categories and themes from data.
38. Qualitative data analysis, organising narrative data, content analysis. Identifying relationships. Maps and matrices.
39. Computerised analysis of qualitative data.
40. Multi-method approaches.
41. Social and clinical significance.

42. Critical appraisal of qualitative research reports.
43. Harvard system of referencing.
44. Writing a research proposal.
45. Writing up research.
46. Survey research
47. The context for research: (including quality of life), managerial and operational research, consumer satisfaction, quality assurance.
48. Research Vs Audit.

Books Recommended:

1. Bailey, D. M., (1991), *Research for the Health Professional: A Practical Guide*.
2. Bowling, A., (1997), *Research Methods in Health*, Open University Press, Buckingham, Philadelphia.
3. Depoy, E. and Gitlin, L. N., (1998), *Introduction to Research: Understanding and Applying Multiple strategies*, (2nd edition), Mosby.
4. Hicks, C., (1995), *Research of Physiotherapists: Project Design and Applications*, Churchill Livingstone.

PHYSIOTHERAPY IN SURGICAL CONDITIONS

Total Lecture: 100 Hrs

Exam time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

GENERAL SURGERY AND ENT

Review of pathological changes and principle of pre and postoperative management by physiotherapy of the following conditions:

- 1) Common abdominal surgeries, including GIT, liver, spleen, kidney, bladder etc.
- 2) Common operation of reproductive system, including surgical intervention for child delivery. Ante natal & post natal, physiotherapy.
- 3) Common operations of the ear, nose, throat & jaw as related to physiotherapy.
- 4) Common organ transplant surgeries- heart, liver, bone marrow etc.

GYNECOLOGY AND OBSTETRICS

1. Basic anatomy and physiology of the male and female reproductive system: --
 - Description about bones, muscles, organs of reproduction (male, female, reproduction menstruation, Conception and fertilization, Physiological changes during pregnancy, Labour (childbirth; parturition), Assisted delivery,
 - The position and structure of male and female pelvis.
 - Function of the placenta.
 - Foetal assessment.
 - Anatomical and physiological changes after delivery.
 - The supports of the uterus.
 - The anatomy of the pelvis and implications of its dimensions to delivery.

- Basic understanding of the menstrual cycle.
2. Diseases of Pregnancy
 - Heart Disease.
 - Respiratory Diseases.
Pulmonary Tuberculoses, Bronchitis and Emphysema, Asthma
 3. Basic knowledge about physiology and management of normal labour.
 4. Basic knowledge about pathology and management of abnormal labour.
 5. Describe in details normal human development.
 6. Methods of contraception and sterilisation.
 7. Basic knowledge about complications of early pregnancy.
 8. Physiotherapy technique pre-operatively and post operatively about gynaecological conditions.
 9. Physiotherapy complications for obstetrics and gynaecological patients during pregnancy, after delivery and after caesarean sections.
 10. Physiotherapy techniques in obstetrics and gynaecological patients.
 11. Knowledge about gynaecological surgery.
 12. Brief knowledge on medical management of common complications during pregnancy.
 13. Introduction of relaxation? Different methods of relaxation for pain control.

WOUNDS, BURNS & PLASTIC SURGERY

Review of pathological changes and principle of pre and postoperative management by physiotherapy of the following conditions:

- 1) Wounds, ulcers, pressure sores,
- 2) Burns & their complications.
- 3) Common reconstructive surgical proceedings of the management of wounds, ulcers, burns & consequent contractures & deformities.

Books Recommended:

1. Cash Textbook of general medical and surgical conditions for physiotherapists- Downie- Jaypee Brothers.
2. Cash textbook of heart, chest and vascular disorders for physiotherapists- Downie- Jaypee Brothers.
3. Principles and practices of cardiopulmonary physical therapy- Frown Felter- Mosby.
4. Chash physiotherapy in intensive care unit- Mackenzie- Williams & Wilkins.
5. Restoration of Motor Functions in strock patient: A physiotherapist Approach- Johnstone- Churchill Livingstone.
6. Physiotherapy in obstetrics and gynaecology - Polden- F.A. Davis.
7. J. Barnes (1980) Lecture notes on Gynaecology, 4th Edition, billing and sons limited, Blackwell scientific Publications.
8. G. Chamberlain (1976) Lecture notes on Obstetrics, 4th edition, billing and sons limited, Blackwell scientific Publications.
9. J. Plercy, A Thomson and A Skinner; (1996), “ Tidy’s Physiotherapy” 12th Edition, Varghese Publishing House.

PHYSIOTHERAPY IN CARDIOPULMONARY

Total Lecture: 100 Hrs

Exam time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

- 1) Review of Subjective and Objective Assessment of respiratory patient.
- 2) Review of mechanism of normal respiration.
- 3) Chest examination, including auscultation.
- 4) Knowledge of various investigative procedures (invasive & noninvasive) used in the diagnosis of various respiratory disorders.

Review of pathological changes and principal of management by physiotherapy of the following conditions:

1. Bronchitis, Asthma, Lung abscess, Bronchiectasis, Emphysema, COPD.
2. Pleurisy and Emphyema, Pneumonia.
3. Bacterial Disease.
4. Rheumatic fever, Carcinoma of respiratory tract.
5. Paralysis of diaphragm & vocal cords.
6. Chest wall deformities.

THORACIC SURGERY

Review of pathological changes and principle of pre and postoperative management by physiotherapy of the following conditions:

- 1) Lobectomy, Pneumonectomy, Thoracotomy, Thoracoplasty, Endoscopy & eye hold surgeries.
- 2) Corrective surgeries of congenital heart defects, angioplasties, blood vessel grafting, open heart surgeries & heart transplant.

Cardiovascular Physiotherapy:

- 1) Review of Subjective and Objective Assessment of Cardiac patient
- 2) Review of anatomy & physiology of the cardiovascular system.

3) Knowledge of various investigative procedures (invasive & noninvasive) used in the diagnosis of various cardiovascular disorders.

1) Review of pathological changes and principle of management by Physiotherapy of coronary artery diseases, valvular diseases and conductive heart diseases and vascular diseases.

- Physiotherapy in ICU
- Pre and postoperative Physiotherapy management.
- Physiotherapy in Spinal cord lesion.
- Arterial blood gases analysis.
- Cardiopulmonary function testing.
- Adult respiratory distress syndrome.
- Methods to increase lung volume.
- Methods to clear secretion.
- Methods to decrease breathlessness.
- Ventilation and perfusion and position of patient to optimize ventilation – perfusion ratio.
- Oxygen therapy.
- Post myocardial infarction protocol.
- Cardiopulmonary rehabilitation programme.
- Postural drainage.
- Exercise
 - Breathing control
 - Active cycle of breathing techniques.
 - Thoracic expansion
 - Glossopharyngeal breathing.
- Manual technique
 - Chest clapping
 - Chest shaking
 - Vibration
 - Percussion
- Mechanical aids used in cardio respiratory problem.

- ❑ Ventilator
 - ❑ Peak flow meter.
 - ❑ Incentive spirometry
 - ❑ Suction.
- Cardiopulmonary Resuscitation (CPR).

Books Recommended:

1. Cash Textbook of general medical and surgical conditions for physiotherapists-Downie-Jaypee Brothers.
2. Essentials of Cardiopulmonary physical therapy-Hillgass & Sadowsky-W.B. Saunders.
3. Cash Textbook of Chest, Heart and Vascular Disorders for Physiotherapists-Downie-J.P.
4. The Brompton Guide to Chest Physical Therapy.
5. Cardiopulmonary Physical Therapy-Irwin and Tecklin-Mosby.
6. Cardiovascular/Respiratory Physiotherapy-Smith & Ball – Mosby.
7. ACSM Guidelines for Exercise testing and Prescription-ACSM-Willims and Wilkins.
8. Chest Physiotherapy in Intensive Care Unit-Mackenzie et al-Williams and Wilkins.
9. Cash Textbook of general medical and surgical conditions for physiotherapists-Downie-Jaypee Brothers.
10. Essentials of Cardiopulmonary physical therapy-Hillgass & Sadowsky-W.B. Saunders.
11. Cash Textbook of Chest, Heart and Vascular Disorders for Physiotherapists-Downie-J.P.
12. The Brompton Guide to Chest Physical Therapy.
13. Cardiopulmonary Physical Therapy-Irwin and Tecklin-Mosby.
14. Cardiovascular/Respiratory Physiotherapy-Smith & Ball – Mosby.
15. ACSM Guidelines for Exercise testing and Prescription-ACSM-Willims and Wilkins.
16. Chest Physiotherapy in Intensive Care Unit-Mackenzie et al-Williams and Wilkins.

PHYSIOTHERAPY IN NEUROLOGY AND PEDIATRIC

Total Lecture: 100 Hrs

Exam time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

NEUROLOGY

1. Review of Applied neuroanatomy and physiology.
2. Normal motor control.
3. Plasticity.
4. Abnormities of muscle tone and movement.
5. Review of pathological changes and principle of management by physiotherapy of the following conditions:
 - a) Stroke, Spinal cord injury, Tabes dorsalis, cerebellar ataxia, extra pyramidal lesions, Gullian Barre Syndrome, Parkinsonism.
 - b) Disseminated sclerosis, Amgotrophic lateral sclerosis, Syringomyela subacute combined degeneration of cord motor neuron disease.
 - c) Peripheral Nerve and cranial Nerve lesion e.g. Bell's palsy.
 - d) Neuritis and Neuralgia – Brachial plexus injury, sciatica etc.
 - e) Infections,- Poliomyelitis, Encephalitis, Polyneuritis Transverse myelitis.
 - f) Traumatic head injuries and spinal cord injury.
6. Principles of physiotherapy assessment and outcome measures.
7. Knowledge of various investigative procedures (invasive & noninvasive) used in the diagnosis of various neurological disorders
8. Review of Subjective and Objective Assessment of neurological patient.
9. Examination of Neurological disorders and principles of treatment.
10. Theoretical basis of treatment concepts.
 - Issues of motor control,
 - Classic treatment approaches.
11. Musculoskeletal treatment concepts applied to neurology.
 - Adverse neural tension
 - Muscle imbalance

12. Specific treatment techniques

1. Facilitation, Inhabitation, Exercise and movement, electrical stimulation, other techniques Rood, and Bobath,

13. Physical management of abnormal tone and movement.

14. Postural management in neurological rehabilitation.

15. Splinting and the use of orthosis in the management of patients with neurological disorders.

16. Review about neurosurgical conditions, their complications and management in different stages such as- ICU, acute and chronic stage.

NEUROSURGERY

Review of pathological changes and principle of pre and postoperative management by physiotherapy of the following conditions:

- 2) Common surgeries of the cranium & brain.
- 3) Common surgeries of vertebral column & spinal cord.
- 4) Common surgeries of peripheral nerves.
- 5) Surgical interventions in traumatic head injuries.

PAEDIATRICS

1. Review of normal neonatal development

- The senses
- Neurobehaviour.
- Motor behavior
- Primitive reflex
- Postural reactions

2. Abnormal neonatal sign

- The senses
- Neurobehaviour
- Motor behavior
- Reflexes

3. Handling in the neonatal period

- Early intervention
- Handling and management

4. Basic principles of development

- Sequence of development
- Assessing the level of development

5. The normal development in the first to fifth year

- Gross motor development
- Fine Motor,
- Postural
- Behaviors,
- Cognitive,
- Visual
- Auditory.
- ADL

6. Abnormal development first to fifth year following various paediatric conditions

7. Review of the common Congenital & acquired musculo skeletal, neuromuscular disorders, Congenital & acquired Cardio- pulmonary disorders, Congenital & acquired neurological (CNS & PNS), Hereditary disorders, & development disorders.

8. Assessment, diagnosis, setting goals, Continuation of the assessment (SOAP), and other relevant documentation.

9. Principal of physiotherapy management using different treatment approaches e.g., Bobath, Conductive education, PNF, Rood etc

10. The common equipment, prescription of equipment and their use.

Books Recommended:

1. Walton, J., *Brains Diseases of the Nervous System*.
2. Downe, P., (ed), (1982) *Cash's Textbook of Neurology for Physiotherapists*, Faber and Faber, London.
3. Werner, *Disabled Village Children*.
4. Finne, *Handling the young Cerebral Palsied at home*.
5. Illingworth, *The development of the infant and child*.
6. Cash's textbook of neurology for physiotherapists- Downi- J.P. Brothers.
7. Adult Hemiplegia- Evaluaion & treatment - Bobath- Oxford Butterworth Heinmann.
8. Neurological Rehabilitation- Carr & Shephard- Butterworth Heinmann.
9. Tetraplegia & Paraplegia- A guide for physiotherapist- Bromley - Churchill Livingstone.
10. Neurological Physiotherapy- A problem solving approach- Susan Edwards- Churchill Livingstone.
11. Neurological Rehabilitation- Umpherd- Mosby.
12. Geriatric Physical Therapy- Gucciona- Mosby.
13. Motor Assessment of Developing Infant- Piper & Darrah - W.B, Saunders.
14. Paediatric Physical Therapy- Teckling- Lippincott.
15. Treatment of Cerebral Palsy and Motor Delay- Levitts - Blackwell Scientific Publications, London.
16. Aging the Health Care Challenge- Levis- F.A. Davis.
17. Physiotherapy in Paediatrics- Shepherd- Butterworth Heinmann.

ORTHOPAEDIC MEDICINE
(MUSCULOSKELETAL PERIPHERAL)

Total Lecture: 100 Hrs

Exam time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

1. Through analysis of the subjective and objective assessment with emphasis on relevance to musculo-skeletal conditions. The subjective assessment should include history of present complaint, past medical history, drug history, social history, special questions, (contraindications) and any tests such as x-rays. The objective assessment should include general and local observations, appropriate range of movement, muscle testing, palpation, accessory movement, capsular pattern and neurological assessment, special tests.
2. Introduction to the Maitland concept and Cyriax with reference to their use in patient assessment.
3. Physical diagnostic approach of orthopaedic medicine including its treatment.
4. Assessment of the cervical spine, thoracic spine and lumbar spine in enough detail to be able to rule out referred spinal symptoms as the cause of a peripheral problem.
5. Practical assessment and interpretation of findings of the:-
 - Shoulder
 - Elbow
 - Wrist and hand
 - Hip
 - Knee
 - Ankle and foot
6. The concept of cyriax method of treatment including application of intra articular injection for wide spread musculoskeletal condition.

7. Other Physiotherapeutic techniques and their practical application including joint mobilisations, soft tissue mobilisations, passive movements, soft tissue stretches, deep transverse frictions and massage techniques.
8. The aetiology, symptoms and physiotherapy management of the following conditions:

Shoulder joint

- Palpation and surface marking.
- Joint examination
- Thoracic outlet syndrome
- Painful arc
- Lesions of supraspinatous, infraspinatous, and subscapularis tendonitis.
- Bicipital tendonitis, rupture of biceps tendon, and subluxation of biceps tendon.
- Bursitis - subacromial and subcoracoid.
- Capsulitis
- Other contractile and non contractile structural problem
- Instability of the gleno-humeral joint.
- Shoulder/hand syndrome
- Entrapment neuropathy, subscapular nerve entrapment.
- Accessory movement
- Adjacent muscle length test
- All special tests

Elbow joint

- Palpation and surface marking.
- Joint examination
- Soft tissue lesions - lateral and medial epicondylitis.
- Joint lesions - pulled elbow, pushed elbow and elbow stiffness.
- Olecranon bursitis
- Entrapment neuropathies of the ulnar, median and radial nerves.
- Pronator teres syndrome
- Other common contractile and inert structural problem.
- Adjacent muscle length test

- All special test

The Wrist and Hand:

- Palpation and surface marking
- Joint examination
- Tendon lesions.
- Ligament sprains.
- Osteoarthritis.
- Dupuytren's contracture and Volkmann's Ischaemic contracture.
- Ganglion.
- Carpal tunnel syndrome.
- Dequervain's tenosynovitis
- Derangement of carpal
- Triangular fibrocartilage tear
- Mallet and jersey finger
- Common deformity in various condition
- Other contractile and noncontractile lesion
- Distal ulnar neuritis
- Adjacent muscle length test
- Special tests

Hip joint:

- Palpations and surface marking
- Joint examination
- Soft tissue lesions such as adductor strain, quadriceps and hamstring strain.
- Osteoarthritis.
- Iliopsoas bursitis
- Piriformis syndrome
- Adjacent muscle length test
- Other contractile and non contractile lesion
- All special tests

Knee joint:

- Palpation and surface marking
- Joint examination

- Ligament injuries - medial and lateral collateral, anterior and posterior cruciate.
- Meniscus lesion
- Musculotendinous lesions - quadriceps contusion, ITB syndrome, patellar tendinitis.
- Chondromalacia patella.
- Bursitis.
- Osteoarthritis.
- Patelofemoral dysfunction
- Adjacent muscle length test
- Other contractile and non contractile lesion
- All special tests.

Lower leg:

- Palpation and surface marking
- Compartment syndromes of the lower leg.
- Tenosynovitis of the Achilles tendon and rupture of the Achilles tendon.
- Osteochondritis of the calcareous.
- Tennis leg
- Adjacent muscle length test
- Special tests.

Ankle:

- Palpation and joint examination
- Ligament sprains - medial and lateral.
- Recurrent instability of the ankle.
- Other contractile and non contractile lesion
- Adjacent muscle length test
- Special tests

Foot:

- Entrapment syndromes
- Causes of heel pain - heel spur and Planterfascitis.
- Tarsal tunnel syndrome
- Common deformity
- Arches of foot

➤ Special tests

Books Recommended:

1. Coates, H. and King, A., (1982), *The patient Assessment*, Churchill Livingstone, London.
2. Cyriax, J., (1953) *Illustrated Manual of Orthopaedic Medicine*, OM Publicatory, London.
3. Magee, D. S., (1987) *Orthopaedic Physical Assessment*, WB Sanders, Philadelphia.
4. Maitland, G. D., (1986) *Peripheral Manipulation*, Butterworth, London.
5. Maitland, G. D., (1986) *Vertebral Manipulation*, Butterworth, London.
6. *Orthopedic medicine a practical approach* -- Monica kesson
7. *Anatomy palpation and surface marking* – Derek Field.
8. *Neuromusculoskeletal Examination and Assessment* – Nicola J.Petty.

CLINICAL PRACTICE (CARDIOPULMONARY)

Total Practice Hours: 150

Total Marks: 100
Clinical practice: 100

Clinical Teaching:

- Revision of relevant subjective and objective assessment, auscultation, interpretation of normal/abnormal and added breath sounds, chest X-rays and the interpretation of abnormalities.
- Normal of arterial blood gas values, the interpretation of abnormal arterial blood gases values and the implications with respect to the patient's condition and modifying treatment.
- Revisions of physiotherapy techniques to increase lung volumes mobilise secretions and decrease the work of breathing.
- Revision of surgical conditions learnt theoretically and the practical application of modified physiotherapy techniques of pre & post cardiac surgery.
- The theory behind and practical application of volumes and capacities relating to pre & post surgical chronic obstructive airways disease (COAD) and acute asthma. The use of a peak flow monitor as an objective marker for obstructive/restrictive disorders.
- Myocardial Infarct (MI), revision of pathology, clinical features, aims of treatment immediately post MI, progressive exercise training, Cardiac rehabilitation, planning a suitable programme, the use of monitoring devices and the Borg rate of perceived exertion scale.
- ITU, ventilators, intermittent positive pressure ventilation (IPPV), intermittent mandatory ventilation (IMV), synchronised intermittent mandatory ventilation (SIMV), electro-encephalography (ECG), Intra-aortic Balloon pump, positive end expiratory pressure (PEEP), and Tracheotomy.
- Use of nebulizer, suction and different methods of oxygen therapy.
- Details about the instrument of Intensive Care Unit (ICU).

- Physiotherapy Techniques, handling the patient in ITU, suction with/without an airway, the concept of ventilation/perfusion (V/Q) ratios with respect to positioning, bagging, early ambulation, psychological counselling, infection control and Chemotherapy.

Books Recommended:

1. Crosbie and Sim (?) The effect of Postural modification on some aspects of Pulmonary Function following surgery of the upper abdomen, *Physiotherapy*, Oct, 86 Vol, 72 No 10.
2. Downie P. A. (1983), *Cash's Textbook of Chest, Heart and Vascular Disorders for Physiotherapists*, Faber & Faber, London.
3. Gaskell, D.V. and Webber, B. A., (1973) *The Brompton Hospital Guide to Chest Physiotherapy*, Blackwell Scientific Publications, Oxford.
4. Horgh, A. (?) The effect of Posture on Lung Function, *Physiotherapy*, March 84 Vol, 70 No 3.
5. Hough A., (1992), *Physiotherapy in Respiratory Care - A Problem Solving Approach*.
6. Hunsun, H., (1995) *War Surgery*, 3rd World Network, Chapters 26-33.
7. Young, C., (?) A review of the adverse effects of airway suction, *Physiotherapy*, March 84 Vol, 70 No 3.
8. Young, C., (?) Recommended Guidelines for Suction. *Physiotherapy*, March 84 Vol, 70 No 3.
9. Webber, B. A. and Pryor, J. A., (1993), *Physiotherapy for Respiratory and Cardiac Problems*, Churchill Livingstone, Edinburgh.

CLINICAL PRACTICE (NEUROLOGY)

Total Practice: 150 Hrs

Total Marks: 100
Clinical practice: 100

Clinical Teaching:

- Review of the subjective and objective assessment with emphasis on relevance to neurological conditions. The objective assessment should include general and local observations, tone, selective movement, co-ordination, sensation, Proprioception, contractures, alignment and balance in different postural sets and functional ability.
- Interpretation of investigations in relation to the patients' symptoms: CT scan, MRI scans.
- Physiotherapeutic techniques and their practical application, including The Bobath concept, the Rood technique, Motor Relearning programme and PNF. Techniques to decrease or increase tone, facilitation of normal patterns of movement, mobilisation of painful joints, practice of relevant functional tasks, re-education of balance and gait, plus advice and education to patient and carer during treatment and after discharge. Where possible treatment should be related to the activities of daily living and the patients' social situation, and directed towards self-confidence and independence within the context of Bangladesh.
- Physiotherapy management of neurological patient's (Pre & post Operatively) in Intensive Care Unit (ICU), acute and chronic stage.

Books Recommended:

1. Carr, J. and Shepherd, R., (1998) *Neurological Rehabilitation Optimising Motor Performance*, Butterworth Heinemann, Oxford.
2. Downie, P. A., (ed), (1982) *Cash's Textbook of Neurology for Physiotherapists*, Faber and Faber, London.
3. Edwards, S., (2002) *Neurological Physiotherapy. A Problem-Solving Approach*, 2nd Edn, Churchill Livingstone, New York.
4. Stokes, M., (1998) *Neurological Physiotherapy*, Mosby, London.

PHARMACOLOGY II

Total Lecture: 100 Hrs

Exam time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

1. **Drugs acting on Central nervous system** – anesthesia and neuromuscular block, alcohols, alkaloids, pain and analgesic, sleep and anxiety, epilepsy, parkinsonism, narcotics, antipyretics, hypnotics, sedatives, anticonvulsants, stimulants, psychotherapeutics etc.
2. **Drugs acting on peripheral nervous system** – stimulating and inhibiting cholinergic and anticholinergic activity.
3. Drugs acting on neuromuscular junction and muscles
4. Drugs acting on cardiovascular system
5. Drugs acting on respiratory system
6. Chemotherapeutic agents
7. Hormones and drugs affecting endocrine functions
8. Vitamins, mineral, Calcium and Bone.
9. Cellular disorders and anemia.

Books Recommended:

1. Pharmacology and pharmacotherapeutics – R.S. Satoskar – Publications, Bombay.
2. The Pharmacological Principles of Medical Practice – Krantg & Jelleff – Calcutta Scientific Book Agency.
3. Pharmacology – Praseem K. Das. – Churchill Livingstone
4. Essential of Medical Pharmacology – K.D. Tripathi – Jaypee Brothers.

GERIATRIC

Total Lecture: 50 Hrs

Exam time: 2 Hrs.

Total marks: 100

Written: 50

Oral / Practical: 30

Sessional: 20

1. Normal Aging - Definition, the anatomical, physiological and cognitive changes related to aging.
2. Epidemiological and socio- economic impact of aging.
3. The examination & assessment of a geriatric patient.
4. Musculo skeletal disorders - Etiogenesis, clinical manifestation & principles of management.
5. Cardio - pulmonary disorders - Etiogenesis, clinical manifestation & principles of management.
6. Neurological disorders (CNS & PNS) - Etiogenesis, clinical manifestation & principles of management.
7. Diet & Nutritional requirement of the elderly, Nutritional disorders & their management.
8. Burns, Injuries & accident as related to the elderly & preventive care.
9. Dementia - Types and principles of management.
10. Overview of depressive disorders in the elderly.
11. Biologic aging theories and longevity: Biologic theories of aging, factors influencing longevity.
12. The body and its age changes: The integumentary system, the musculo-skeletal system, the cardiovascular system, the lymphatic system, the respiratory, the nervous, the digestive, the endocrine and the reproductive system.
13. Elder illness and accident: The nature of chronic illness, psychosocial aspect of chronic illness, common condition among elders (acute and chronic), factors increasing accident susceptibility, common types of accident, accident prevention.

14. Medication use: Factors affecting medication use, pharmacokinetics, drug interaction, over the counter drug commonly used by elders, adverse effects of medications in elders, alternatives to drugs.
15. Mental health and illness: Mental health and illness for elders, types of treatment, mental health service.
16. Nutrition: Essential nutrients, malnutrition, obesity, essential dietary components, factor affecting food selection and nutrition programme for elders.
17. Physical activity: Component of physical fitness, benefit of physical activity, hazards of in activity, physical activity to reduce chronic illness, physical therapy for elder.

GERIATRICS PHYSIOTHERAPY

- Examination, subjective and objective assessment of a Geriatric patient.
- Various physiotherapy modalities and treatment techniques for above-mentioned conditions should be demonstrated and practiced.

Books Recommended:

1. Cash's textbook of neurology for physiotherapists- Downi- J.P. Brothers.
2. Neurological Physiotherapy –Maria stokes, Mosby, London.
3. Adult Hemiplegia- Evaluation & treatment - Bobath- Oxford Butterworth Heinmann.
4. Neurological Rehabilitation- Carr & Shepherd- Butterworth Heinmann.
5. Tetraplegia & Paraplegia- A guide for physiotherapist- Bromley - Churchill Livingstone.
6. Neurological Physiotherapy- A problem solving approach- Susan Edwards- Churchill Livingstone.
7. Neurological Rehabilitation- Umpherd- Mosby.
8. Geriatric Physical Therapy- Gucciona- Mosby.
9. Motor Assessment of Developing Infant- Piper & Darrah - W.B, Saunders.
10. Paediatric Physical Therapy- Teckling- Lippincott.
11. Treatment of Cerebral Palsy and Motor Delay- Levitts - Blackwell Scientific Publications, London.
12. Aging the Health Care Challenge- Levis- F.A. Davis.
13. Physiotherapy in Paediatrics- Shepherd- Butterworth Heinmann.

PSYCHIARTY

Total Lecture: 50 Hrs

Exam time: 2 Hrs.

Total marks: 100

Written: 50

Oral / Practical: 30

Sessional: 20

Introduction: Definition, Defence mechanism, Symptomatology, Type and cause of mental disorder, psychosomatic disorder, mental illness, Classification, diagnosis and prognosis of mental health

Details about the following:

- Neuroses
- Psychoses: Schizophrenia (Including Paranid), Maniac depressive Psychosis, Involvement Psychosis.
- Organic mental disorders
- Personality disorders
- Affective disorders
- Psychoneurosis: Anxiety, Hysteria, Neuroasthenia, Reactive depression, Obsessive-compulsive Neurosis.
- Organic Reaction: Toxins and Infection
- Adjustment disorders
- Mental retardation: Definition, Cause, Clinical feature, and Management
- Substance abuse
- Child and adolescence conditions
- Forensic Psychiatry
- Psychotherapy: Group therapy, Psychodrama, Behavioural modification, Family therapy, Play therapy, Psychoanalysis, Hypnosis.
- Mental retardation
- Drug use in mental health treatment and contraindication
- Electro convulsive therapy
- Skills in the patient/ therapist relationship

Books Recommended:

1. Introduction to Psychology- Mums – I.D.P. Co.
2. Foundation of Psychology- Weld –Publishing House, Bombay-
3. Introduction to social psychology – Akolkar Oxford Publishing House
4. Psychology and Sociology – Applied to Medicine – Porter & Alder- W.B Saunders.
5. Behavioral Sciences for Medical Undergraduates- mange Meat- Jaypee Brothers.
6. Elementary Psychology Mohsin Moti Lal Banarsi Dass, Delhi.

SPORTS PHYSIOTHERAPY

Total Lecture: 100 Hrs

Exam time: 3 Hrs.

Total marks: 150
Written: 100
Oral / Practical: 30
Sessional: 20

Part A: Fundamental Principles:

1. Sports medical team-The Team Approach.
2. Sports injuries (Acute & Overuse) & Pain.
3. Principles of Injury prevention.
4. Principles of Diagnosis.
5. Principles of Treatment.
6. Principles of Rehabilitation.

Part-B: Sports injuries & Pain in various Sports.

1. Minor Head injuries in sport.
2. Headache.
3. Facial Injuries.
4. Neck Injuries.
5. Shoulder.
6. Elbow & Forearm.
7. Wrist & Hand.
8. Thoracic & Chest.
9. Hip & Groin.
10. Anterior thigh.
11. Posterior thigh.
12. Acute Knee injuries.
13. Anterior Knee.
14. Lateral, Medial & Posterior Knee.
15. Shin Calf, & Achilles injuries.

16.Acute Ankle injuries.

17.Foot.

Part C: Enhancing Sport Performance:

1.Maximising Performance-Nutrition.

2.Maximising Performance- Psychology.

Part D: Sports Participants in Different Ages & Groups:

1.The Younger.

2.The Female.

3.The Older.

Part E: Management of Medical Problems (During, Pre & Post Sports):

1. Sporting emergencies.
2. Cardiovascular Symptoms.
3. Respiratory symptoms.
4. Gastrointestinal.
5. Diabetes.
6. Epilepsy.
7. Common Sport related infections.
8. Tiredness in Sport.
9. Exercises in Heat & Cold.

General Physiotherapy in Sports and Team Management:

1. Sport & fitness
2. The concept, measurement and development of flexibility.
3. Considerations in endurance training
4. Strength training for injury prevention.
5. The psychological implications of injury and the psychology of the injury prone athlete.
6. Immediate post injury considerations, first aid and initial physiotherapy treatment.
7. Physiotherapy for sports injuries, acute and chronic.
8. The efficacy of physiotherapy treatment.

9. Injuries in racket sports, football, cricket and basketball.
10. Initial and final fitness testing and fitness testing after injury.
11. Disability and sport.
12. The history and development of disabled sport its types and classifications.
13. Technology in disabled sport/ equipment.
14. Economics – commercialism.
15. Perceptions of atmosphere & environment.
16. Para Olympics games and other competitions.
17. Modifications and differences to able bodied sports.
18. Sports for people with different disabilities, ie wheelchair athletes, blind athletes, etc.
19. Differences in training for disabled athletes, coaching differences and similarities to able-bodied sports.
20. Physiological aspects of training.
21. Injuries in disabled sports and their treatment with Physiotherapy.
22. The benefits of sport in the rehabilitation of the disabled person.
23. The future of disabled sports.
24. Coaching methods and the qualities of a good coach.
25. Various types of training methods, environmental and other factors affecting training and the differences between on-season and off-season training.

Practical

1. Screening the elite Sports man.
2. Medical care of the Sporting team.
3. Travelling with a team.
4. Medical coverage of endurance events.
5. Drugs and Sports man.

Books Recommended:

1. Clinical Sports Medicine- Boruner .P & Khan. K.
2. Sports injuries- *their prevention & treatment*: Peterson.L & Renstrom. P

ORTHOPAEDIC MEDICINE

(MUSCULOSKELETAL SPINAL)

Total Lecture: 100 Hrs

Exam time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

Fundamentals:

1. Review musculoskeletal anatomy of the Spine, Surface marking and palpation.
2. The subjective and objective assessment .The subjective assessment will include –
 - History of present complaint
 - Past medical history,
 - Drug history,
 - Social history,
 - Special questions, (contraindications) and
 - Special tests
 - Radiological tests such as x-rays.

The objective assessment will include- General and local observations, postural observation, and appropriate range of movement, neurological testing, special tests and palpation.

3. The Maitland and McKenzie concepts with reference to their use in patient assessment.
4. Planning the objective examination from the information given in the subjective assessment, the SIN factor (severity, irritability and nature of the pain).
5. The use of assessment forms and body charts.
6. Finding an objective sign.
7. Contraindications to treatments.
8. Use of palpation and quadrants, grades, range and resistance and interpretation of findings.

9.Objective assessment and practical palpation of the cervical spine, thoracic spine, lumbar spine and the sacro-iliac joint.

10.Muscle imbalance.

11.Physiotherapeutic techniques and their practical application including joint mobilisations, soft tissue mobilisations, and soft tissue stretch, spinal traction both manual and mechanical and massage techniques.

Pathology of vertebral column:

1. Introduction to Low back pain and its classification.
2. Structures producing lower back pain.
3. Whiplash and trauma.
4. Prolapsed intervertebral disc and disc lesions including juvenile disc lesions.
5. Rheumatoid Arthritis of the spine, Ankylosing Spondylitis, hyper-mobility, hypo-mobility syndrome.
6. Neoplasm and osteoporosis.
7. Short leg syndrome, cervical rib, acute tuberculosis and Tietze syndrome.
8. Multifidus syndrome, Osteochondritis and Schuermans disease.
9. Postural abnormalities including kyphosis, lordosis and scoliosis, Torticollis.
10. Lumbago, sciatica and sacro iliac joint problems.
11. Spondylosis, Spondylolesthesis, spondylolysis, osteitis condensilli and coccydinia.
12. Facet locking, headaches, Barne Lieon Syndrome, T4 and C3 Syndromes.

Books Recommended:

1. Cyriax, J., (1983) *Illustrated Manual of Orthopaedic Medicine*, Butterworth, London.
2. Grieve, G., (1981) *Common Vertebral Problems*, Churchill Livingstone, Edinburgh.
3. Grieve, G., (1983) *Mobilisation of the Spine*, Churchill Livingstone, Edinburgh.
4. Maitland, G. D., (1992) *Peripheral Manipulation*, Butterworth, London.
5. Maitland, G. D., (1986) *Vertebral Manipulation*, Butterworth, London.
6. Waddell, G., (1998) *The Back Pain Revolution*, Churchill Livingstone, Edinburgh.
7. Kesson. M (1998) *Orthopedic Medicine- a practical approach*.
8. Petty.N.J et al (1998) *Nuero-Musculoskeletal Examination and Assessment- A Hand book for therapists*.

PROFESSIONAL ETHICS AND MANAGEMENT

Total Lecture: 100 Hrs

Exam time: 3 Hrs.

Total marks: 150

Written: 100

Oral / Practical: 30

Sessional: 20

1. Concept of Ethics, Medical ethics.
1. Concepts of profession, professionalism and the specific nature of professional activity.
2. The nature of values and their application to professional practice.
3. Areas of commonality and difference between the professional practice of physiotherapists and other professions.
4. The social organisation of medical power in professions, knowledge and medical bureaucracies.
5. Introduction to the theory of ethics, codes of ethics and professional standards in physiotherapy (WCPT & Others).
6. Medical records, writing physiotherapy patient notes, confidentiality and informed consent, practice Mal-practice.
7. Conflict and resolution
8. Group identity and social identity.
9. Effects of social class, race and gender on communication.
10. Social interaction and physiotherapist/patient interaction.
11. Professional communication and relationship with patients, caregivers and other professionals and its effect.
12. Anti oppressive practice, the theoretical issues and concepts i.e. the nature of the problem, discrimination, stigma, stereotyping and prejudice, Negligence.
13. The importance of this knowledge to health care professionals and ways of using knowledge of the above in improving the quality of care that the patient receives.

Management

Introduction to Management and Administration

- The definition of management
- The functions of management
- Control loop
- Qualities help for a successful manager
- The role of a manager
- Administration

Quality management and function of management

- Define “quality”
- Areas of quality assurance operate
- Delivery of quality care
- The standards of practice for the physiotherapy profession relate to quality of care
- Policies, procedures, protocols and accreditation
- Areas might policies required in Physiotherapy department
- The advantages and disadvantages of protocols
- Audit
- Indicators for clinical audit

Organizing, Planning, Supervision and monitoring, Evaluation and implementation.

- Planning, Different types of planning
- Strategic, operation and business or tactile planning
- Monitoring and implementation.
- Supervision
- The role of supervisor
- Controlling, motivational and communication role of a supervisor
- The importance of individual face-to-face meetings as a form of supervision within the physiotherapy profession.
- Evaluation
- Different types of evaluation
- Draw a flow chart t show how an evaluation may be performed.

Training

- Training
- Benefits of training.
- Whose job is to organizing training?
- The training needs
- How training need could be turn into an objective?
- Plan of training programme
- Different ways of training.
- The essential components of training sequence

Time management

- Importunacy time management
- Time structuring
- Negotiating commitment.
- The main techniques for good time management
- Use time effectively for staff

Recruitment and selection of staff

- 4 Stages in recruiting new staff
- When doing checklist for job analysis what are the sections that you might use?
- Job description of clinical PT, PT Lecturer, and in-patient or out patient
Physiotherapist and Physiotherapy manager, Physiotherapy assistant etc
- What could be included in the job advertisement?
- Source of advertisement
- Justify staffing in different working areas
- What Physiotherapy staff you would need to role and quality service at out patients and in patients?

Communication

- Define communication
- Different ways of communication
- Advantages, disadvantages, mistakes and dangers of written communication.
- The general format of a letter
- Advantages and disadvantages of spoken communication.

- What do you understand by “listening actively”?
- The importance of body language in communication.
- The main method in Health communication.
- The standards of practice for physiotherapists deal with communication to patients /carers/ others health care Professionals.

Meetings

- Advantages and disadvantages of meetings.
- Show some examples of the kinds of meetings Physiotherapists might be involved.
- Participation as an ordinary member in a meeting reference to:-
- Preparation
- Thinking
- Speaking
- Listening
- Maintaining
- Supporting the chair person
- Avoiding problematic behavior

Needs assessment

- Considering points of a needs assessment
- Indication of needs assessment.
- Where can you get data about the population you will be working with a community or hospital setting.
- What kind of questions you need to ask
- Supply and demand issues

Team management

- Characteristics of a team
- Advantages of working in a team.
- The characteristics of an effective team
- The structures of team
- Possible roles of a person within a team
- Ensuring effective teamwork's

Documentation and note keeping and audit

- Importance of good documentation and note keeping
- The different types of records and reports Physiotherapists may come in to contact
- The standards of Practice in Physiotherapy deals with documentation and note keeping
- Different types of audit
- Indicators for clinical audit.

Funding and budget:

- Writing a funding proposal
- Funding proposal (Proposed).
- Mention key steps in writing a funding proposal
- “Selling points”.
- “Understanding the weakness” Importance of Credibility for organization.
- Budgeting importance
- The main steps in budgeting
- The importance of donor research
- Structure of a funding proposal
- What can you include in your back up literature?

Health Care structured

- WHO definition of health.
- Dimension of health.
- Determinants of health.
- Indicators of health.
- The characteristics of health care.
- How health care is provided in Bangladesh.
- Primary, secondary and tertiary health care structure in Bangladesh.
- Typical Thana health complex.
- What is NGO?
- Why NGO's are effective

Books Recommended

1. Seedhouse, D., (1986), *Health: The foundations for achievement*, John Wiley and Sons, Chichester.
2. Strongman, K. T., (1979) *Psychology for the paramedical professions*,
3. Turner, B.S., (1987) *Medical Power and social knowledge*, Sage, London

TEACHING METHODOLOGY

Total Lecture: 50 Hrs

Exam time:

Presentation: 15 minutes

Viva: 5 minutes (after Presentation)

Total marks: 100

Presentation: 50

Sessional: 50

1. Teaching & learning
2. The qualities of a good teacher and the qualities of a good learner.
3. The principles of adult education.
4. The stages (levels) of learning.
5. Domains/values of learning.
6. Theories of learning. Identify individual learning style.
7. Lesson Planning, aims, objectives and learning outcomes.
8. Effective communication and teaching individuals to problem solve.
9. Teaching aids, utilising existing resources in teaching situations with limited resources.
10. Teaching methods, lectures, small group work – buzz groups/ snowballing, tutorials, practical demonstrations, problem based learning, role-playing, self-directed learning, mentoring and peer review.
11. Critical evaluation of the effectiveness and use of teaching methods.
12. Teaching styles.
13. Assessment and evaluation.
14. Teaching materials and aids
15. Learning contract
16. Teaching environment
17. Student motivation-a) Method of motivation b) Need of motivation
18. Multiple intelligence

Book Recommended:

1. Methods and Techniques of Teaching. SK Kochhar. Sterling Publishers pvt Ltd.
2. Teaching skills for adult educators. Vancouver community college.
3. A handbook for teachers in universities and colleges. David Newbale and Robert Cannon. Kogan page Ltd.
4. Teaching Students in Clinical Settings. Jackie Stengelhofen. Chapman and Hall.

REHABILITATION MEDICINE
(DISABILITY AND DEVELOPMENT)

Total Lecture: 100 Hrs

Exam time: 3 Hrs.

Total marks: 150

Written: 100

Course Work: 30

Sessional: 20

1. Conceptual framework of rehabilitation, roles of rehabilitation team members, definitions and various models of rehabilitation.
2. Epidemiology of disability with emphasis on locomotor disability, its implications- individual, family, Social, Economic and the state.
3. Preventive aspects of disability and organizational skills to manage it.
4. Community Based Rehabilitation and out reach programmes to rehabilitate persons with disabilities living in rural areas.
5. Statutory provisions, Schemes of assistance to persons with disability.
6. Role of N.G.Os in rehabilitation of the persons with disabilities.
7. Basic principles of administration and finance including personnel management and budget preparation and procurement etc.
8. Principles of Orthotics'- types, indications, contra-indications, assessment (check out), uses and fitting- region wise.
9. Principles and mechanisms of Communication including speech and hearing.
10. Common disorders of speech and hearing- etiogenesis, clinical features, assessment and principles of management.
11. Principles in the management of vocational problems, including evaluation and vocational goals for people with disability.
12. Principles of rehabilitation nursing, including function of Nursing personnel and Nursing practice in rehabilitation.
13. Identification, assessment and classification of mentally subnormal.
14. Etiogenesis and principles of management including prevention.

15. Rehabilitation of the mentally subnormal, including vocational training & home education programme.
16. Definition, scope & importance of Activities of Daily Living (ADLs).
17. The teaching and training (a) wheel chair activities, (b) bed activities (c) transfer activities (d) Locomotor activities (e) self care activities, such as toilet, eating, dressing etc.

An introduction to CBR, it's concept, how it started and what is going on in Bangladesh:

- The components of CBR, community and rehabilitation.
- The correlation between CBR and institute based rehabilitation.
- The aims and objectives of CBR, its framework and its role in Bangladesh.
- The strengths and weaknesses of CBR.
- Legal aspects of working in the community.
- The members of a CBR team.
- How CBR is being run by non-government organisations (NGOs) and the government.
- The removal of stigma surrounding disability.
- The role of the Disability Resource Person (DRP) in CBR in raising awareness, cooperation, training, prioritising community needs, and arranging cultural programmes.
- The role of the physiotherapist as a consultant teacher.
- Setting up community physiotherapy services.
- Initial research, identification of target groups with specific needs likely to be encountered in a rural setting, identification of social and cultural barriers to CBR and liaison with the DRP in CBR.
- Types of services, suitable equipment, methods of data collection and evaluation.
- Presentation skills, the production of information leaflets, planning teaching/lectures for other health care professionals and planning information presentations to target groups in the community.

Practical Application:

The planning of the methods of data collection to be used to investigate the epidemiology, causes, process of rehabilitation and reintegration about different kind of peoples with disability.

The student will work for data collection with different NGO's who are working about disability such as-CRP, CDD, ADD, Handicraft International, Save the children, BRAC, Acid Survivor and also patients from other NGOs.

Specific groups to be targeted include: -

- Cerebral palsy (CP).
- Chronic juvenile arthritis (CJA).
- Childhood Scoliosis.
- Polio.
- Burns.
- Contractures.
- Spinal cord injury.
- Abnormal child development.
- Post-cerebral vascular accident (CVA).
- Post fracture.
- Post myocardial infarct (MI).

Other areas to be addressed include: -

- General issues.
- Community knowledge about disability.
- Pre-existing prejudice about disability.

Services available/provision of services.

Books Recommended:

1. Physical Rehabilitation- assessment & Treatment- Sullivan & Schmitz- F.A. Davis.
2. Occupational Therapy and Physical disfunction: Principles, Skills & Practices- Turner, Foster & Johnson- Churchill Livingstone.
3. Hand Splitting - Wilson- W.B. Saunders.
4. Orthotics in Rehabilitation: Splinting the hand and the boby- Mckee & Morgan- F.A. Davis.
5. Atlas of Limb Prosthetics- American Academy of Orthopaedic Surgeon- Mosby.
6. Atlas of Orthotics- American Academy of Orthopaedic Surgeon- Mosby.
7. Krusen's Handbook of Physical Medicine & Rehabilitation- Kottke & Lehamann- W.B. Saunders.
8. Willard and Spackman's occupational therapy- Neistadt & Crepeau- Lippincott
9. Gibson, A., (1988) "Physiotherapy in the Community".
10. Punam, B., (1987) "Children with Disabilities"
11. .Soehand, D., (1995) "Simple equipment for helping people with disabilities".
12. Warner, D., (1988) "Disabled Village Children".
13. World Health Organisation, (1999) ICDH-2, Bit-2 draft.
14. World Health Organisation, (1989) "Training in the community for People with Disabilities".

PROSTHETICS & ORTHOTICS

Total Lecture: 50 Hrs

Exam time: 2 Hrs.

Total marks: 100

Written: 50

Course work: 30

Sessional: 20

1.Introduction:

- Role of Physiotherapist
- Appropriate technology
- Features of Orthotic and prosthetic device
- Prescribing procedure

2.Wheelchairs:

- Details about wheel chair
- The factors considered in their design.
- Assessing the patient for a wheelchair, using local resources.
- Wheelchair management, maintenance and adaptations for sport.

3. Special Seating: (Detail)

- Cushions, their role in pressure care and overall maintenance.
- Wheelchair posture and lower limb positions.
- The use of padding and accessories in correcting abnormalities.

4.Standing Frames: ((Detail)

- The different designs for paraplegics and tetraplegics.
- Assessing for the individual and their home situation.
- Adaptations for multi-purpose or individual uses.

5.Braces: (Detail)

- Indications for use, protocols for time periods etc.
- Considering pressure areas, growth areas etc. in their design.

6.Calipers: (Detail)

- Factors affecting their design and suitability for the individual.
- How to assess the individual.

- The use of local resources and maintenance of the brace, including pressure care.

7.Orthotics: (Detail)

- Foot bio-mechanics and assessment of abnormalities.
- Factors considered in the design of corrective footwear.
- The use of resources and their maintenance.
- The role of progressive orthotics for correction of abnormalities.
- Splinting,
- Plaster

8.Prosthetics: (Detail)

- The variety available in Bangladesh.
- Use of local resources, factors considered in their design and maintenance.
- Progressive time periods for their usage, considering pressure care

Books Recommended:

- 1.Orthopaedics and Appliances.
- 2.Orthopaedics Splints and Appliances-John M Kennedy.

RESEARCH PROJECT

Total: 300 Hrs

Marks: 200

Lectures: 10 Hrs

Tutorials: 20 Hrs

Self directed learning: 270 Hrs

Examination Methods

Submission of a 10,000-word Research project (Dissertation): 100 Marks

Oral / Practical : 100 Marks

Course contents

- Identification of areas and problems connected with physiotherapy that is in need of investigation.
- Drafting a working project title.
- Review of concept and criteria of a research proposal.

A written proposal of approximately 1,000 words will be submitted.

- A supervisor will be allocated who will organise tutorials with the student as appropriate to the student's specific project, and will assist the student in the planning, the writing up and presentation of the project.
- The students will present their research proposal to the ethical committee of their Institute and will be taken appropriate ethical approval.
- Data collection and analyse.
- Write up the research in a scientifically acceptable manner using the Harvard system of referencing.
- First submission of completed project for advice of supervisor.

Final submission of bound 10,000-word project for final marking.

Student Learning Outcomes.

On successful completion of this module the student will be able to:

- Identify areas and problems connected with physiotherapy that are in need of investigation.
- Propose a suitable methodology to answer a well-formed research question.
- Undertake a thorough review literature.
- Be aware of ethical considerations, confidentiality, consent and evaluation of risk.
- Develop, plan and write a research proposal.
- Collect, record and analyse data qualitatively or quantitatively, presenting it in accordance with the methodology used.
- Write up the research in a scientifically acceptable manner using the Harvard system of referencing.

Books Recommended:

1. Bailey, D, M., (1991), *Research for the Health Professional: A Practical Guide*.
2. Bowling, A., (1997), *Research Methods in Health*, Open University Press, Buckingham, Philadelphia.
3. DePoy, E. and Gitlin, L. N., (1998), *Introduction to Research: Understanding and Applying Multiple strategies*, (2nd edition), Mosby.
4. Hicks, C., (1995), *Research of Physiotherapists : Project Design and Applications*, Churchill Livingstone.

CLINICAL PRACTICE (PAEDIATRIC):

Total Practice: 150 Hrs

Total Marks: 100

Clinical practice: 100

- Revision of relevant subjective and objective assessment techniques with emphasis on relevance to paediatric conditions, planning the objective assessment, problem lists, treatment plans and short and long term goals.
- Practical application and interpretation of objective tests.
- Definition, types and classification, causes, pathology, and clinical signs and symptoms of cerebral palsy, Spina bifida, hydrocephalus, Downs syndrome and Duchenne Muscular Dystrophy.
- How the conditions affect the various anatomical structures and the affect on the developmental process.
- Problems that result from the conditions including secondary problems, which arise as a result of, initial abnormalities and how they progress, as the child gets older.
- Physiotherapeutic techniques, the concept behind treatment approaches and their practical application.
- The role of the parent.
- The importance of play for a child.
- An understanding of the practical application of treatment differences between adults and children

Books Recommended:

1. Bowely and Gardner, "The Handicapped Child", Educational and Psychological Guidance for the Organically handicapped.
2. Downe, P., (ed), (1982) *Cash's Textbook of Neurology for Physiotherapists*, (3rd edition), Faber and Faber, London.
3. EENET , <Http://www.eenet.org.uk/earlychild/earlychild.shtml> for material on early childhood and disability.
4. Finne, Handling the young Cerebral Palsied at home.
5. Illingworth, *The development of the infant and child*.
6. Hewitt, S. *Treatment of Cerebral Palsy and Motor Delay*.
7. Helping Children with Cerebral Palsy, - Training materials for community based rehabilitation workers.
8. Human Rights Watch, <http://www.humanrightswatch.org> for material on children.
9. Walton, J., *Brains Diseases of the Nervous System*.
10. Werner, *Disabled Village Children*.

CLINICAL PRACTICE (ELECTIVE)

Total Practice: 150 Hrs

Total Marks: 100
Clinical practice: 100

Course Content:

The student will undertake this module as an elective placement. The placement will have objectives specific to the area of work in which the placement takes place.

Student learning outcomes.

On successful completion of the module the student will:

- Be able to assess a variety of patients using information from the patient's medical records, knowledge, and subjective, objective assessment findings in order to identify therapeutic objectives.
- Set short and long-term goals with the patient/carer and plan a realistic therapeutic programme. Re-assess the patient at suitable intervals and adjust the problem list, goals and management plan accordingly.
- Have the competence and skill to apply physiotherapeutic techniques safely, effectively and with sensitivity, based on a sound understanding of the criteria for selection or non-selection of relevant physiotherapeutic techniques and with an ability to evaluate the effectiveness of their interventions and to vary the programme accordingly. Including the teaching of appropriate home care and/or preventative techniques to patients and/or their carers..
- Have good written communication skills; maintain a clear and accurate record of patient assessment, treatment and progress, with awareness of legal and ethical problems and the need for confidentiality.
- Have the ability to manage time and workload effectively.
- Have an ability to appraise their own performance and recognise their own limitations of knowledge and experience.
- Demonstrate a willingness to consider constructive criticism and to make the appropriate adjustments in practice.

- The elective clinical placement will be assessed using the same Clinical Placement Evaluation Form. The elective module will expose the students to wider contexts of practice and more complex presentations. The students will be required to use clinical reasoning skills and will need the ability to transfer their advanced skills into a variety of situations dependent on need. The elective module offers the opportunity to build on existing knowledge and experience by broadening the client group and the context in which students work.
- The elective clinical placement offers a unique experience in terms of clinical skills, but in whichever area of practice the module is undertaken the student will be expected to demonstrate a high degree of independence, clinical competence and professionalism.

CLINICAL PRACTICE (MUSCULO-SKELETAL)

Total Practice: 150 Hrs

Total Marks: 100
Clinical practice: 100

Clinical Teaching:

- Revision of relevant subjective and objective assessment techniques, planning the objective assessment, problem lists, treatment plans and short and long term goals.
- Revision of joint specific assessment and treatment techniques, both peripheral and spinal.
- Revision of muscle strengthening and joint mobilisation techniques.
- Use of exercise equipment in planning treatment programs such as weights, pulleys, and springs.
- Revision of therapeutic massage techniques with emphasis on the reduction of muscle spasm, swelling and the use of frictions in the management of soft tissue injuries.
- Revision of the theoretical basis and practical application of spinal traction.
- Revision of the application and therapeutic use of electrotherapy modalities.

Books Recommended:

1. Carrigan, B. and Maitland, G. D., (1983) *Practical Orthopaedic Medicine*, Butterworth Heinemann Ltd, Oxford.
2. Cyriax, J., (1982) *Textbook of orthopaedic Medicine volume one*, Bulliere Tindall, London.
3. Cyriax, J. H. and Cyriax P. J., (1983) *Illustrated manual of Orthopaedic Medicine*, Butterworth, London.
4. Galley, P. M. and Forster, A.L., (1987) *Human movement, an introductory text for Physiotherapy students*, Churchill Livingstone, Melbourne.
5. Grieve, G., (1981) *Common Vertebral Problems*, Churchill Livingstone, Edinburgh.
6. Grieve, G., (1983) *Mobilisation of the Spine*, Churchill Livingstone, Edinburgh.
7. Hollis, M., (1987) *Practical Exercise Therapy*, Blackwell Scientific Publications, Oxford.
8. Maitland, G.D., (1991) *Peripheral Manipulation*, Butterworth Heinemann, Oxford.
9. Maitland, G. D., (1986) *Vertebral Manipulation*, Butterworth, London.
10. Majee, P. S., (1987) *Orthopaedic Physical Assessment*, W.B. Saunders, Philadelphia.
11. Melzack, R. and Wall, P., (1988) *The Challenge of Pain*, Penguin Books, London.