

<b>STATE MEDICAL FACULTY OF WEST BENGAL</b>
---

### **COURSE SYLLABUS: DPT COURSE**

**Anatomy:****80 Hrs.**

General Anatomy of different regions of body - Cells, Tissues, Organs and system of the body, Co-relation of structure and function.

**Bones** : Classification, Composition, Vascular supply, Function, Ossification and Repair, Muscular and Ligamentous attachments. General features of skull, names and positions of skull bones.

**Joints** : Classification, Gross structure of each joint, Movements in joint. and their limitations, Synovial Joint in detail including applied anatomy, Arches of foot.

**Muscles**: Classification, Details of skeletal Muscles, their attachments, Functional Groups, Abdominal Muscles, Pelvic floor Muscles; Facial Muscles & Muscles of Mastication (names and nv. supply only)

**CVS** : General outline of Heart, Arterial, Venous and Lymphatic system.

**CNS** : General Anatomy of Brain, Sinuses, Cranial Nerves (Details of 7<sup>th</sup> Cranial Nerve), Spinal Cord, Chief Tracts (ding & Descending) and Connections, Peripheral Nerves & Nerve Plexuses, Circle of Willie's.

**RS** : Structure, General Relation & Position of air passage, Lungs, Lobes, Broncho-Pulmonary segment, Pleurae, Mediastinum, Mechanism (Anatomical) of Respiration.

**Abdomen** : General Anatomy of Liver, Kidney, Urinary Bladder, Ureter, Parts of Alimentary Canal with relations, Gross Anatomy of Male / Female reproductive organs.

**Demonstration:****20 hrs.**

Of Viscera &amp; Bones

**Physiology:****80 hrs.**

Introduction, Cell & its structure, properties and functions including cell division. Various Tissues & their functions.

**Blood** : Composition, General functions of plasma, Blood Cells, Blood coagulation, Blood Group & their significance, ESR, Hb.

**C.V.S** : Muscular structure of Heart, Conducting system, Pulse - (Significance), Cardiac out-put, Heart Rate & its regulation, Blood Pressure & its regulation.

**R. S** : Mechanism of Respiration & its regulation, Different volumes, Gaseous Exchange, Transport of O<sub>2</sub> & CO<sub>2</sub>. Definitions of Hypoxia, Apnea, Tracheapnia.

**Digestive System:**

Process of Digestion, Absorption, Structure & Physiological functions of stomach, Intestine, Salivary glands, Pancreas, Liver & Gall Bladder. Definition and causes of Jaundice. Nutrition and Vitamins.

**Genito-Urinary System:**

Structure & Functions of Kidney, Process of Urination, Menstrual Cycle. Endocrine system - Position, structure & functions of Pituitary, Thyroid, Adrenals, Ovaries, Testis, Pancreas. (Brief Knowledge)

Defference between Exocrine & Endocrine Glands.

Temperature – Maintenance and Regulation of Body Temperature.

Structure of skin and its function.

#### Neuro Muscular System :

Gross structure of Muscle tissues, Muscle contraction – Types, Muscle Tone, Motor Units & its properties, Clonus, Tetany, Fatigue, All or Non Law.

Gross and Microscopic structure of nervous tissues, Neurone, Action potential, Nerve impulse- Conduction. Degeneration and Regeneration of Peripheral nerves, Synapse, Reflex arc, Pyramidal & Extra-Pyramidal system, Functions of Cerebral Cortex, Cerebellum, Basal Ganglia. Posture & its control. Physiology of pain & its control.

#### Exercise Physiology :

Respiratory and Circulatory changes during exercise.

#### Demonstration :

20 Hrs.

Of recording blood pressure, Heart Sounds, Testing Peripheral Sensation, Superficial & Deep Reflexes, Test for Cerebral & Cerebellar functions.

#### **Physics & Basic Electrotherapy :**

Basic Physics in Medical Electronics:

Electrical Fundamentals (molecule, atom, photon, neutron, electron, current & static electricity, PD, EMF). Definition of intensity, resistance, density and units of measurements, electron tubes, power supply, earthing & safely devices. Electrical shock, Amplifiers, Oscillators, Transistors, Transducers, Radiation. Heat, Transmission of Heat, Latent Heat.

#### Bio Mechanics & Kinesiology in Exercise Therapy:

Definition of Kinesiology & Bio-Mechanics, General Principles Leverage, Angle of pull, Force, Gravity, Line of Gravity, C.G., Base, Equilibrium, Movements, Axes & Planes, Mechanical Principles of Lever, Orders of Lever, Pendulum and Spring, Laws of Motion, Normal humane posture & gait, Bio-mechanics of Spine & Locomotion. Group action of muscles, Eccentric & Concentric contraction, Kinetic chain.

#### Low Frequency Electrical Currents:

Definition, Types, Diagrammatic representation, Physical properties, Production and Physiological effects. Modification of currents, Surging, Basic principle of TENS & Iontophoresis. Technique of application, apparatus care & maintenance, Indicaions & Contraindications dangers.

#### Medium Frequency currents:

Concepts & application of IFT, its Indicaions & Contraindications.

#### High Frequency Therapeutic Currents:

Definiton, General Principles, Diagrammatic representation, Physical properties, production and physiological effects, Indications, Contraindication & Danger of -

Short- Wave Diathermy, Micro-Wave Diathermy, Ultra-Sound,

LASER and their technique of application, apparatus care & maintenance.

**Actinotherapy:**

Electro-Magnetic spectrum, IR Generators, Types, Construction and operation. U.Vgenerators, Types, Construction & Operation. Their indications, contra-indications and dangers.

**Hydrotherapy:**

Properties of Water, Principle of Under-Water Re-education, effects, time and temperature of Pool Therapy, Precaution and Indication, Contra-indication.

**Cryotherapy:**

Basic principles of physiological effects, Procedures & Clinical applications, Indication, Contra-indication.

**Wax Therapy:**

Principles, Constituents, procedures of applications, Indication & Contra-indication

**N.B:** For Low, Mid, High frequency currents, Hydrotherapy, Cryotherapy & Wax therapy - In 2<sup>nd</sup> year syllabus will include techniques of application, Indication, Contra-indication and dangers. All others are included in 1<sup>st</sup> year syllabus.

**Exercise Therapy:**

Basics of exercise Therapy – 1<sup>st</sup> year:

Introduction & aims of Exercise Therapy.

Fundamentals of Therapeutic Exercises- Starting Positions, Derived Positions from different starting positions. Muscle work for all the fundamental starting positions. Classification of movements in detail. Active voluntary movements, Passive movements, Free Exercises, Range of Movements in relation to different joints and muscles responsible for those movements (for upper & lower limbs) for spines only movements.

Details of Exercise Therapy, Massage, Movements, Manipulations – for 2<sup>nd</sup> year.

Assisted Exercises, Resisted Exercises- Techniques & Uses. Relaxed Passive Movements- Definition Techniques, Effects and Uses. Types of Muscle work & Contraction, muscle power assessment (MRC Grading). Re-education of a muscle. Aim & Principles of ROM exercise. Prevention of restriction of joint range. Relaxation techniques. Exercise of Shoulder, Hip, Knee, Ankle, Neck and Back and evaluation. Breathing exercise, Pelvic Floor exercise, Gait Training program, Co-ordination Exercise, Group Remedial Exercise. Definition type of massage of soft tissues Stroking, Pressure, Percussion etc, Movements of body parts with or without apparatus & Manipulation.

**Pathology & Microbiology:**

Aims & Objectives of study of Pathology. General idea about etiology, pathogenesis, lesion. Various causes of diseases & an approach to Lab studies. Parasitic infestation and diseases caused by them. Outline of Hypertrophy, Atrophy, Inflammation, Reaction to Injury, Resolutions and Repair, Degeneration, edema, necrosis, gangrene, Neoplasia & Metastasis.

Concepts of Rehabilitation:

Basic Concept of Rehabilitation (Definition, Term etc), Orthosis, Prosthesis, Low cost aids, Concept of different Bracing, Splints, HKAFO, KAFO, AFO, Therapeutic Shoes, Brief idea about Artificial Limbs, Ambulatory Aids..

Psychology:

Nature of Psychology: Behavior & Experience – conscious, sub-conscious and unconscious mind. Motivation – Physiological, Psychological interest & Attitude, Emotions, Control of Emotions, Role of Learning in human life. Types of Learning, Types of Memory, Attention, Perception & Illusion. Concept of Mental Health, I. Q., Physiotherapist's role in the society of Disabled.

Medical, Surgical, Orthopedic, Gynecological and other Specialized Condition.

Medical:

Hemiplegia, Paraplegia, C. P., Parkinson's disease, Demyelinating Disease, Syringomyelia, Herpes, Myelitis, Ataxia, M.N.D., Poliomyelitis, Peripheral Neuritis, Nerve Injury, Chorea, Vitamin Deficiency Diseases, Nutritional disability, Myocardial Infarction, Valvular Diseases, Peripheral Vascular disease, Bronchitis, Bronchiectasis, Asthma, Tuberculosis, Pneumonia, Lung Abscess, Nephritis, Nephrotic Syndrome, Muscular Dystrophies.

Traumatology & Orthopedics:

General Physiotherapeutic approach for the management of Trauma Fractures, Dislocations, Union, Non-union & Mal-union, VIC, Stiff Joints, Dupuytran's Contracture, No-articular Rheumatism, Acute & Chronic Infective Arthritis, Osteomyelitis, Osteo-Chondritis, R.A., O.A., A.S., Postural & Structural Deformities and their complications, Soft Tissue Rheumatism, Teno-Synovitis, Sinovitis, Separation of Epiphysis, Dislocation, P.I.V., Spondylosis, Spondylolysthesis, Spodylolyis, Amputation & Stump Care.

General Surgical Conditions:

Pre-Operative and Post-Operative Physiotherapy, Care of Back and Pressure sores.

Gynecological Conditions:

Antenatal & Post-natal Physiotherapeutic Training, Prolapsed Uterus, General Idea about Hysterectomy, Muscular Weakness of Pelvic Floor.

Reconstructive Surgery & Cardio-thoracic Surgery:

Idea of Tendon Lengthening, Tendon Transfer, Corrective Surgery, General Idea of Cardio-thoracic Surgery. Patient Care at bed, Burn, its Complications & Physiotherapeutic Management. Postural Drainage, Respiratory Physiotherapy.

\*\*\*\*\*