ALL INDIA COUNCIL FOR VOCATIONAL AND PARAMEDICAL SCIENCE

SYLLABUS

OF

DIPLOMA IN PHYSIOTHERAPY TECHNOLOGY – DPT12

REGULAR PROGRAMME

DIPLOMA IN PHYSIOTHERAPY TECHNOLOGY – DPT12

Eligibility	:	12th
Programme Duration	:	2 Years
Programme Objectives	:	Physiotherapy Technology, also known as Clinical Rehabilitation science is an allied health/paramedical profession, which is concerned with the Therapy, treatment and prevention of Excise through the use of clinical Rehabilitation tests. Doctors rely on Rehabilitation technologies to detect, Therapy and treat Excise. The programme covers the basics of preclinical subjects such as Clinic Biochemistry, Pathology, General Psychology and Pharmacology. Physiotherapy Technologists (DPT) do these tests by Excise Therapy, Electrotherapy, chemical Therapy etc.
Job Prospects	:	After the completion of DPT, you will find a Challenging career in a hospital, Rehabilitation centers, Private Hospital, Doctor's office or clinics. A technician can become a technologist through further education and work experience. Common job profiles of students after completing DPT include: Technician in Hospitals, Nursing Homes and Rehabilitation.

YEAR I

Course Code	Course Title	Theory/ Practical	Continuous Assessment (Internals)	Credits
101T	Anatomy	70	30	2
102T	Physiology	70	30	5
103T	Clinical Biochemistry	70	30	3
104T	General Psychology	70	30	3
105T	Basic Nursing & First Aid	70	30	3
106P	Anatomy	35	15	2
107P	Physiology	35	15	2
108	Hospital Training-I	200		2
			TOTAL	22

YEAR II

Course Code	Course Title	Theory/ Practical	Continuous Assessment (Internals)	Credits
201T	Biomechanics & Kinesiology	70	30	2
202T	Exercise Therapy- I	70	30	5
203T	Electrotherapy – I	70	30	3
204T	Medical Microbiology	70	30	3
205T	Pathology	70	30	3
206T	Pharmacology	70	30	3
207P	Biomechanics & Kinesiology	35	15	2
208P	Exercise Therapy- I	35	15	2
209P	Electrotherapy – I	35	15	2
210P	Medical Microbiology	35	15	2
211P	Pathology	35	15	2
209	Hospital Training-II	200		2
			TOTAL	31

DETAILED SYLLABUS

INSTRUCTIONAL METHOD: Personal contact programmes, Lectures (virtual and in-person), Assignments, Labs and Discussions, Learning projects, Industrial Training Programmes and Dissertation.

YEAR I

ANATOMY(101T)

1. General Anatomy:
   - Introduction to Anatomy, terms and terminology.
   - Regions of Body, Cavities and systems.
   - Surface anatomy – musculo-skeletal, vascular, cardiopulmonary system
   - General Embryology.
   - Applied anatomy.
2. Musculoskeletal system.
   - Connective tissue & its modification, tendons, membranes, special connective tissue.
   - Bone structure, blood supply, growth, ossification, and classification.
   - Muscle classification, structure and functional aspect.
   - Joints – classification, structures of joints, movements, range, limiting factors, stability, blood supply, nerve supply, dislocations and applied anatomy.

2(a). Upper extremity:
   - Bony architecture
   - Joints – structure, range of movement
   - Muscles – origin, insertion, actions, nerve supply
   - Major nerves – course, branches and implications of nerve injuries
   - Development of limb bones, muscles and anomalies
   - Radiographic identification of bone and joints
   - Applied anatomy

2(b). Lower Extremity:
   - Bony architecture
   - Joints – structure, range of movement
   - Muscles – origin, insertion, actions, nerve supply
   - Major nerves – course, branches and implications of nerve injuries
   - Development of limb bones, muscles and anomalies
   - Radiographic identification of bone and joints
   - Applied anatomy

2(c). Spine and thorax
   - Back muscles - Superficial layer, Deep muscles of back, their origin, insertion, action and nerve supply.
   - Vertebral column – Structure & Development, Structure & Joints of vertebra
   - Thoracic cage
   - Radiographic identification of bone and joints
   - Applied anatomy

2(d). Head and neck:
   - Cranium
   - Facial Muscles – origin, insertion, actions, nerve supply
   - Temporo mandibular Joints – structure, types of movement

3. Nervous system
   - Classification of nervous system
   - Nerve – structure, classification, microscopy with examples.
   - Neurons, classification with examples. Simple reflex arc.
   - Parts of a typical spinal nurve/Dermatome
   - Central nervous system – disposition, parts and functions

- Cerebrum
- Cerebellum
- Midbrain & brain stem
- Blood supply & anatomy of brain
- Spinal cord- anatomy, blood supply, nerve pathways
- Pyramidal, extra pyramidal system
- Thalamus, hypothalamus
- Structure and features of meningies
- Ventricles of brain, CSF circulation
- Development of nervous system & defects
- Cranial nerves – (course, distribution, functions and palsy)
- Sympathetic nervous system, its parts and components
- Parasympathetic nervous system
- Applied anatomy

4. Sensory system
   - Structure and function of
     - Visual system
     - Auditory system
     - Gustatory system
     - Olfactory system
     - Somato sensory system
5. Cardiovascular system
   - Circulatory system – major arteries and veins of the body, structure of blood vessels
   - Heart structure, positions, chambers, valves, internal & external features
   - Blood supply to heart
   - Conductive system of heart
6. Lymphatic system
   - Circulation, structure & functions
   - Lymph nodes
7. Respiratory system
   - Structure of upper and lower respiratory tract

   Thorax:
   - Pleural cavities & pleura
   - Lungs and respiratory tree
   - Heart and great vessels
   - Diaphragm
8. Digestive system
   - Parts of digestive system
   - Abdominal cavity – divisions
   - Muscles of abdominal wall
   - Liver
   - Pancreas
   - Spleen
   - Alimentary canal
   - Gall bladder
   - Intestine (small & large)

9. Urinary and Reproductive system
   - Urinary system
   - Pelvic floor, innervations
     - Kidney, Ureter, bladder, urethra

- Genital system – male and female
    - Reproductive system of male
    - Reproductive system of female

10. Endocrine system
    - Pituitary gland
    - Thyroid
    - Parathyroid

ANATOMY(106P)

1. Identification and description of all anatomical structures.
2. The learning of Anatomy is by demonstration only through dissected parts, slides, models, charts, etc.
3. Demonstration of dissected parts (upper extremity, lower extremity, thoracic & abdominal viscera, face and brain).
4. Demonstration of skeleton- articulated and disarticulated.
5. During the training more emphasis will be given on the study of bones, muscles, joints, nerve supply of the limbs and arteries of limbs.
6. Surface anatomy:
   -surface land mark-bony, muscular and ligamentous.
   -surface anatomy of major nerves, arteries of the limbs.
7. Points of palpation of nerves and arteries.

PHYSIOLOGY(102T)

1. General Physiology
    - Cell: morphology, Structure and function of cell organelles
    - Structure of cell membrane
    - Transport across cell membrane
    - Intercellular communication
    - Homeostasis

2. Blood
    - Introduction-composition & function of blood
    - W.B.C., R.B.C., Platelets formation & functions, Immunity
    - Plasma: composition, formation & functions, Plasma Proteins:-types & functions
    - Blood Groups- types , significance, determination
    - Hemoglobin
    - Haemostasis
    - Lymph-composition, formation, circulation &functions

3. Cardiovascular system
    - Conducting system-components, impulse conduction
    - Heart valves
    - Cardiac cycle- definition, phases of cardiac cycle
    - Cardiac output- definition, normal value, determinants. Stroke volume and its regulation
    - Heart rate and its regulation
    - Arterial pulse, Blood pressure-definition, normal values, factors affecting blood pressure
    - Shock-definition, classification, causes and features
    - Basic idea of ECG
    - Cardiovascular changes during exercise

4. Respiratory System

- Mechanics of respiration
- Lung volumes and capacities
- Pulmonary circulation, transport of respiratory gases
- Factors affecting respiration
- Regulation of respiration-neural regulation, voluntary control and chemical regulation
- Hypoxia, Hypercapnoea, Hypocapnoea
- Artificial respiration
- Disorders of respiration- dyspnoea, orthopnoea, hyperpnoea, hyperventilation, apnoea, tachypnoea
- Respiratory changes during exercise.

5. Nerve Muscle Physiology
   - Muscles- classification, structure, properties, Excitation contraction coupling
   - Motor unit, EMG, factors affecting muscle tension,
   - Muscle tone, fatigue, exercise
   - Nerve –structure and function of neurons, classification, properties
   - Resting membrane potential & Action potential their ionic basis
   - All or None phenomenon
   - Neuromuscular transmission
   - Ionic basis of nerve conduction
   - Concept of nerve injury & Wallerian degeneration
   - Synapses
   - Electrical events in postsynaptic neurons
   - Inhibition & facilitation at synapses
   - Chemical transmission of synaptic activity
   - Principal neurotransmitters.
6. Nervous system
   - Introduction, central and peripheral nervous system, functions of nervous system
   - Reflexes- monosynaptic, polysynaptic, superficial, deep &withdrawal reflex
   - Sense organ, receptors, electrical & chemical events in receptors
   - Sensory pathways for touch, temperature, pain, proprioception & others
   - Control of tone & posture: Integration at spinal, brain stem, cerebellar, basal ganglion levels, along with their functions
   - Motor mechanism: motor cortex, motor pathway:the descending tracts-pyramidal & extra pyramidal tracts-origin, course, termination & functions. Upper motor neuron and lower motor neuron paralysis.
   - Spinal cord lesions- complete transection & hemisection of the spinal cord
   - Autonomic nervous system :features and actions of parasympathetic & sympathetic nervous system
   - Hypothalamus
   - Higher functions of nervous system
   - Special senses- eye, ear, nose, mouth
7. Renal System
   - Physiology of kidney and urine formation
   - Glomerular filtration rate, clearance, Tubular function
   - Water excretion, concentration of urine-regulation of Na^+, Cl^-, K^+ excretion
   - Physiology of urinary bladder
8. Digestive System
   - Digestion & absorption of nutrients

   - Gastrointestinal secretions & their regulation
   - Functions of Liver & Stomach.

10. Endocrinology
    - Physiology of the endocrine glands – Pituitary, Pineal Body, Thyroid, Parathyroid, Adrenal, Gonads, Thymus, Pancreas. Hormones secreted by these glands, their classifications and functions.
11. Male & female reproductive system
    - Male - Functions of testes, pubertal changes in males, testosterone - action & regulations of secretion.
    - Female - Functions of ovaries and uterus, pubertal changes, menstrual cycle, estrogens and progestron - action and regulation.

PHYSIOLOGY(107P)

1. Examination of pulse, B.P., Respiratory rate.
2. Reflexes
3. Spirometery to measure various lung capacities & volumes, Respiratory rate, Tidal volume, IRV, IC, ERV, EC, residual volume on Spirometery.
4. Estimate of Haemoglobin, R.B.C., W.B.C., TLC, DLC, ESR count.
5. Blood indices, Blood grouping, Bleeding & Clotting time.

CLINICAL BIOCHEMISTRY(103T)

1. Nutrition: RDA, BMR, SDA, caloric requirement and balanced diet.
2. Carbohydrates: Definition, classification and general functions. Carbohydrate Metabolism - Glycolysis, T.C.A cycle.
3. Lipids: Definition, classifications and general functions. Essential fatty acids and their importance, Cholesterol, Lipoproteins. Metabolism-β–Oxidation of fatty acids, fatty liver and ketosis.
4. Amino Acids : Definition, classification, essential and non essential aminoacids.
5. Proteins: Definition, classification, and Bio-medical Importance. Metabolism: Formation and fate of ammonia, Urea cycle and its significance.
6. Study of hemoglobin and myoglobin with their functions.
7. Enzymes: Definition, classification with examples, Factors affecting enzyme action, isoenzyme and co-enzyme, Clinical importance of enzymes.
8. Biochemistry of connective tissue - Introduction, various connective tissue proteins : collagen, elastin- structure and associated disorders.
9. Vitamins: Definition, classification and functions, dietary source, daily requirement and deficiency disorders.
10. Diabetes mellitus - definition, types & causes.

GENERAL PSYCHOLOGY(104T)

1. Introduction to Psychology, Fields of application of Psychology, influence of heredity and environment on the individual.
2. Learning – theories and principles of learning, Learning disabilities.
3. Memory – types, theories of memory and forgetting, methods to improve memory.
4. Thinking – process of thinking, problem solving, decision making and creative thinking.
5. Motivation - theories and types of Motivation.
6. Emotions - theories of emotions and stress, Emotional and behavioral disorders of childhood and adolescence, Disorders of under and over controlled behavior, Eating disorders.
7. Attitudes – theories, attitudes and behavior, factors in attitude change.

8. Intelligence - theories of intelligence, I.Q., general intelligence and special intelligence, intelligence tests and their uses.
9. Personality, theories of personality, factors influencing personality, Personality Disorders.
10. Conflict and frustration - Common defensive mechanism : Identification, regression, repression, projection, sublimation and rationalization.
11. Attention and Perception : Nature of attention, factors determining attention, nature of perception, principle of perceptual grouping; illusions and Hallucination.
12. Counseling - Aims and principles.
13. Development and growth of behavior in infancy and childhood, adolescence, adulthood and old age, normal and abnormal.
14. Psychotherapy – introduction to paradigms in psychopathology and therapy.
15. Mental deficiency -
    a) Mental retardation,
    b) Autistic behavior
    c) Learning disabilities.

BASIC NURSING & FIRST AID(105T)

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Basic Nursing:

1. What is Nursing ? Nursing principles. Inter-Personnel relationships, Bandaging : Basic turns, Bandaging extremities, Triangular Bandages and their application.
2. Nursing Position: Environment safety, Bed making, prone, lateral, dorsal, dorsal recumbent, Flower's positions, comfort measures, Aids & rest and sleep.
3. Methods of Giving Nourishment: Feeding, Tube feeding, drips, transfusion.
4. Surgical Dressing: Observation of dressing procedures.
5. Lifting and transporting patients : Lifting patient up in the bed, transferring from bed to wheel chair, transferring from bed to stretcher.

First Aid

Syllabus as for Certificate of Red Cross Society of St. John's Ambulance Brigade.

HOSPITAL TRAINING-I-109

8.

YEAR II

BIOMECHANICS AND KINESIOLOGY (201T)

1. Mechanics - Definition of mechanics and Biomechanics
2. Motion: definition, types of motion, plane and axis of motion, factor determining the kind and modification of motion.
3. Force - Definition, diagrammatic representation of force, point of application, classification of forces, concurrent, coplanar and co-linear forces, composition and resolution of forces, angle of pulls of muscle
4. Friction
5. Gravity - Definition, line of gravity, Centre of gravity
6. Equilibrium - Supporting base, types, and equilibrium in static and dynamic state
7. Levers - Definition, function, classification and application of levers in physiotherapy & order of levers with example of lever in human body

leys, types and application

9. Elasticity - Definition, stress, strain, HOOKE'S Law
10. Springs - properties of springs, springs in series and parallel, elastic materials in use
11. Muscular system
12. Definition, properties of muscle, muscular contraction, structural classification, action of muscle in moving bone, direction of pull, angle of pull, functional classification, coordination of muscular system.
13. Joint structures and functions:
    i. Joint design, Structure of Connective Tissue, Properties of Connective Tissue, joint function, changes with disease, injury, immobilization, exercise, over use
    ii. Structure and functions of upper extremity joints – shoulder complex, elbow complex, wrist and hand complex
    iii. Structure and functions of lower extremity joints – hip joint, knee joint, ankle and foot complex
    iv. Structure and functions of axial skeletal joints – vertebral column – craniocervical, thorax, lumbar, lumbo pelvic region
    v. Structure and functions of tempromandibular joint
14. Posture – dynamic and static posture, kinetic and kinematics of posture, analysis of posture, effect of age, pregnancy, occupation on posture.
15. Gait – kinematics and kinetics of gait, gait in running and stair climbing.

BIOMECHANICS AND KINESIOLOGY (207P)

1. Goniometry – measurement of joint ROM
2. Identify Muscle work of various movements in body at different angle.
3. Identify normal and abnormal posture.
4. Normal gait with it parameters and identify abnormal gait with the problems in it.

EXERCISE THERAPY (202T)

1. Introduction to exercise therapy
2. Mechanical principle applied in human body – gravity, centre of gravity, line of gravity, base of support, equilibrium, axis and planes
3. Disability models – ICIDH model of disability, Nagi model of disability, ICF model
4. Exercise physiology – effect of exercise in various systems – musculoskeletal, neuromuscular, cardiovascular, respiratory system
5. Movements
6. Passive movements – definition, classification, indications, contra indications, advantages, limitations, techniques - emphasize PROM to upper, lower, neck and trunk muscles
7. Active movements - definition, classification, indications, contra indications, advantages, limitations, techniques - emphasize active movements to upper, lower, and neck and trunk muscles
8. Starting positions – muscle work, effect and uses and derived positions
9. Relaxation – definition, types of relaxation, relaxation techniques

10. Neuromuscular coordination – causes of in coordination, exercises to improve coordination – Frenkle exercise
11. Joint range measurement – Goniometer, types and techniques of measuring joint ROM
12. Measurement of limb length, girth
13. Manual muscle testing – grading system, techniques- emphasize on skill to grade upper, lower, neck and trunk muscles.
14. Mobility aids – crutches, canes, walker
15. Soft tissue manipulation (massage) – history, types, techniques, physiological effects, therapeutic uses, contraindications

EXERCISE THERAPY (208P)

1. Starting positions and derived positions
2. Range of motion (PROM, AROM, AAROM) exercises to all joints
3. Measurement of joint range using goniometer
4. General and local Relaxation techniques
5. Suspension exercise to all major joints
6. Massage – upper limb, lower limb, back, face
7. Manual muscle testing of individual muscles
8. Coordination exercises, balancing exercises

ELECTRO THERAPY (203T)

1. Basic components of electric current – electrons, protons, neutrons, ions, matter, molecules
2. Current electricity – static electricity, electric charge, conductors, conduction of electricity, resistance, factors effecting resistance with example in human body, insulation, unit of electric current – ampere, coulomb, volt, ohms law
3. Magnetism, theories of magnetism, properties of magnet.
4. Electromagnetic induction, electromagnetic radiation, laws governing radiations – Grouth's law, cosine law, inverse square law, law of reflection, rarefaction.
5. Electrical components – transformer, capacitor, diode, valves
6. Types of electric current, wave forms, current modulation – continuous, burst, beat, surge. Electric circuit in parallel and series.
7. Safety issues while using electrical equipments – for patients and therapist
8. Muscle and nerve response to electrical stimulation – polarization, depolarization and propagation of impulse.
9. Pain – types of pain, pain pathway, theories of pain, Gate control theory of pain, pain modulation at various levels.
10. Low frequency currents:
    a. Neuromuscular electrical stimulation – physiological effects, therapeutic uses of electrical stimulation techniques – electrodes type, electrode size, electrode placement, stimulating points, methods of reducing skin electrode resistance, contraindications and precautions.
    b. High voltage pulsed stimulation.
    c. Russian stimulation.
    d. Trans cutaneous Electrical Nerve stimulation (TENS) – therapeutic uses of TENS, types, electrode placement in TENS, contraindications and precautions
    e. Iontophoresis – mechanism, biophysical effect, medication dosage, medicated ions used, techniques of application.

11. Electro diagnostic test – FG test, strength duration curve, chronaxie, reobase
12. Interferential therapy (IFT) – physiological effects, therapeutic indications, methods of application, sweep, base, contraindication and precautions.

ELECTRO THERAPY (209P)

1. Identify basic electrical components in electrotherapeutic equipments.
2. Reading of medical records, indentifying indications and contraindications for electrotherapy.
3. Stimulation of motor points, stimulation of individual muscle and group muscle
4. Faradic foot bath, Faradism under pressure.
5. Plotting SD graph, diagnosis using electro diagnostic test – FG test and SD curve.
6. Placement of electrodes in TENS & IFT with dosimeter for various indications.

MEDICAL MICROBIOLOGY (204T)

1. Introduction & History of Microbiology
2. Classification of microorganism : Bacterial Morphology, cells structure, difference between prokaryotes & eukaryotes, capsule, flagella, fimbrae, pilli, cell wall, plasma membrane, cytoplasm, ribosomes etc.
3. Bacteriology - Classification of Bacteria, Morphological characteristics of different bacteria.
4. Bacterial growth/Reproduction : Growth curve
5. Sterilization & disinfection :
   a) Physical Methods
   b) Chemical Methods
   c) Mechanism of Sterilizations
   d) Difference between sterilization and disinfection.
6. Modes of transmission of diseases
   a) Various routes of spread of infection.
   b) Hospital acquired infection.
   c) Bacterias responsible for nosocomial infectious
7. Bacterial diseases (in brief):
   - Mycobacterial diseases: Tuberculosis, Leprosy and Syphilis.
   - Bacterial disease: Pyogenic, Diphtheria, Gram negative infection, Bacillary dysentery.
8. Viral diseases (in brief) : Poliomyelitis, Herpes, Rabies, Measles, Rickttsia, Chlamydial infection, HIV infection.
9. Fungal diseases and opportunistic infections (in brief).
10. Food sanitation
    a) Hygiene in restaurants & kitchens.
    b) Health of food handlers & hygiene.
    c) Disease caused by infected food & water.
11. Immunity
    a) Active, passive
    b) Natural, acquired
    c) Antigen
    d) Antibody, type of antibodies
    e) Antigen antibody reactions.
    f) Mechanism of immunity
    g) Immunization.

12. AIDS - Aetiology, modes of transmission, diagnostic procedure.

13. Handling of infected material.

MEDICAL MICROBIOLOGY (210P)

1. Preparation of smear.
2. Basic staining methods
3. Identification of bacteria on the basis of staining.
4. Basic knowledge of media and culture of bacteria.
5. Colony characteristics of common bacteria.

PATHOLOGY (205T)

1. Introduction to Pathology
2. Cell injuries:
   - Aetiology and Pathogenesis with a brief recall of important aspects of normal cell structure.
   - Reversible cell injury: Types, Sequential changes, Cellular swellings, vacuolation, Hyaline changes, Mucoid changes.
   - Irreversible cell injury: Types of Necrosis & Gangrene, Autolysis.
   - Pathologic calcification: Dystrophic and Metastatic. Intracellular Accumulations.
3. Inflammation and Repair
   - Acute inflammation: features, causes, vascular and cellular events, Inflammatory cells and Mediators.
   - Chronic inflammation: Causes, Types, Classification nonspecific and granulomatous with examples.
   - Repair, Wound healing by primary and secondary union, factors promoting and delaying the process. Healing in specific site including bone healing.
4. Circulatory Distrurbances
   - Hyperemia/Ischemia and Haemorrhage
   - Edema: Pathogenesis and types.
   - Chronic venous congestion: Lung, Liver, Spleen, Systemic Pathology
   - Thrombosis and Embolism: Formation, Fate and Effects.
   - Infarction: Types, Common sites.
   - Shock: Pathogenesis, types, morphologic changes.
5. Growth Disturbances and Neoplasia
   - Atrophy, Hypertrophy, Hyperplasia, Aplasia, Hypoplasia, dysplasia. Precancerous lesions.
   - Neoplasia: Definition, classification, Biological behaviour: Benign and Malignant (brief idea), Carcinoma and Sarcoma.
6. Hematology
   - Constituents of blood and bone marrow, Regulation of hematopoiesis.
   - Anemia: Classification, clinical features & lab diagnosis (brief idea).
   - Hemostatic disorders, Vascular and Platelet disorders & lab diagnosis.
   - Coagulopathies - (i) Inherited (ii) Acquired with lab diagnosis.
   - Leukocytic disorders: Leukocytosis, Leukopenias, Leukemoid reaction.
   - Leukemia: Classification, clinical manifestation, pathology and Diagnosis (brief idea).
7. Respiratory System

   - Pneumonia, Bronchitis, Bronchiectasis, Asthma, Tuberculosis, Carcinoma of lungs, Occupational lung diseases
8. Cardiovascular Pathology

- Congenital Heart diseases: Atrial septal defect, Ventricular septal defect, Fallot's tetralogy, Patent ductus arteriosu,. Endocarditis, Rheumatic Heart disease.
- Vascular diseases: Atherosclerosis, Monckeberg's medial calcification.
- Ischemic heart Disease: Myocardial infarction.

9. Hepato Biliary Pathology
   - Jaundice: Types, aetio-pathogenesis and diagnosis.
10. Musculoskeletal System
    - Osteomyelitis: acute, chronic, tuberculous, mycetoma
    - Metabolic diseases: Rickets/ Osteomalacia, osteoporosis, Hyperparathyroidism, Paget's disease.
    - Tumours Classification: Benign, Malignant, Metastatic and synovial sarcoma.
    - Arthritis: Suppurative, Rheumatoid. Osteoarthritis, Gout, Tuberculous.
11. Endocrine pathology
    - Non-neoplastic lesions of Thyroid: Thyrotoxicosis, myxedema,
12. Neuropathology
    - Inflammations and Infections: TB Meningitis, Pyogenic Meningitis, viral meningitis and Brain Abscess, Tuberculosis, Cysticercosis.
13. Dermatopathology:
    - Skin tumors: Squamos cell carcinoma, Basal cell carcinoma, Melanoma (brief idea)
14. Congenital Myopathy & mysthenia gravis

PATHOLOGY (211P)

1. Collection of blood and anticoagulants used..
2. Discussion about parts of microscope and different types of microscopes used in pathology.
3. Staining of slide by Leishman method.
4. Study of peripheral blood smear.
5. Estimation of hemaglobin by Sahli's method and discussion of other methods used.
6. ESR
7. Identification of various instruments in pathology lab & their uses (eg. Neubar chamber, RBC, WBC, pipette etc.).
8. Bleeding Time, Clotting Time.

PHARMACOLOGY (206T)

1. General Pharmacology:
   - Introduction, Definitions, Classification of drugs, Sources of drugs, Routes of drug administration,
   - Distribution of drugs, Metabolism and Excretion of drugs, Pharmacokinetics, Pharmacodynamics,
   - Factors modifying drug response.
   - Elementry knowledge of drug toxicity, drug allergy, drug resistance, drug potency, efficacy & drug antagonism.
2. Autonomic Nervous system
   - General considerations – The Sympathetic and Parasympathetic Systems, Receptors, Somatic Nervous System
   - Cholinergic and Anti-Cholinergic drugs, Adrenergic and Adrenergic blocking drugs, Peripheral muscle relaxants.

3. Cardiovascular 3. Pharmacology (in brief) :
   - Drugs Used in the Treatment of Heart Failure: Digitalis, Diuretics, Vasodilators, ACE inhibitors
   - Antihypertensive Drugs: Diuretics, Beta Blockers, Calcium Channel Blockers, ACE Inhibitors, Central Acting Alpha Agonists, Peripheral Alpha Antagonists, Direct acting Vasodilators
   - Antiarrhythmic Drugs
   - Drugs Used in the Treatment of Vascular Disease and Tissue Ischemia: Vascular Disease, Hemostasis Lipid-Lowering agents, Antithrombotics, Anticoagulants and Thrombolytics
   - Ischemic Heart Disease – Nitrates, Beta-Blockers, Calcium Channel Blockers
   - Cerebral Ischemia
   - Peripheral Vascular Disease
4. Neuropharmacology (in brief) :
   - Sedative-Hypnotic Drugs: Barbiturates, Benzodiazepines
   - Antianxiety Drugs: Benzodiazepines, Other Anxiolytics
   - Drugs Used in Treatment of Mood Disorders: Monoamine Oxidase Inhibitors, Tricyclic Antidepressants, Atypical Antidepressants, Lithium
   - Antipsychotic drugs
5. Disorders of Movement (in brief) :
   - Drugs used in Treatment of Parkinson's Disease
   - Antiepileptic Drugs
   - Spasticity and Skeletal Muscle Relaxants
6. Inflammatory/Immune Diseases-
   - Non-narcotic Analgesics and Nonsteroidal Anti-Inflammatory Drugs: Acetaminophen, NSAIDs, Aspirin, Nonaspirin NSAIDs, drug Interactions with NSAIDs
   - Glucocorticoids: Pharmacological Uses of Glucocorticoids, adverse effects, Physiologic Use of Glucocorticoids
   - Drugs Used in Treatment of Arthritic Diseases: Rheumatoid Arthritis, Osteoarthritis, Gout
   - Drugs Used in the Treatment of Neuromuscular Immune/Inflammatory Diseases: Myasthenia gravis, Idiopathic Inflammatory Myopathies, systemic lupus Erythmatosus, Scleroderma, Demyelinating Disease
7. Respiratory Pharmacology (in brief) : Obstructive Airway Diseases, Drugs used in Treatment of Obstructive airway Diseases, Allergic Rhinitis
8. Digestion and Metabolism (in brief):
   - Gastrointestinal Pharmacology: Peptic Ulcer Disease, Constipation, Diarrhea
   - Drugs Used in Treatment of Diabetes Mellitus: Insulin, Oral Hypoglycemics
9. Geriatrics:
   - Pharmacology and the geriatric Population: Adverse effects of special concern in the Elderly, Dementia, Postural hypotension, urinary incontinence.

HOSPITAL TRAINING-II-209