



## **DIPLOMA IN EMERGENCY AND TRAUMA CARE TECHNICIAN**

Course Name: Diploma in Emergency and Trauma Care Technician

Duration: 1 Year

Eligibility: 10+2 with Physics, Chemistry and Biology

### **DETAILED SYLLABUS**

<b>Semester I</b>	<b>Semester II</b>
Anatomy	Equipment in Emergency
Pathology	Clinical Medicine
Physiology	Pharmacology
Microbiology	Basic of Critical Care Services
Triage Technology	Practical

## SEMESTER I

### **PAPER 1: ANATOMY**

#### **CONTENT:**

**Unit 1:** Introduction of Bones of the Human Body- Upper Limb (clavicle, scapula, humerus, radius, ulna, carpus, metacarpus & phalanges), Lower Limb (hipbone, femur, tibia, fibula, tarsus, metatarsus & phalanges), Skull (name the bone of skull and sutures between them), Thorax (ribs and their articulations), Vertebral Column (Cervical, thoracic, lumbar, sacral and coccyx vertebrae)

**Unit 2:** Nine regions of the abdomen

**Unit 3:** Introduction of different Vital Organs-

- A) Respiratory Organs- (Brief description), Nasopharynx, Oropharynx, Larynx, Trachea, Bronchi, Lungs (and their lobular segments), Thoracic cavity, Pleura and Pleural Cavity
- B) Circulatory Organs- (Brief description), Anatomical position of the heart, Pericardium of the heart, Chambers of the heart, Great vessels of the heart, Valves of the heart
- C) Digestive Organs- Tongue, Teeth, Oral cavity, Pharynx, Oesophagus, Stomach, Small Intestine, Large Intestine and its colons

**Unit 4:** Introduction to various vital organs- Reproductive organs, Liver and spleen, Gall bladder, Excretory organs

### **PRACTICAL**

Labelled Diagrams of different organs and bones

## **PAPER 2: PATHOLOGY**

### **CONTENT:**

**Unit 1:** The Cell in health and disease, Introduction of pathology, Cellular structure and metabolism, Inflammation – Acute and Chronic, Derangement of Body Fluids and Electrolytes- Types of shocks, Ischaemia, Infection, Neoplasia – Etiology and Pathogenesis

**Unit 2:** Introduction of hematology, Formation of Blood, Erythropoiesis, Leucopoiesis, Thrombopoiesis, Collection of Blood, Anticoagulants, Red cell count – Haemocytometer, Methods and Calculation, WBC Count – Methods, Differential Leucocytes Count (DLC)-- Morphology of White Cells, Normal Values Rananocosty Stains- Staining procedures, Counting Methods, Principle of staining, Hb estimation Method, Colorimetric Method, Chemical Method, Gasometric Method, S.G. Method, clinical importance

**Unit 3:** Hematology- ESR, Methods, Factors – Affecting ESR, Normal Values, Importance, RBC – Indices  $\propto$  WBC, Platelets. Body Fluids- Urine (Method of Collection, Normal Constituents, Physical Examination, Chemical Examination), Stool Examination (Method of Collection, Normal Constituents and appearance, Abnormal Constituents (Ova, Cyst)), C.S.F. Examination (Physical Examination, Chemical Examination, Microscopy, Cell 1 Count, Staining), Semen Analysis (Collection, Examination, Special Tests)

### **PRACTICAL**

1. Urinek, Stool, Semen and C.S.F. Collection, Handling, Examinations
  - a. Absolute Eosinophil Count, PCV, RBC indices, ESR Estimation, Platelet Count
  - b. Collection of sample, Hb Estimation, TLC and DLC, RBC Count, Peripheral blood film-staining and study of malarial parasite
2. Laboratory management- sample collection, labelling, transport, screening, reporting and dispatch of reports.

## **PAPER 3: PHYSIOLOGY**

### **CONTENT:**

**Unit 1:** Cell- Definition, Structure and functions the cytoplasmic Organelles, Reproduction- Meiosis, Mitosis

**Unit 2:** The important physio-chemical laws applied to physiology- Diffusion, Osmosis, Bonding, Filtration, Dialysis, Surface Tension, Adsorption, Colloid

**Unit 3:** Fundamentals of different Organ Systems in brief- Cardiovascular System, Respiratory System, Digestive System, Excretory System, Reproduction System, Endocrine System, Lymphatic System

**Unit 4:** Blood and formation of different types of blood cells, Blood clotting, special senses

### **PRACTICAL**

Viva and diagrams of different Vital Organs

## **PAPER 4: MICROBIOLOGY**

### **CONTENT:**

**Unit 1:** Introduction of brief history of Microbiology- Historical Aspect, Relationship of Micro-organism to men, Micro-organism in Disease and Health, Requirement and uses of common Laboratory Equipment's- Incubator, Hot Air Oven, Water Bath, Anaerobic Jar, Centrifuge, Autoclave, Microscope, Glassware – Description of Glassware, its use, handling and care, Sterilization- Definition, Classification and General Principal of Sterilization, Autoclave – its structure, functioning, control and indicator, Antiseptics & Disinfectants- Definition, Types, Mode of Action, Uses, Collection, Transportation and processing of clinical samples for Microbiological Investigations

**Unit 2:** Bacteriology- Definition, Bacteria – General characteristics of Bacteria, Classification and morphology of Bacteria, Structure of Cell, Capsule, Flagella, and Spore, Growth of Bacteria, Nutrition of Bacteria

**Unit 3:** Virology- Definition, General Introduction of Virus, Physiochemical characteristic of Viruses, diseases caused by different virus and mode of infection

**Unit 4:** Parasitology- Definition, General characteristics of parasite, classification and mode of transmission

**Unit 5:** Fungus- Definition, structure and classification

### **PRACTICAL**

Staining – Type of Staining, Principal, Procedure and Interpretation

## **PAPER 5: TRIAGE TECHNOLOGY**

### **CONTENT:**

**Unit 1:** Triage and General Emergencies- Hospital Infection, Shock, dehydration, hypoglycemia and hyperglycemia, Anaphylaxis, extremely trauma, head trauma, general traumatic conditions, spine injury, chest injury, abdomen trauma, bleeding condition, oxygen therapy

## **SEMESTER-II**

### **PAPER 1: EQUIPMENT IN EMERGENCY**

#### **CONTENT:**

**Unit 1:** BP Apparatus, Pulse Oximeter, Thermometer, Personal Protective Equipment, MPM Monitor, ABG Analyzer, Syringe pump, Infusion, maintenance therapy

## **PAPER 2: CLINICAL MEDICINE**

### **CONTENT:**

**Unit 1:** Public Health- Introduction of community medicine, Transmission of disease, Preventive of Disease, Principle of prevention of control & disease, Hospital infection and & control of infection Disease, hospital waste management, Communicable disease, Health education & promotion, Accident as non-communicable disease

**Unit 2:** Patient Care- History taking, Physical examination, the unconscious patient, Diagnosis of emergency, Diagnosis to brain death, Case presentation



## **PAPER 3: PHARMACOLOGY**

### **CONTENT:**

**Unit 1:** Definition, pharmacokinetics & pharmacodynamics, Adverse drug effects.

**Unit 2:** Respiratory System Drug – Drugs use for cough & bronchial asthma, Drugs used for nebulization

**Unit 3:** Drug Acting On Central Nervous System – General anaesthesia, sedative- Hypnotics, drugs.

## **PAPER 4: BASIC OF CRITICAL CARE SERVICES**

### **CONTENT:**

**Unit 1:** Introduction, Cardiopulmonary resuscitation- basic & advanced, Advanced cardiac life support, Oxygen therapy, Aerosol therapy, Mechanical ventilation, Patient para monitoring, Complication in ICU care, Nutrition for critically ill patients, ICU infection Ethics & behavior in ICU