



SYLLABUS

(Certificate in Emergency & Trauma Care)

(YEARLY PROGRAMME)



SINGHANIA UNIVERSITY

(Established by the Govt. of Rajasthan & recognized as per section 2f of UGC Act, 1956)
Pacheri Bari, Distt. Jhunjhunu (Rajasthan) - 333515

CERTIFICATE IN (Emergency & Trauma Care)

COURSE TITLE : CETC

DURATION : ONE YEAR

FIRST YEAR

COURSE TITLE	PAPER CODE	Theory	Practical	Total
ANATOMY	CETC-110	100	100	200
PATHOLOGY	CETC-120	100	100	200
PHYSIOLOGY	CETC-130	100	100	200
MICROBIOLOGY	CETC-140	100	100	200
TRIAGE – TECHNOLOGY	CETC-150	100	100	200
EQUIPMENT IN EMERGENCY	CETC-160	100	100	200
TOTAL		600	600	1200



CETC-110 ANATOMY

1) Introduction of Bones of the Human Body of :

- 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

2) Nine regions of the abdomen

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 : (Brief description)

- Tongue
- Teeth
- Oral cavity



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- Pharynx
- Oesophagus
- Stomach
- Small intestine
- Large intestine and its colons

PRACTICAL :

Labeled Diagrams of different organs and bones
Vivo



CETC-120

PATHOLOGY

1) The Cell in health and disease

- a. Introduction of pathology
- b. Cellular structure and metabolism
- c. Inflammation – Acute and Chronic
- d. Derangement of Body Fluids and Electrolytes
 - Types of shocks
 - Ischaemia
 - Infection
- e. Neoplasia – Etiology and Pathogenesis

2) Introduction of hematology

- a. Formation of Blood
- b. Erythropoiesis
- c. Leucopoiesis
- d. Thrombopoiesis
- e. Collection of Blood
- f. Anticoagulants
- g. Red cell count – Haemocytometer, Methods and Calculation
- h. WBC Count -- Methods
- i. Differential Leucocytes Count (DLC)--
Morphology of White Cells, Normal Values
Romanowsky Stains : Staining procedures
Counting Methods, Principle of staining
- j. Hb estimation – Method
Colorimetric Method
Chemical Method
Gasometric Method
S.G. Method
Clinical Importance

I. Hematology :

- ESR
- Methods

- Factors – Affecting ESR



- Normal Values
- Importance
- RBC – Indices
- WBC
- Platelets

II. Body Fluids :

(a) Urine :

- Method of Collection
- Normal Constitutents
- Physical Examination
- Chemical Examination

(b) Stool Examination :

- Method of Collection
- Normal Constituents and appearance
- Abnormal Constituents (Ova, Cyst)

(c) C.S.F. Examination

- Physical Examination
- Chemical Examination
- Microscopy
- Cell 1 Count
- Staining

(d) Semen Analysis

- Collection
- Examination
- Special Tests



Practical : Urinek, Stool, Semen and C.S.F. – Collection, Handling, Examinations

(a) Absolute Eosinophil Count, PCV, RBC indices, ESR Estimation, Platelet Count

- Collection of Sample
- Hb estimation
- TLC and DLC
- RBC Count
- Peripheral blood film – staining and study of Malarial Parasite

II. Laboratory management – Sample Collection, Labeling, Transport, Screening, Reporting and Dispatch of Reports.



CETC-130

PHYSIOLOGY

Brief Description of various organs systems:

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

2. The important physic-chemical laws applied to physiology
 - Diffusion
 - Osmosis
 - Bonding
 - Filtration
 - Dialysis
 - Surface Tension
 - Adsorption
 - Colloid

3. Fundamentals of different Organ Systems in brief.
 - Cardiovascular System
 - Respiratory System
 - Digestive System
 - Excretory System
 - Reproduction System
 - Endocrine System
 - Lymphatic System
 - Practical
 - Viva and diagrams of different Vital Organs

Practical :

Viva and diagrams of different Vital Organs



CETC-140

MICROBIOLOGY

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

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

Virology :

- Definition
- General Introduction of Virus
- Physiochemical characteristic of Viruses
- Diseases caused by different Virus and mode of infection

Parasitology :



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- Definition
- General Characteristics of Parasite
- Classification of Parasite
- Mode of transmission

Fungus :

- Definition
- Structure
- Classification

Practical : Staining – Type of Staining, Principal, Procedure and Interpretation



CETC-150

TRIAGE – TECHNOLOGY

TRIAGE AND GENERAL EMERGCIES

- Hospital infection
- Shock, dehydration
- Hypoglycemia & hyperglycemia
- Anaphylaxis
- Extremity trauma
- Head trauma
- General traumatic condition
- Spine injury
- Chest injury
- Abdomen trauma
- Bleeding condition
- Oxygen Therapy



CETC – 160 EQUIPMENT IN EMERGENCY

- BP operatus
- Pulse Oximeter
- Thermometer
- Personal Protective equipment
- MPM monitor
- ABG Analyzer
- Syringe pump
- Infusion pump
- Maintenance Therapy