International Institute of Vocational & Advance Training

In The Collaboration with

Council of Community Medical

&

Health Awareness Organization, India

SYLLABUS

OF

Certificate in Medical lab Assistant

Duration 6 months

Course	Subjects
CMLT	Human Anatomy, Physiology and Immunology
	General Laboratory Principles, BasicHeamatology, Biochemistry, Microbiology and Pathology
	Laboratory Principles, Basic Heamatology, Biochemistry, Microbiology and Pathology-Practicals

CERTIFICATE PROGRAMME

CORE- I

HUMAN ANATOMY, PHYSIOLOGY AND IMMUNOLOGY

Objective:

To promote an integrated approach to the study of various organs with their functions and Immune systems in man.

UNITI

HISTOLOGY: Cell, tissue, organs and organ system - Skeletal system - Osteology

GASTROINTESTINAL SYSTEM: Alimentary canal and its various glands - Function of liver and liver function tests

UNITII

RESPIRATORY SYSTEM: Trachea, lungs including other air passages - Functional anatomy of respiratory system, mechanism of breathing and exchange of gases in the lungs.

MUSCULAR SYSTEM: Structure - Types of muscles in human body - Important muscles and their group action - Innervation of muscles.

UNITIII

IMMUNE SYSTEM: Types of immunity - Innate immunity and its type - Factors involved in innate immunity - Acquired immunity – Active and passive – Antigen – Antibodies - Immune Response - Pregnancy test – ELISA - Auto immune diseases.

UNITIV

LYMPHATIC SYSTEM: Lymph vessels, lymph nodes and lymphoid organs - Their structure and functions.

EXCRETORY SYSTEM: Structure and function of kidney, ureter, urinary bladder, skin and its derivatives.

SPECIAL ORGANS: Eye, ear, nose, taste buds and subcutaneous organs – Physiology of vision, hearing test and olfaction.

UNITV

NERVOUS SYSTEM: Central, peripheral nervous system - Neuron and its function - Autonomic nervous system

ENDOCRINE SYSTEM: Hormones - Pituitary, thyroid, parathyroid, adrenal glands and gonads.

Text book:

1. Medical Laboratory Technology, Procedure manual for routine diagnostic tests by Kani L Mukherjee and Swarajit Ghosh. 2nd Edition (Volume I - III) Mc Graw Hill Pub.(2010).

Books for Reference:

1. Manual for Medical Laboratory Technology by S. Raja, Anjana book house Chennai.

2. Text Book of Preventive and Social Medicine by K. Park, M/s Banarsidas Bhanot (Publishers), 1167, Prem Nagar, Jabalpur – 482001, India, 2009.

3. Text Book of Pathology by C.K. Shiha and Kr. Pankaj, Vijay Bhagat, Scientific Book Company, Ashok Rajpath, Patna – 800004, 2005.

4. Text Book of Anatomy, Physiology and Health Education by N. Kumar, A.I.T.B.S. Publishers, J- 5/6, Krishan Nagar, Delhi – 110 051, India, 2009.

CORE - II

GENERAL LABORATORY PRINCIPLES, BASIC HAEMATOLOGY, BIOCHEMISTRY, MICROBIOLOGY AND PATHOLOGY

Objective:

To understand the application of laboratory and diagnostic medical instruments and to study different parameters of Human Blood.

UNIT I

LABORATORY TECHNOLOGY: Introduction and scope - Rules and regulations followed in Lab – maintenance of Records, samples and their collecting methods – Role of Anticoagulants and its types - Basic Instrumentation – pH meter, Autoclave, Incubator, Calorimeter – principles and working methodology.

UNIT II

PHYSIOLOGY OF DIGESTION: Absorption and metabolism - Properties and functions of Carbohydrates, Proteins, Lipids and Minerals – Enzymes – Nucleic acids - DEPROTEINISATION OF BLOOD ESTIMATIONS: Sugar, CTT, Urea, Cholesterol - Triglycerides, Uric acid, A/G ratio, Phosphorous.

UNIT III

LABORATORY BIO SAFETY PROCEDURES: First Aid - Handling of infectious materials - Classification and Morphology of bacteria - Disinfection and sterilization - Culture media and their preparation - Culture techniques - Culture characteristics - Isolation of pure culture and maintenance of stock culture.

UNIT IV

Blood: Collection of blood (Venous and Capillary) Preservation of blood – Importance of blood bank, anticoagulants used in blood bank - ABO Blood grouping Rh typing - Blood transfusion.

UNIT V

COMPONENTS OF BLOOD: Total RBC count – Total leucocytes count - Differential count – Hemoglobin estimation, ESR, PCV - Bleeding and clotting time - Platelet count - Coagulation of blood - Importance of blood clotting - Factors involved in blood clotting.

Text book:

1. Medical Laboratory Technology, Procedure manual for routine diagnostic tests by Kani L Mukherjee and Swarajit Ghosh. 2nd Edition (Volume I - III) Mc Graw Hill Pub.(2010).

Books for Reference:

1. Text Book of Practical Medical Lab Technology by Z. Navatha Rao, Rushi bookhouse, Vijayavada.

2. Text Book of Practical Medical Laboratory Technology by C.R. Maiti, New Central book agency (P) Ltd, Kolkata.

3. Manual for Medical Laboratory Technology by S. Raja, Anjana book house Chennai.

4. Text Book of Preventive and Social Medicine by K. Park, M/s Banarsidas Bhanot (Publishers), 1167, Prem Nagar, Jabalpur – 482001, India, 2009.

CORE –
III

LABORATORY PRINCIPLES, BASIC HAEMATOLOGY, PATHOLOGY, BIOCHEMISTRY, MICROBIOLOGY AND PATHOLOGY

Objective

To develop skill in handling clinical laboratory equipments; and to obtain a holistic knowledge on pathology, biochemistry, microbiology and haematology parameters.

Experiments

1. Identification of RBC, WBC and platelets
2. Hb estimation
3. RBC total count
4. WBC total count
5. WBC differential count
6. ESR estimation
7. PCV estimation
8. Clotting time
9. Bleeding time
10. Hanging drop preparation
11. Inoculation and culture techniques
12. Bacterial colony counting
13. Mantoux test
14. Isolation and identification of pathogenic microbes from wounds, pus, faeces, Sputum and urine.