

CLINICAL LABORATORY TECHNOLOGY

Course code: TANMB003

Hours: 30Hrs

I General aspects of laboratory safety

- Role of Medical Laboratory technologists – ethics of laboratory practice. Laboratory safety –Common lab accidents their prevention and their first aid. Bio-Medical Waste Management - Legal Aspects and Environment Concern

II Haematology

- Various methods of blood collection - Venipuncture and collection of blood samples, Preparation of blood films, staining of blood smears, Manual count of blood cells. Blood components separation – serum and plasma. Haematocrit, ESR, blood volume measurements. RBC, WBC & platelet counts. Functions of RBC, WBC and platelets.

III Sample preparation and processing

- Clinical sample - collection, transport and processing, Examine and analyse of body fluids, tissues and cells. Examination of urine, pus, blood, stool and CSF. Culture media preparation.

IV Biochemistry

- Estimation of serum urea, Creatinine, uric acid, calcium and phosphorus. Demonstration of serum electrophoresis, PCR, ELISA.

V Pharmacology

- Different branches of Pharmacology, Routes of drug administration, Absorption, Distribution, Metabolism and excretion of drugs, Animal used in experiments, Animal handling and ethics.

ADVANCES IN PLANT TISSUE CULTURE

Course code MDTMB004

Hours: 30

- Sterilization and culturing of seeds, bulbs, leafs, stems, roots, suckers, and flower buds etc.
- Seed germination, Embryo culture and embryo rescue after wide hybridization.
- Meristem tip culture for virus elimination.
- In Vitro pollination and Fertilization.
- Cell suspension culture.
- Organogenesis and embryogenesis.
- Protoplast isolation and fusion (Somatic hybrid production).
- Secondary metabolite production,
- Somaclonal Variations,
- Agrobacterium mediated gene transfer,
- Gene transfer by biolistic method.
- Amplification of DNA.
- Study of DNA polymorphism.
- Cultivar identification using PCR,
- Studying genetic diversity using PCR,
- DNA fingerprinting by using PCR,
- Screening of varieties for characterization,
- Detection of transgene by using PCR,
- RAPD, AFLP, SSR analysis.
- Primer Designin

References:

1. An introduction to plant biotechnology by H. S. Chawala.
2. Biotechnology in crop improvement by H. S. Chawala, International book distributing co. Lukhnow.
3. Plant Biotechnology – Practical Mannual by C. C. Giri and Archana Giri, I. K. International Publishing house, Mumbai.
4. Biotechnology by B. D. Singh, Kalyani publishers.