



## **Key Features:**

- Hands on Experience on various biotechnology techniques
- Multidisciplinary training under one roof
- All the modules are designed to fulfill the requirement of Biotech / Pharma / Testing Lab / PTC Labs / Food Companies etc
- Hands on experience on various sophisticated instruments like; PCR , Real Time PCR , Microarray , HPLC , GFC etc.
- Job Oriented

## **Module: I ( Microbial Techniques )**

### **General Microbiology:**

- Preparation and Sterilization of equipment and Culture Media ( GLP )
- Lab QC
- Isolation of culture media from different sources
- Isolation and identification of fungal species

### **Pharmaceutical Microbiology :**

- Endotoxin Test - Strategies for detecting interference; validation of special treatments to overcome interference and validation of the test for endotoxins by performing the Pharmacopeial Test for Interfering Factors.
- MIC Test
- Testing of antibiotics
- Sterility testing of injectables
- Bioassay of Vitamins

### **Water & Food Microbiology :**

- Total Plate Count
- Counts of Yeast and Molds
- Isolation and identification of E.coli , Salmonella , Shigella , Vibrio etc
- Pathogen Analysis: Proficiency To analyze Food & Water related microorganism
- Preservative Efficacy Test

### **Clinical Microbiology :**

- MIC Determination
- ESBL Detection
- Blood culture techniques
- Urine culture & analysis
- Isolation of microflora from sputum

### **Reporting :**

- Maintenance of Data ( BIS Std)
- Quality Audit Tool Kit ( GMP , GLP, HACCP)
- Reporting of clinical samples

## **Module: II ( Molecular Biology )**

### **Isolation Techniques:**

- General Technique of Plasmid DNA Isolation
- Purification of Plasmid DNA by Precipitation with Polyethylene Glycol
- Genomic DNA isolation
- Isolation of Total RNA

### **Electrophoresis Techniques:**

- Recovery of DNA from Agarose Gels: Electrophoresis onto DEAE-cellulose Membranes
- Recovery of DNA from Agarose and Polyacrylamide Gels: Electroelution into Dialysis Bags
- Alkaline Agarose Gel Electrophoresis
- Neutral Polyacrylamide Gel Electrophoresis
- SDS - PAGE

**Blotting Techniques :** Western, Southern, northern

### **Recombinant DNA Technology :**

- Directional Cloning into Plasmid Vectors
- Blunt-ended Cloning into Plasmid Vectors
- Performing Plasmid Ligation
- Preparation and Transformation of Competent E. coli Using various techniques
- agrobacterium mediated transformation in Plants

### **PCR Techniques**

- PCR and its optimization
- Amplification of genomic DNA and cDNA
- RNA amplification
- Clinical and Forensic applications
- Purification of PCR Products in Preparation for cloning
- Blunt-end Cloning of PCR Products

### **DNA Fingerprinting :**

- Basics of DNA Fingerprinting
- DNA Fingerprinting through RAPD
- DNA scoring & software analysis

### **Microarray Technology :**

- Introduction of microarray technology
- Technical aspects and role of Gene on chip Affymatrix Fluidic Station
- Technical aspects and role of Agilent Gene Array Scanner
- Hybridization techniques
- Data analysis

## **Module: III ( Protein Engineering )**

- Isolation of Protein from various biological Samples
- Separation of Protein through Gel Filtration Chromatography
- Estimation of Protein by Lowry's Method
- Determination of Protein by Bradford's Method
- Characterization of Protein through SDS- PAGE

**Module: IV ( Analytical & Pharma Chemistry)**

- Quantitative and Qualitative Analysis of Na, K, Li & Ca
- Moisture Content Analysis
- End Point Detection of Chloroquine Phosphate , Estyle Salicylate etc.
- Nitrogen Estimation
- To perform assay of different Pharma Formulations
- To perform Qualitative and Quantitative Analysis of various inorganic salts
- **Basics of HPLC**

**Module: V ( Immunology )**

**Module: VI ( Tissue Culture )**

- Sterile techniques and safety procedures
- Preparation of media for tissue culture
- Initiation and maintenance of primary cell culture
- Genetic Transformation
- Anther Culture
- Root Culture
- Callus Culture

**Module: VII (Basic Bioinformatics)**

Basic knowledge of Bioinformatics Databases , Tools and Analysis

**Module: VIII ( IPR )**

- Patent Law & Procedure
- Patent Specification Drafting
- Patent Searching
- Drafting of other patent related documents

**Module: IX Project Work :**

Trainee will work on a project along with this module

**Duration:** Six Months

**Eligibility:** Researchers/ Masters / Bachelors of Life Science Stream

**Service Fee:** Rs 35,000/-

**Admission :** Any time throughout the year ( If Seats are available)