

## Training on Spectrophotometry, HPLC & GC

### Key Features:

- Hands on Experience on Spectrophotometry , HPLC & GC
- Routine use in Pharma and other Life Science Industry for Quality Control
- Extensive use in Research for Life Science
- Job Oriented

### Module I: Basics of Laboratory

- Handling of Instruments
- Laboratory Safety Protocols
- Calibration of Instruments
- Preparation of Solutions
- Functions of chemicals & solutions

### Module II: Analysis of Samples through UV –Vis Spectrophotometry

- Solution Preparation
- Cuvette Handling
- Determining the Analytical Wavelength
- Sample Analysis
- Qualitative and Quantitative analysis of Nucleic Acids
- Qualitative and Quantitative analysis of Protein Samples
- Analysis of Drug in Combination

### Module II: Analysis of Samples through Flame Photometry

- Introduction to Instruments
- Principal of Flame Photometry
- Analysis of Inorganic Salts through Flame Photometry

### Module III: Introduction to HPLC

- Basic principles of HPLC
- Introduction to HPLC Pump

- Introduction to Auto Samplers and Injectors
- Introduction to HPLC Detectors
- Introduction to Chromatography Software

#### **Module IV: HPLC Troubleshooting & Maintenance**

- Identification of Issues
- Maintenance of Pumps , Autosamplers & Detectors
- Calibration of Pump Flow , Autosampler Volume and Detector Wavelength
- Optimization of Chromatograph – Base Line , Peak Shape , Retention Time Drift etc

#### **Module IV: HPLC Method Development**

- Defining the resolution, run time, specificity, accuracy, precision, limit of detection, etc
- Identification of key variables for retention, selectivity, and efficiency
- Column selection & handling
- Sample concentration, injection solvent, injection solvents
- Reverse phase HPLC
- HPLC Solvent Selection
- Ion Pair Chromatography
- Gradient HPLC
- Validation of HPLC Methods
- HPLC Solvent Selection

#### **Module IV: Separation of Biopharmaceuticals through HPLC**

- Column and mobile phase selection for reversed-phase, ion-exchange and size-exclusion chromatography
- Sample Preparation
- Column selection
- Run HPLC
- Peak Identification
- Analysis

#### **Module III: Introduction to Gas Chromatography**

- Basic principles of Gas Chromatography
- Introduction to GC Detectors
- Introduction to Auto Samplers and Injectors
- Introduction to Chromatography Software

#### **Module IV: GC Troubleshooting & Maintenance**

- Identification of Issues

- Maintenance of GC Inlets , Detectors ( FID , ECD ) and Column Installation and storage
- Testing of Inlets of Leaks
- Establishment of Proper Split Flows
- Calibration of Gas Control System & Flow
- Optimization of Chromatograph – Base Line , Peak Shape , Retention Time Drift etc

#### **Module IV: GC Method Development**

- Establishing Method Objectives
- Mechanisms of Separation
- Sample Preparation Protocols
- Column Selection
- Detector System Choice / Operation
- Optimization of Chromatographic Parameters
- Capacity Factor (k), Efficiency (N), Selectivity (  $\alpha$  ) and Resolution (R)
- Temperature Effects
- Appropriate Methods of Quantitation

#### **Module IV: Separation of Biopharmaceuticals through HPLC**

- Sample Preparation
- Column selection
- Run GC
- Peak Identification
- Analysis

**Duration:** 3 Months from date of joining

**Eligibility:** Masters or Bachelors from Life Science / Pharma ( Studying or Passed out)

**Service Charge:** Rs 20,000/-

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