Instruments covered for training:

1. **HPTLC (High Performance Thin Layer Chromatography)**
2. **Plant Growth Chamber**
3. **Atomic Absorption Spectrophotometer**
4. **UV-Visible Spectrophotometer**
5. **Portable Photosynthetic System**
6. **HPLC (High Performance Liquid Chromatography)**
7. **FT-IR (Fourier Transform Infra-Red spectroscopy)**

High Performance Thin Layer Chromatography (HPTLC)

Make: Lamag
Model: TLC visualizer 2
Applications: HPTLC is used for purity control of chemicals, pesticides, steroids, and water analysis. It is also widely used for analysis of vitamins, water-soluble food dyes, pesticides in fruits, vegetables, and other food stuffs. HPTLC is useful in detecting chemicals of forensic concern, including abuse drugs, poisons, adulterations, chemical weapons, and illicit drugs.

Portable photosynthetic system

Applications: A portable instrument used for determining the photosynthesis rate of plants. With an affordable price, this is a robust and reliable system with a very good technical specification and yet simple to use design. All the features are fully integrated into a field portable, lightweight package that is particularly well suited to teaching and researching purposes.

UV-VIS spectrophotometer

Make: Systronics

Model: 117

Applications: UV visible spectroscopy technique is applied as a quantitative technique in various market segments such as food and beverages, pharmaceutical, chemical, water testing, and biotech industry. The position of absorbance peaks in the spectrum provides information about the molecular structure of the sample

Plant Growth Chamber

Make: SR Labs Instruments

Model: ISO 2001:2008

Applications: Plant growth chambers can be used for a variety of purposes such as genetic experimentation and crop breeding, other components of plant physiology include photosynthesis and nutrition.

Atomic Absorption Spectrophotometer (AAS)

Make:

Model: ICE 3300 AA System

Applications: AAS finds wide application in fields that vary from mining to pharmaceuticals, environmental control and agriculture. Similarly, the food, cannabis and health supplement industries make use of AAS to ensure that their products are safe for consumption. The analysis of drinking water is probably one of the most important applications of AAS, especially in places where the environment is not properly cared for.

High Performance Liquid Chromatography (HPLC)

Model: Shimadzu - Japan

Applications: **High-performance liquid chromatography** (**HPLC**), formerly referred to as **high-pressure liquid chromatography**, is a technique in analytical chemistry used to separate, identify, and quantify each component in a mixture. It relies on pumps to pass a pressurized liquid solvent containing the sample mixture through a column filled with a solid adsorbent material. Each component in the sample interacts slightly differently with the adsorbent material, causing different flow rates for the different components and leading to the separation of the components.

Fourier Transform InfraRed spectrometer (FT-IR)

Make: Bruker optics - Germany
Model: TENSOR27
Applications:

FTIR spectrometer is an important scientific instrument in various research, analytical and Quality control laboratories for identification and characterization of various sample substances. This instrument will provide information about interaction of vibrational radiation with matter, thermal and mechanical properties of materials, catalyst characterization, and their kinetic and thermodynamic properties.