



Holy Cross College (Autonomous) **Tiruchirappalli – 620 002**

Affiliated to Bharathidasan University

Nationally Accredited (4th Cycle) with 'A ++' Grade (CGPA 3.75 / 4) by NAAC

College with Potential for Excellence

DST-FIST Sponsored College of Excellence 'Star College' Status by DBT

Tiruchirappalli – 620 002.



PRECISION IN RESULTS

CENTRALIZED INSTRUMENTATION FACILITY (CIF)



About CIF

- The Centralized Instrumentation Facility (CIF), was established by Department of Science and Technology (DST).
- The Purpose of establishing these centres is to provide data collection facility from analytical equipments to scientific community for their advanced research with nominal charges.
- The Facility has grown into a major centre for spectral measurements, molecular and crystal structure determination and materials characterization.



OBJECTIVES

- To carry out analysis of samples received from academics, research institutions and other organizations.
- To provide instrumental facilities for analyst as an outsource, to undertake project and research works.
- To organize periodic short-term workshops on the application of various spectroscopic and analytical techniques for students, teachers and personnel.
- To carry out and support various sponsored research project



FACILITY

- **Hitachi UV-Visible Spectrophotometer (U-2910)**
- **Jasco Raman Spectroscopy (PR-1w)**
- **Thermo Fisher TRACE GC ULTRA GC-MS/MS (ITQ 900)**
- **Shimadzu FTIR IR Affinity-1 (Miracle 10)**
- **Bruker Powder X-Ray Diffraction (D8 Advance)**
- **Agilent Technologies HPLC (1220) Infinity LC**
- **Ivium Technology Electrochemistry Vertex Work Station (V-55648)**

UV VISIBLE SPECTROPHOTOMETER



MAKE : HITACHI

MODEL : U-2910

SAMPLE TYPE

- **LIQUID**

APPLICATION

- **UV absorption spectrophotometer is the best method for the determination of the purity of organic compounds.**
- **If any impurities are present in the organic compounds then the additional peaks appear at the specific wavelength in the spectrum.**

PALMTOP RAMAN SPECTROMETER



MAKE : JASCO

MODEL : PR-1W (Spec : 785nm)

SAMPLE TYPE

- **SOLID**
- **LIQUID**
- **THIN-FLIM**

APPLICATION

- **To Identify Functional Group of Chemical compounds.**
- **Raman scattering is about a million times less intense than Rayleigh Scattering.**

POWDER X-RAY DIFFRACTION (XRD)



MAKE : BRUKER

MODEL : D8 ADVANCE

SAMPLE TYPE

- **SOLID**
- **THIN-FLIM**

APPLICATION

- **Measurement of sample purity.**
- **Identification of fine-grained minerals such as clays and mixed layer clays that are difficult to determine optically.**
- **Study of change in crystalline phase via the position of the diffraction peak.**

ATOMIC ABSORPTION SPECTROMETRY (AAS)



MAKE : AGILENT TECHNOLOGIES

MODEL : AA 55

SAMPLE TYPE

- **LIQUID**

APPLICATION

- **Its commonly identifying metal elements in various samples.**

AVAILABLE ELEMENT

- **Cu, Cr, Fe, Ni, Pb, Zn**

GAS CHROMATOGRAPHY MASS SPECTROMETRY (GC-MS/MS)



MAKE : THERMO FISHER

MODEL : TRACE GC ULTRA (ITQ 900)

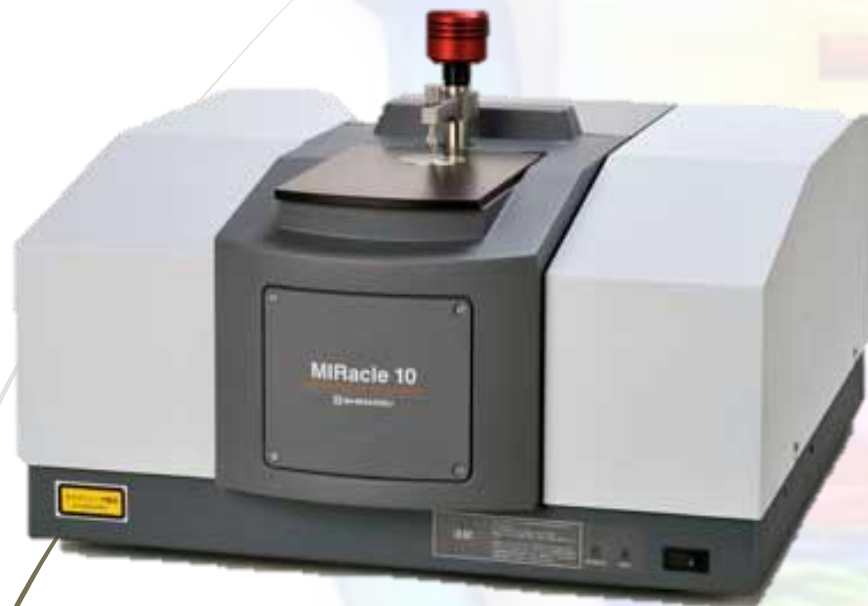
SAMPLE TYPE

- **SOLID**
- **LIQUID**

APPLICATION

- **GC-MS/MS provides enhanced sample identification, higher sensitivity, an increased range of analyzable samples, and faster results.**
- **A tandem mass spectrometer is used which allows us to select specific analytes for individual fragmentation. This allows more complex mixtures to be analysed more readily.**

FOURIER TRANSFORM INFRARED SPECTROPHOTOMETER (FTIR)



MAKE : SHIMADZU

MODEL : AFFINITY-1 (MIRACLE 10)

SAMPLE TYPE

- **SOLID**
- **LIQUID**

APPLICATION

- **It is also utilized for functional group identification in unknown compounds.**
- **It is used to identify reaction components and conduct kinetic studies on reactions.**

HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC)



MAKE : AGILENT TECHNOLOGIES

MODEL : 1220 INFINITY LC

SAMPLE TYPE

- **LIQUID**

APPLICATION

- **Product purity and quality control of industrial products and fine chemicals.**
- **Separation and purification of biopolymers such as enzymes or nucleic acids.**

ELECTRO CHEMISTRY VERTEX WORKSTATION



MAKE : IVIUM TECHNOLOGY

MODEL : VERTEX (V-55648)

SAMPLE TYPE

- **SOLID**
- **LIQUID**

APPLICATION

- **They provide researchers with the ability to apply controlled potentials or currents to electrodes and measure the resulting electrochemical reactions.**
- **These workstations play a crucial role in various fields, such as battery technology, corrosion studies, material characterization, and fundamental research.**



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