UNIVERSITY SCIENCE INSTRUMENTATION CENTRE (USIC)

The University Grant's Commission desires that every Central University must have University Instrumentation Centre. The creation of such centre is becoming obligatory for every university for the reasons that the modem day science demands the use of the precision equipments for the acceptability of the data. Such centers on one hand helps stop the duplication of the sophisticated equipments, which costs huge amounts of money and in turn helps in regulating the use of the sanctioned money in most judicious ways.

Our university has established USIC with an allocation of Rs. 2.00 crores to start with, which is housed on the ground floor of the School for Environmental Science building. Three precision equipments, viz., **Fourier Transform Infra-Red Spectrometer (FTIR)** of Thermo-Scientific (Nicole 6700); **Fast Performance Liquid Chromatograph (FPLC)** of GE-Healthcare Bio-Science (AKTA 10); and **Scanning Electron Microscope of JEOL (JSM 6490 LV)**.

Figure 1. Fast Performance Liquid Chromatograph (FPLC)

The FTIR has been supplemented with an accessory called attenuated Total Reflectance (ATR) to enhance the use and application of the instrument in a way that with this facility any form of material, i.e., filmy/papery; liquid, including liquids of flammable nature may be studied; rather that its limited use of getting spectra of the solids on the powdered form through making pellet by mixing the same with the KBr under a hydraulic press.

Figure 2. Fourier Transform Infra-Red Spectrometer (FTIR)

The FPLC (main AKTA 10) has been provided with other

accessories which include Sephadex G75, Sephacryl S-200, Deae Sepharose Fast FL, CM Sepharose fast flow short & long column holders, AKTA user kit etc. to make the facility of broader usage.

The SEM model JSM 6490 is the instrument which may be used both under low & high vacuums depending on the nature of the specimens. Low vacuum with low kV (energy) provides the user the longer duration for scanning the material, the organic specimens, before it is charged. The instrument has been coupled with an optional accessory, viz., EDS 133, EV Dry Detector (INCAx-act) of OXFORD instruments, UK, which has enhanced the application range in a manner that any matal associated with the biological material or in isolation or in the form of alloy may be identified and also quantified. The SEM facility has also been supported with the two important preparatory units, viz., Ion Sputter Coater, of JEOL, Japan (JFC 1600, Auto Fine Coater) and Critical Point Dryer (CPD) Emitech K 850 of Quorum Technology of UK.

Figure 3. Scanning Electron Microscope of JEOL (JSM 6490 LV)

Profile:

The USIC of the University has a Coordinator and an Advisory Committee consisting of all the Professors of the Science Stream Departments.

For contact:

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PROFORMA FOR INTERNAL USERS

Requisition Form for | SEM | FTIR | FPLC |

Requisition No._____

a. Name, Designation & Address of Supervisor with Telephone Number and **Email ID** _____

b. Name & Designation of user with Telephone Number and **Email ID** _____

c. Name of the Specimen / Tissue _____ from Animal / Plant / Others

d. Name of the fixative used _____ duration _____ Orientation required for viewing (SEM).

e. Number of specimen to be processed for the proposed thesis / research work. Total _____ Current _____

f. Name of the Project or Title of the proposed Thesis / Dissertation work _____

g. Name of the Funding Agency (in case of funded Project) _____

h. Please give details of previous publications, if any, emerging out of the work carried out at the USIC by your group. The chief investigator / supervisor is requested to certify that he/she will provide information on publications in due course as it is require to maintain the record.

Signature of Supervisor	**Signature of Head**	**Signature of Dean**
Date & Official stamp	**Date & Official stamp**	**Date & Official stamp**

Note: 1. In case of immersion fixation, minimal time should elapse between animal biopsy & fixation. Tissues should be fixed in 2.5% glutaraldehyde & 2% paraformaldehyde (PF), in 0.1 M phosphate buffer (pH 7.4) for 6-12 hr (depending on tissue type) at 4oC. The fixed specimen should be transported in phosphate buffer.

2. A maximum of 10 samples per performa will be accepted. Samples will be received between 11.00 A.M. – 03.00 P.M. Booking for SEM viewing will be done at the time of depositing the samples.
3. Due acknowledgement should be given to USIC, B. B. Ambedkar University, in the research publication emerging out of the work carried out at this Facility.
4. The USIC facilities are available only to the internal members of BBAU, therefore, samples of Non-BBAU members will not be considered.

FOR OFFICIAL USE ONLY

Requisition No. _____ Date_____

A. Work Report: SEM

S. No.	Sample received		Specimen prepared (up to dehydration)		CPD		Coating prepared		Image Analysis / EDS	
	Date	No.	Date	No.	Date	No.	Date	No.	Date	No.
1.										
2.										

C. Allotment of time: SEM (HV/LV)

S.No.	Date	Register Ref.	Hours.	No of Images	Technical Support
1.					
2.					
3.					
4.					
5.					

Date_____

Staff-in-Charge (Technical)
USIC, B.B.A. University
Lucknow

Coordinator
USIC, B.B.A. University
Lucknow