

LIST OF LABORATORY INSTRUMENTS WITH THEIR BRIEF DESCRIPTION, FUNCTIONALITIES AND CHARGES FOR ANALYSIS OF SAMPLES


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The Demand Draft should be in favour of "**Director, ICAR-NBSS&LUP, Nagpur**"



Mention Instruments Code & Charges (GOODS AND SERVICE TAX 18 %)


| Sr. No. | Instruments Code | Description | Charges per Sample (in Rs.) Without Tax | Instruments Photo |
|---------|-------------------|--|---|--|
| 1 | | <p>Inductively Coupled Plasma – Atomic Emission Spectrometry (ICP-AES) – Prodigy By M/s Teledyne Leeman Laboratory, Hudson, USA Installed in 2005</p> <p>Functionalities</p> <ul style="list-style-type: none"> • A powerful tool for determination of metals in soils and plant material • Simultaneous multi-elemental analysis without interference • High accuracy and quick analysis of soil Micronutrient and secondary elements Viz : Cu, Zn, Fe, Mn, K, P, B, Mo. Si, Al, Ti, Zr, Ba, Cd, Cr, Co and Ni | |  |
| | SRS-ICPST | Total elemental analysis (per element) | 1000/- | |
| | SRS-ICPSMS | Micronutrient element (DTPA) (per sample) | 2000/- | |
| | SRS-ICPSME | Micronutrient element (DTPA) (per element) | 500/- | |

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| 2 | SRS-AAS | <p>Atomic Absorption Spectrophotometer (AAS)</p> <p>1. M/s Perkin Elmer – Analyst-100 USA make Installed in 2002</p> <p>2. JBC, 810 model, Australia, installed in 2000</p> <p><u>Functionalities</u></p> <ul style="list-style-type: none"> • Quick and accurate analysis of soil and plant extractant for Cu, Zn, Fe, Mn, Na, K, Ca, and Mg (air acetelene). These elemental analysis is possible due to availability of the particular elemental cathode lamps. • Separate reading for analysis of each element <p>Charges for analysis (per element per sample)</p> | 500/- |  |
| 3 | SRS-SEM | <p>SCANNING ELECTRON MICROSCOPE (SEM)</p> <p>Scanning Electron Microscope – Inspect S. (D-8858) Model By M/s FEI Company, Oregon, USA, Now under Thermao Fisher Scientific, Service Provider: M/s ICON Analytical Equipments, Mumbai Installed in 2008</p> <p><u>Functionalities</u></p> <ul style="list-style-type: none"> • Identification of minerals in soils and clays or mineral surface • Study morphology of mineral • High resolution microscopic images can be interpreted for subtle pedogenic process occurring in soils. These process imprints its signatures which are important for developing hypothesis ofn genesis of soils in the past and predictions of soil behaviour for the future. | 3000/- |  |

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| 4 | | <p>X-Ray Diffractometer M/s Panalytical; Philips X-pert Pro Model Installed in 2005</p> <p>Functionalities</p> <ul style="list-style-type: none"> • X-ray diffraction is used for characterization studies of crystalline species in a material. • A wide array of minerals is present in soils of different fractions (sand, silt and clay) • Qualitative as well as quantitative mineralogical composition can be determined through XRD technique. • Since minerals are associated with soil colloids they are drivers of governing nutrient and water holding as well as charge characteristics. • Mineralogical composition is essential for interpretation of soil behavior to management interventions. | |  |
| | SRS-XRAYP | In powder | 3000/- | |
| | SRS-XRAYC | Clay (3-30°A) from soils/sediments | 3000/- | |
| | SRS-XRAYM | Mineral identification (Clay) | 2000/- | |
| 5 | SRS-CHN | <p>Carbon & Nitrogen Analyzer; CHN Analyzer (Model: EuroEA3000, Euro Vector, Italy) Installed in 2016</p> <p>Functionalities</p> <ul style="list-style-type: none"> • Analysis of total carbon (C) and total nitrogen (N) from soils and fertilizers (if required) • Used for analysis of total C and N through only three basic steps: sample combustion at high temperature, fast separation of the resultant gaseous species and Thermo Coupled Detection (TCD). <p>Analysis - Total C&N</p> | 2000/- |  |

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| 6 | SRS-AANPK | <p>Auto Analyzer for NPK Continuous flow analysis mechanism M/s Skalar, The Netherlands Installed in 2017</p> <p><u>Functionalities</u></p> <ul style="list-style-type: none"> • Accurate and easy measurement for major nutrients of soils extracts. • Air bubbles are added to the flowing analytical stream to segment stream of samples and reagents. • The samples and reagents are brought together under controlled conditions in the mixing coils that are part of the manifold causing chemical reaction that produces colour • The colour is read in the spectrophotometer. | |  |
| 7 | SRS-UVS | <p>UV-VISIBLE Spectrophotometer (UV-2600), Shimadzu</p> <p><u>Salient features:</u> Automatic Wavelength Calibration (200-900 nm) Selection of Wavelength and Positioning of the sample holder manual 2 position cuvette holder for 10 mm path length cuvettes. The elements that can be analysed are, Fe, P and S.</p> | |  |

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|---------|------------------|--|---|--|
| 8 | RSA-PME | <p>Pressure Membrane Extractor (1600) Soil Moisture Equipment Co. California, USA.</p> <p>The Pressure Membrane Extractor incorporates disposable cellulose membranes in the extraction of water from soil samples over a pressure range of 0 to 15 bars. The Pressure Membrane Extractor includes pressure cookers for water retention up to 3 bar and 15 bar equivalent pressure and suitable ceramic plates.</p> | |  |
| 9 | RSA-SPM | <p>UV-VISIBLE Spectrophotometer (UV-2450), Shimadzu</p> <p><u>Salient features:</u> Automatic Wavelength Calibration (200-900 nm) Selection of Wavelength and Positioning of the sample holder Automatic 2 position cuvette holder for 10 mm path length cuvettes. The elements that can be analysed are P and S.</p> | |  |

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| 10 | RSA-FLM | Flamephotometer (Elico-CL 378) The instrument is Microprocessor based, User friendly, Menu driven with Automatic ignition. The elements that can be analysed are Na and K. | |  |
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