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| AAS- Atomic Absorption Spectrophotometer (Low Cost Model), 190 - 900nm | **Atomic Absorption Spectrophotometer**  **Name of the equipment:**  Atomic Absorption Spectrophotometer  **Make & Model:**  Perkin Elmer PinAAcle 900F  **I-Stem Registration ID-**  3222318  **Category of Instrument**   * Advanced Manufacturing facility * Characterization & Testing * Computational Facility * Bioscience & Technology * Sample preparation   **Types of Analysis / Testing**   * Elemental analysis (metals and semi-metals) * Quantitative determination in liquid/solid samples   **Application:**   * Heavy metal detection in water, soil, and industrial waste * Food safety (trace metal contaminants) * Pharmaceutical and chemical industry quality control * Metal Detection in Archaeology, Mining, Forensics, Manufacturing etc.   **Description of Instrument**  A high-performance flame AA spectrometer with a true double-beam design for fast startup and long-term stability. Features fiber-optic light throughput for improved detection limits, an 8-lamp turret, and automated flame optimization. Controlled by Syngistix™ for AA software for streamlined workflows, with optional 21 CFR Part 11/EU Annex 11 compliance for regulated labs. |

**Booking Details**

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| **Book through I-STEM:**  <https://www.istem.gov.in/>  **Slot Booking Link**  [I-STEM Slot Booking link for External User](https://www.istem.gov.in/equipment-info/22318/Atomic-Absorption-Spectrophotometer-Flame) | **Booking available for**  Internal and External Both  **Requisition form for**  [Internals](https://randc.nitc.ac.in/pdf/instruments/civil/CED-REQUISITION_FORM_Internal.pdf)  [Externals](https://randc.nitc.ac.in/pdf/instruments/civil/CED-REQUISITION_FORM_Internal.pdf) |

**Contact Details**

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**Features, Working Principle and Specifications**

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| **Features of the equipment**   * Double-beam optics for stability & precision * 8-lamp turret with automatic alignment * Fiber-optic light path for enhanced sensitivity * Automated flame/burner optimization * Syngistix™ software with compliance options | **Unique features/Measurement capabilities, if any**   * Fast startup (<10 min) with self-diagnostics * Detection limits: Low ppm to sub-ppm range * TurboCharge nebulizer for improved uptake |
| **Instrument Technical Description and Major Specifications** *(This Specifications Limited to Major 5)*   * Wavelength Range: 190–900 nm * Spectral Bandwidth: 0.2, 0.7, 1.4 nm * Flame Types: Air-Acetylene / Nitrous Oxide-Acetylene * Burner Head: 10 cm titanium * Lamp Mount: 8-position auto-switching | **Measurement/Sample specifications:**   * Sample State: Liquid (acid-digested) * Volume Required: 2–5 mL (flame) * Pre-Preparation: Acid digestion (HNO₃/HCl) for solids * Detection Elements: Pb, Cd, Cu, Zn, Fe, etc. |

**Type of Sample Required for Analysis / Testing (Quantity, Pre-Preparation, State etc.)**

* **Quantity:**
  + Minimum 20 mL of liquid sample per element (filtered through 0.2 μm filter)
  + Volume may vary based on expected concentration
* **Pre-Preparation:**
  + Samples must be acid-digested (e.g., HNO₃/HCl) if solid/sludge
  + Filtered (0.2 μm) to remove particulates
  + pH-adjusted if necessary (e.g., for preservation)
* **State:**
  + Liquid only (aqueous matrix preferred)
  + No organic solvents without prior consultation

**Guidelines for Sample Submission**

* Standards Required for Quantitative Analysis
  + Provide certified standards for each target element.
  + Each element & standard counts as a separate sample (charged accordingly).
  + If standards are not provided, only absorbance values will be reported (no quantification).
* Sample Processing
  + All samples (standards + unknowns) processed using client-provided method.
  + Raw data only will be provided (no advanced data interpretation).
* Minimum Sample Requirement
  + Batch processing: Minimum 20 total samples (standards + unknowns) per run.
  + Smaller batches may incur additional charges.
* Submission Notes
  + Label samples clearly with element(s) of interest and expected concentration range.
  + Hazardous samples (e.g., HF-containing) require prior approval.

**User Charges Rs. (GST Extra)**

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| **Internal** | **External Academic Institutes** | **National R&D Lab** | **Industry** |
| 200/-  per sample per metal | 400/- per sample per metal | 400/- per sample per metal | 1000/- per sample per metal |