Atomic Absorption Spectrophotometer (AAS):

Avanta M

(GBC Scientific Equipment Pvt Ltd)

The AAS at IIT Roorkee caters to the need of various users from all over the country since 1998. It is used to determine the concentration of metal elements in a sample. The technique makes use of the fact that neutral or ground state atoms of an element can absorb electromagnetic radiation over a series of very narrow, sharply defined wavelengths. The sample in solution is aspirated as a fine mist into a flame where it is converted into atomic vapor. Most of the atoms remain in the ground state and are therefore capable of absorbing radiation of a suitable wavelength. This discrete radiation is supplied by a hollow cathode lamp, which is a sharp line source consisting of a cathode containing the element to be determined along with the tungsten anode. The line characteristic of the element are emitted by the hollow cathode and passes through the flame where they may be absorbed by the atomic vapor, since only the test element can absorb this radiation, the method becomes specific.

Specifications:

- **Sensitivity:** up to ppb level
- **Channels:** Two (Independent or simultaneous)
- **Wavelength range:** 180nm to 900nm
- **Available Lamps:** Al, As, Bi, Ca, Cd, Cu, Hg, Fe, K, Li, Mg, Mn, Na, Ni, Pb, Sb, Zn, Mo, Cr, Sn, Sr, Si, Ba
- **Special facilities:** Zoom lens Optics, Deuterium arc background corrector
- **Probe:** Teflon tubing- 1.6mm OD (0.8mm ID)
**Software:** Avanta Software
**Fuel:** Acetylene
**Oxidants:** Air, Nitrous Oxide

**Applications:**
The application areas of AAS are very wide including environmental analysis, medicines, metal alloys etc.

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**Charges**